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CALIFORNIA CULTIVATOR

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America's Greatest Production Year

SECRETARY MEREDITH'S annual report puts in permanent form several facts. The first and most apparent of these facts is that the agricultural productions of the United States vastly exceeded those of any preceding year. That fact is gratifying and we are inclined to become chesty and call attention to our accomplishments.

The next fact is that "the very foundation of our nation—the stability of our agriculture—is threatened." And this because it now appears there is no reasonable prospect for fair return to the farmer for producing this magnificent crop. It is now generally considered that all the crops of the United States could not be cashed in today and give to the farmer what he has actually spent in their production.

From Mr. Meredith's report we quote:

"The corn crop of 3,199,000,000 bushels is unprecedented, representing more than four-fifths of the world's production. The sweet potato crop of 106,000,000 bushels is the largest ever produced and far in excess of that of any other year except 1919. The rice crop of 52,000,000 bushels is one-fourth greater than the largest crop ever before harvested. The tobacco crop of 1,476,000,000 pounds considerably exceeds any previous yield. The sugar beet crop is more than one-third larger than the largest ever before recorded. The grain sorghum crop of 149,000,000 bushels is 18 per cent above that of 1919, which was itself a record crop. The potato crop of 421,000,000 bushels has been exceeded only once, and then by a very narrow margin. The oat crop of 1,444,000,000 bushels has been exceeded only three times, and the tame hay crop of 88,000,000 tons only twice. The apple crop of 236,000,000 bushels has been exceeded only once, in 1914. The yields of wheat, barley, buckwheat, peaches, peanuts, edible dried beans, flaxseed and cotton are slightly below the average, but they, nevertheless, represent an enormous volume in the aggregate. The number of all classes of livestock on farms, although less than the number in 1919, exceeds by 18,214,000 the average for the five years preceding the outbreak of the European war."

Later he calls attention to the 37 per cent shortage in labor supply, with farmers facing the appalling fact that wages which in 1919 were vastly higher than in 1918, in 1920 took another enormous advance. This advance continued through seeding and harvesting time, but with the harvest came the slump in prices and the inability to cash in. The year's output, produced at abnormally high cost, was worth at current prices $3,000,000,000 less than the smaller crop of 1919, and $1,000,000,000 less than the still smaller crop of 1918.

"The very foundation of our nation—the stability of our agriculture--is threatened. The farmer must have, under ordinary conditions, a reasonable prospect of a fair return for his labor and the use of his capital. The science, the art, and the business of agriculture can not thrive unless he is suitably and profitably paid for the products of his farm—unless he receives compensation sufficient to enable him to continue to produce and to maintain for himself and his family satisfactory standards of living.

"We must adopt every feasible means to enable the farmer to adjust himself to changes in economic conditions, such as have recently occurred. It ought to be a fact that when the farmers of the country produce abundantly the consuming public will be liberally supplied with food at reasonable prices, the farmer taking his profit because of large production and the consumer receiving his increment of benefit from having available an adequate supply at a reasonable cost. In general, we should expect it to be true that the farmer's condition is improved in direct proportion to the number of bushels of wheat or corn and the number of bales of cotton he produces. It frequently happens, however, that when all farmers have extraordinarily good crops during the same year low prices leave him —(Continued on Page 11.)

We Wish for Every Reader
of the
California Cultivator
a Most Successful and
HAPPY NEW YEAR

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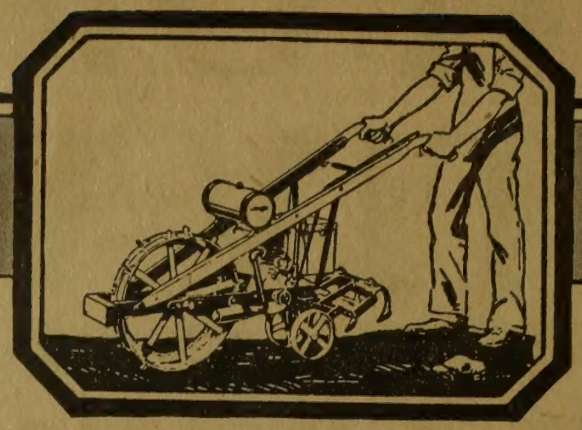
SPRYWHEEL



"Multiplies Manpower by Five- from Seedtime to Harvest"

The $150 Tractor F. O. B. Boston

Why Every Farmer and Gardener Should Use a SPRYWHEEL

Thorough cultivation is the first essential of good farming. Sprywheel was designed to eliminate the drudgery and awful cost of hand hoeing. The Sprywheel won't do everything from breaking new ground to grinding grain, shredding corn, sawing wood and cultivating onions. We don't know of any machine that will do all of these jobs equally well.

But Sprywheel will do any work a hand or wheel hoe can be used for—and it enables one man to do more and better work than any five men pushing hand tools.

Sprywheel practically eliminates hand hoeing, just as the McCormick harvester ended the old, laborious, back-breaking method of harvesting with sickles and scythes. That is how it "multiplies man power by five from seedtime to harvest". That is why every farmer and gardener should use a Sprywheel.

The market gardener knows

how hard and expensive it is to get help for hand hoeing. He knows the necessity for timely cultivation. The market gardener often attempts to overcome the excessive cost of hand hoeing by spacing the rows wide apart so that a horse-drawn cultivator can handle most of his cultivating work. Or he cuts down his acreage. Both are wasteful expedients on high priced, fertile land.

Using Sprywheel, rows can be planted so close together that the plants have just enough room to attain maximum size. Every row can be cultivated as often as necessary. Profits per man and per acre simply multiply.

The half acre home gardener

often limits the size of his garden patch because of the difficulty of getting the cultivating done, doing it himself, or finding time to attend to a garden and at the same time keep the lawn in presentable condition. Sprywheel solves his problem.

Besides all kinds of cultivating tools for weeding, mulching, hoeing and hilling, there is the Sprywheel Lawn Mower Attachment. It can be attached in less than five minutes. It converts the Sprywheel into a *power lawn mower* remarkable for sturdiness, simplicity and effectiveness. Reduces handling a large garden and keeping extensive lawns properly cut to a simple matter of an occasional half hour's work.

For farmers who raise staple crops

—tobacco, cotton, peanut and corn growers, sugar beet farmers, etc.—the Sprywheel is quite as valuable. After the plants have grown high or spread into the rows so that multiple row cultivators can't be used or horses put in without damage, Sprywheels provide continuous cultivation at the very time cultivation is most necessary.

The value of continuous cultivation has been convincingly proved on scientifically managed farms. Yield has been increased to show four hundred percent profit on the cost of continuous and late cultivation—even when the late cultivation was done in the old expensive way—with the hand hoe. The additional cost of the extra cultivating with Sprywheel will show profits far in excess of the cost of the work and the machine itself.

Cost of Sprywheel operation

One gallon of gasoline keeps a Sprywheel running all day. Enables one man to cultivate fifteen miles of wide, single row,—considerably more with the two or three row attachments which can be used while the plants are small, when rows are planted close together. The accompanying letter is one out of scores we have received. Read it.

"The Best Money-Maker a Market Gardener Ever Had Offered"

Messrs. H. C. Dodge, Inc. October 21, 1920
Boston, Mass.

Gentlemen:

After having used the Sprywheel during the past season on our market garden of one hundred and twenty acres, I want you to know that it has performed its work in a splendid manner.

The problem of the market gardener, as I look at it, is to *get the work done at the right time.* This has always been difficult with hand labor. Your Sprywheel does so much work in a short time that today the problem is simple. Not only does the Sprywheel excel as a weeder, but it also stirs the ground more thoroughly than hand labor and very much faster.

In my opinion the "Sprywheel Tractor" is the best money maker that a market gardener ever had offered to him.

Very truly yours
J. W. RUSSEL, Jr.

One Wolcott Road
Winchester, Mass.

A Selling Franchise You Will Approve

The Sprywheel Dealers' Continuous Exclusive Territory Franchise protects the dealer against invasion of his exclusive territory. It protects him against loss through price changes. It guarantees liberal advertising in each dealer's territory. It provides the fullest cooperation by the manufacturer in supplying expert demonstrators and sales helps.
In short, the franchise is worked out so that every dealer has every incentive possible to give every farmer in his territory the best service and the strongest cooperation that has ever been given with an agricultural implement.
We believe that the plan for merchandising the Sprywheel and assuring to every farmer the utmost in dealer cooperation is as big a step forward in merchandising as the Sprywheel itself is in design.

To the dealer who wants to cooperate

The market for Sprywheel is immense. An exclusive Sprywheel dealership will be extremely valuable. Write today for full particulars regarding the Sprywheel Dealers' Continuous Exclusive Territory Franchise. Now before someone else gets your county.

SPRYWHEEL DIVISION

H. C. DODGE, INC.

280 Madison Ave., N. Y. C.
Works: Boston, Mass.

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California Cultivator

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Hints on Planting Trees

By Wm. R. Wood

AS the planting season again approaches we may expect to see the usual amount of mistakes made by those new or inexperienced in horticultural pursuits. These mistakes, in a way, help the nursery business, in that they cause an untold loss of trees which have to be replaced, sometimes, three or four times before they are made to live, thus increasing the demand for trees by just that much.

On the other hand, the nurseryman is quite often blamed, and while he may occasionally be to blame, the trouble usually lies with the planter, for no matter how explicit are the instructions given, few new planters realize how important it is that these instructions be followed—until they have lost one or two lots of trees. The novice usually prefers to take advice from everyone else rather than from the man who sells him the trees and whose advice should be the most reliable.

These conditions apply more particularly to the small planter, the man who is planting out a small home orchard. Occasionally, however, we find men planting five or ten acre tracts in a careless and slipshod manner, but the commercial planter, if he is not a practical man, generally employs an experienced planter to do his work and see that his trees are started off right. Again, we have seen trees planted with all the care possible to give them and then allowed to die from neglect, the owner seeming to think that no further care or attention was necessary. Others kill their trees with kindness. They overfeed, overwater and overcultivate. They burn the roots with too much fertilizer, sour the soil by excessive watering and by continually digging around the trees prevent them from forming new rootlets.

I mention these conditions for the reason that a great many people go to extremes either one way or the other, and the average person is not content to follow a happy medium, using just good common horse sense and reasoning out their problems as they go along.

The writer well remembers his first experience in gardening. It was at about the age of six years. Mother gave me a handful of beans and explained how each bean, if planted, would grow into a vine that would produce many more beans, so in my childish mind I figured that it would only be a short time until this handful of beans would grow into tons of beans; so, after getting planting instructions, I hastened to the garden and planted my crop. Early the next morning I proceeded to dig them up to see what progress they were making; again in the afternoon, and the morning of the following day.

Not being able to detect any change, I took them in to mother, who proceeded to explain to me that they never would grow unless I left them in the ground undisturbed for a number of days. Again I planted them and proceeded to forget all about beans, and whether they grew or not I never knew, as I had gotten over my enthusiasm and other important matters were demanding my attention. This is too often the case with garden planters. We are very much enthused to start with, but just as trees or plants get to the point where they need our undivided attention we find other things calling us and they are forgotten.

There are, however, a few general points that I wish to make clear to those not familiar with tree planting. These relate to soil condition, planting and care of trees and plants both during and after planting. First of all have the ground in a good state of tilth. It should be well plowed or spaded up and cleared of noxious weeds. It is better to delay planting the orchard for even a year than to plant in foul ground. It is possible to clear vacant land of noxious weeds, but once planted to orchard the best that can be done is just to hold them in check by constant fighting.

If the orchard is to be irrigated, be sure that the land is graded so that water can be run without difficulty to every tree in the orchard. This is another very important matter that should by all means be attended to before the trees are planted, as it is next to impossible to grade land after the orchard has been planted on it.

Having prepared the land and staked it off for planting, the holes should be dug deep enough and large enough in diameter so that the tree roots can be spread out about as they grew in the nursery. Some planters recommend putting a little fertilizer in the bottom of the holes, but if this is done do not fail to cover it with earth so that the young tree roots will not come in contact with it until after the tree has become somewhat established. When placed so that the roots come in direct contact with the fertilizer it is very apt to burn them, thus doing much more harm than good. Well rotted stable manure is about the best fertilizer for this purpose and should be placed deep enough so that four or six inches of soil can be placed between it and the lowest roots.

In planting set the tree as near as possible the same depth as it stood in the nursery and spread the fiber roots as the soil is filled in so that they will be in as near their natural position as possible. Water should be applied to settle the soil around the roots. In planting deciduous trees it is customary to just pack the earth around the roots by tramping it well with the feet, but where it is possible to get water it is advisable to settle the soil with water. This is much more essential with late spring planting.

Always be careful to protect the roots from the wind and sun while planting. With deciduous trees planted in the winter or early spring while they are absolutely dormant it is not necessary to be quite so particular. However, they should never be exposed long enough for the roots to become dry, and it is much better at all times to keep the roots protected and only take the trees from the package as they are planted.

Deciduous fruit trees should be cut back as soon as planted to 18 or 20 inches above the ground. Under no circumstances should the entire top be left on, as they do not make as satisfactory a growth and will never make a uniform and compact head that will hold a crop of fruit when the tree comes into bearing. Citrus trees are usually headed at the proper height before leaving the nursery and do not require any further pruning when planted.

Some form of protectors should be put on the trees as soon as planted to protect them from becoming sunburned before they make sufficient top to protect themselves, also to prevent damage from rabbits and squirrels.

The failure to put protectors on newly planted trees causes an annual loss much greater than most people realize.

Do not fail to hoe around the newly planted trees, especially where they have been irrigated. This prevents the soil from crusting over and cracking around the trees and letting the air down into the roots. It also enables the tree to go considerably longer before another irrigation is required. Too much water, especially on heavy soil, is not desirable, and by forming a fine mulch of well pulverized soil around the tree the water requirements are reduced.

The normal rainfall is usually sufficient to furnish the necessary moisture for deciduous trees which are generally planted during the first three months of the year, but citrus and tropical trees, which it is necessary to plant later in the year when the weather is warmer and the rainy season is practically over, should be irrigated every ten days or two weeks until they are well established, and after that an irrigation once every month or six weeks will be sufficient provided the soil is kept well cultivated between irrigations.

In conclusion, I would remind the beginner that there are no hidden mysteries to solve or unseen charms to bestow in connection with the growing of trees. A fair supply of common sense coupled with good judgment and a willingness to apply the necessary toil will usually succeed, remembering that "eternal vigilance is the price of success" in this as well as all other lines of endeavor.

Dates in the San Joaquin

THE Coachella Valley, on the edge of the Colorado desert, has proven its adaptability to date culture. It is proving not only its possibilities as to growth and as to production, but also as a commercial success. But can the industry be made a success in other sections of California? W. R. Nutting of Fresno insists that it can. And we are able to give on this page an illustration which shows a crop of exceptionally high quality dates. This tree has grown for years within some five or six miles of the city of Fresno. Until Mr. Nutting proceeded to pollenize it the tree bore practically no fruit. This last season care was taken that pollen should be brought from other trees, and the result has been several full bunches of the fruit, as may be seen in the illustration.

Not content with experimenting with the few palms which have been planted in former years, Mr. Nutting has been planting an extended acreage of the best seed which could be secured. The seedling plants have grown thriftily and promise liberally. Mr. Nutting is now, so far as possible, distributing these seedling plants to different parts of the San Joaquin Valley, and by this means he hopes that the Nutting date idea may become established and a great San Joaquin Valley industry be built up. Writing of Mr. Nutting's work, Roy E. Miller, editor of The Associated Grower, says:

(Continued on Page 11.)

W. R. Nutting and the Fresno Date

Agricultural News Notes of the Pacific Coast

Northern California

Colusa reports 1,000,000 bags of rice in local warehouses.

During 1920 there were 60,000 Bartlett pear trees planted in Lake County.

The average rainfall at Lake County points up to Christmas was more than 25 inches.

The Lodi district is estimated to have shipped grapes to the value of $17,694,500 during 1920.

The rainfall at nearly all points in Central California exceeds the normal to date by about two inches.

The marketing department of the Glenn County farm bureau has been reorganized and incorporated.

County agricultural agent is the name officially substituted for county farm adviser in Butte County.

A Sacramento firm expects to build a cannery in Chico, Butte County, in time to care for the coming crop.

Through the farm bureau Glenn County farmers are organizing a "Farmers Mutual Fire Insurance Company."

The Enterprise district, across the river from Redding, Shasta County, is planting heavily to table grapes on non-irrigated lands.

At the end of the sixth week in the egg laying contest at Petaluma the highest pen recorded 238 eggs; the leading hen, 36 eggs.

The famous Hearst home near Pleasanton, Alameda County, is to be acquired by the Royal Order of Moose for an old folks home.

Reclamation District No. 70, Colusa County, will spend $300,000 on improvements before next season's use of irrigating water begins.

Large numbers of celery growers in the Sacramento delta region on account of low prices have abandoned their crop and turned to raising hogs.

Plenty of grass for sheep in the Livermore Valley, Alameda County, has brought the price of corn down to $35 a ton. A year ago it was $80.

Livestock men of the section about Woodland, Yolo County, are planning at a meeting to be held in January to form a local association of livestock men which will put Woodland on the map as a pure bred center.

Yuba County stockmen attended the meeting held at Reno, Nevada, December 17 and 18, where supervisors of the national forest and cattlemen discussed changes which the livestock men of California want made in the rules governing grazing of national forests.

Col. Birsch, director of the proposed experiment station and 5,000 acre demonstration farm at Mosul, Mesopotamia, has been visiting the university farm at Davis to study new cereals, and he will return to Mesopotamia with seed of Mariout and Four Thousand barley and other grains which have been proved profitable by our state station.

The number of horses, cattle, sheep and goats grazed on the ranges within the El Dorado national forest shows a decided falling off from last year's figures. According to Forest Supervisor E. F. Smith this is due to the withdrawal from the stock business of several small raisers, who, owing to market conditions, have found it unprofitable.

Central California

One of the state's largest turkey ranches is at Dos Palos, Merced County.

A canning firm at Selma, Fresno County, is planting 4,000 acres to asparagus.

Lindsay, Tulare County, has shipped 1,564 cars of oranges for the season closing at Christmas.

A thousand acre ranch four miles east of Clovis, Merced County, is being planted to vines and figs.

Clovis, Fresno County, has already received for shipment more than 200 tons of figs, and still they come.

Gates is the name of a new town being built in Kern County, where a recent strike in oil brought scores of settlers.

Warren P. Tufts of the state farm at Davis will conduct four pruning demonstrations in Stanislaus County, January 16-17.

Fresno grape growers are moving for a special state appropriation to be used in control of grape mealybug and black mildew.

The directors of the California Peach and Fig Growers have decided to hold a two day fig institute at Fresno, January 7-8.

Several hundred acres of Thompson Seedless grapes are being put out on a new tract in Madera County, about 20 miles north of Fresno.

Porterville, Tulare County, reports a probable brick and tile plant on the Springville road, where a valuable clay deposit has been unearthed.

The University of California has selected the Burt oats as the best variety for the San Joaquin delta region, out of 100 varieties experimented with.

Grape growers are signing up for the 1921 crop and some Santa Clara vineyardists are to get the enormous price of $150 a ton for wine grapes.

A packing house manager at Watsonville says that during the week preceding Christmas 200 boxes of apples daily were sent out on orders as Christmas presents.

The Stanislaus County Fair Association met at Modesto last week and accepted architect's plans for fair grounds, and Modesto will hold her first big fair about September, 1921.

The West Stanislaus Irrigation District has been organized with Crows Landing as headquarters. The district will cover about 30,000 acres, and it is hoped to have matters in hand so as to issue bonds within a short time.

San Joaquin Valley reports thousands of workers coming from Eastern sections, and several of the larger towns have erected buildings to provide housing for the unemployed. Fresno is urging the larger cities to care for their own rather than send into the valley at the present time.

Announcement of new scales of wages for laborers and pruners has been made by the Valley Fruit Growers Association. Ranch laborers and teamsters will receive $2.50 per day and board under the new scale, which is a reduction of 50 cents per day. Ranch laborers and teamsters, per month, $60 and board; scraper men, $2.75 to $3; tractor men, $3.50 per day and board. The hourly wage scale is 50 cents per hour for Americans, 45 cents for Hindoos, Japanese and Mexicans.

Southern California

The Oxnard city council has decided to have a civic center and free auto park.

The Citrus Institute will hold a two day session in San Bernardino, February 25-26.

During the 1920 season 17,000 acres of citrus trees in Los Angeles County have been fumigated.

There is a proposal to build a $15,000,000 dam in San Gabriel canyon to secure water for irrigation and power.

The Riverside-Arlington Heights Fruit Exchange finds abundance of labor available for picking and packing.

The Covina Orange Growers Association has decided to establish a cooperative fumigating and spraying department.

The ranchers in the Moreno Valley, Riverside County, have just completed the purchase of the local water system at a cost of $91,500.

At the recent annual meeting of the Los Angeles County farm bureau at Santa Anita Robert H. Neely of Puente was elected president.

Farmers and dairymen of San Bernardino County will hold a four day "Farmers Short Course" at the San Bernardino high school, February 7-11.

A one day dairy course under the guidance of the state department of agriculture will be given at farm bureau headquarters, Riverside, January 7.

Los Angeles County has purchased ten acres at Altadena and will establish a nursery for the growing of trees for planting in burned over mountain areas.

Residents of the Ojai Valley in Ventura County will dam the Ventura and Matilija Rivers to provide the valley with an ample supply of irrigating water.

Manager Churchill of the California Lima Bean Growers Association reports 760,700 sacks Limas in warehouses on December 1; 248,600 sacks Baby Limas.

About a dozen cotton growers of Coachella Valley have agreed to grow Acala cotton to produce certified pure seed under direction of the state department of agriculture.

Forest officials report that there have been discovered many cases of removal of young pine trees planted in the Angeles forest. The forest service is taking steps to see that these young trees are protected.

It is announced that the Pacific Mail Steamship Company will put on combination freight and passenger carriers from San Francisco to Manila and East India, the ships being particularly designed to care for fruits.

Delegates from all parts of the valley met at Coachella on December 15 and organized the Associated Coachella Valley chamber of commerce, to which any member of local chambers will automatically become attached.

The Boy Scout movement is popular in Orange County, Three hundred and forty boys are now organized into Boy Scout troops and it is hoped to have 700 enrolled before the summer camps are opened. Ann[illegible]eeting will be held December 3[illegible]anta Ana.

The Coast and General

An irrigation institute was held at Ellensburg, Washington, December 16, 17.

The Washington County farm bureau is conducting a cost-of-milk production project.

One canning company at Talent, Oregon, has shipped out 200,000 gallons of apple juice.

Spokane County, Washington, claims 1,200 of its 4,800 farmers as members of the farm bureau.

A $50,000 sale of hides in one lot was recently made by the new packing company of Phoenix.

Roseburg, Oregon, expects to show as large an apple crop as last year, in spite of adverse weather conditions.

Rudolph Kuchler has been appointed land commissioner in Arizona and will begin his duties shortly after the first of the year.

The Farmers Union has reelected Chas. S. Barrett of Union City, Georgia, president for his fifteenth consecutive term.

The Washington and Idaho Wheat Growers Associations held mass meeting at Spokane, December 13, to discuss cooperative marketing.

Attempts to lower the price paid to pickers in Arizona cotton fields below four cents at the beginning of the season failed. The pickers continue to receive the full amount.

Work on the Hassayampa bridge at Wickenburg, Arizona, will begin very shortly. This bridge is on the main highway, mostly traveled at this time by Phoenix to Los Angeles tourists.

The farm bureau of Jackson County, Oregon, has a marketing exchange which is handling practically all the livestock of members and making purchases of spraying materials and implements.

President Wilson of the Washington Federation of Farm Organizations called a meeting of all producers of the state at Spokane on December 20 to discuss legislation that will come up at Olympia next month.

Stock raisers of Arizona have lent enthusiastic aid to the poisoning of predatory animals on the ranges as conducted by the biologicl survey of the federal government. This work, they say, will save them thousands of dollars in sheep and young calves.

The agitation of the matter of planting the Delta variety of cotton in the Salt River Valley of Arizona has resulted in some anxiety on the part of those who wish to maintain the purity of the Pima seed. Owing to the quarantine regulations which prohibit the bringing in of seed from outside districts it is not probable that there is any danger of hybridizing the Pima seed from this source.

Advices from England are to the effect that the Liverpool and Manchester spinning districts have used a sufficient amount of the Pima long staple cotton that they are considering the use of this on a larger scale. There were 6,000 bales shipped recently and 10,000 more are to follow shortly. It is believed that when conditions become somewhat more normal their use of Pima cotton will have a tendency to stabilize the market.

The Boll Weevil in Arizona

By A. W. Morrill

THE recent discovery of the boll weevil in cotton fields near Tucson, Arizona, while not unexpected on the part of those familiar with the Arizona situation, is an important event in connection with cotton culture in the Southwest. The insect is the variety of the boll weevil which normally lives in certain mountain ranges in southern Arizona, where it infests a species of wild cotton known to scientists as Thurberia thespesiodes. This Western variety is almost identical with the Eastern boll weevil, with which it is capable of interbreeding, but it

Cotton Boll Weevil
Side and top view of adult cotton boll weevil. The Thurberia, or wild cotton boll weevil, differs only slightly in form from the Eastern variety shown above.

is evidently much better adapted to hot, arid conditions found in southwestern cotton districts and therefore more to be feared as a cotton pest in Arizona and California.

Adaptations to Southwestern Conditions

One of the most important adaptations of the Western weevil is shown by its remarkable length of adult life as compared with the Eastern variety. The latter has been known to live without food or water for 192 days, whereas the former has a record of 625 days without food or water. Even when fed the Eastern variety has a record of only 335 days. This record of the maximum longevity of the Thurberia weevil was sent to me by Dr. W. D. Pierce, formerly of the U. S. department of agriculture, who reports having records of several individuals which lived for more than a year without food or water. With such records before us we are not justified in assuming that these insects hibernate exclusively inside the seed pods or bolls of the food plant, as was at one time supposed. In fact, it seems certain in consideration of Dr. Pierce's records that Thurberia weevils, which reach maturity and emerge in the summer and fall, are very likely to hibernate successfully. The eradication of the pest in fields of cultivated cotton is therefore, in all probability, not as simple a matter as believed heretofore.

The majority of the individuals of the Eastern boll weevil hibernate outside of the cotton fields in Spanish moss, corn shucks and other materials which furnish attractive shelter. Many, however, pass the winter in cotton bolls. In one instance it was estimated that there were more than 10,000 specimens of boll weevil per acre in cotton bolls. The Western variety apparently is especially adapted for hibernation in the bolls of the food plant. This habit might not persist in the same degree in cultivated cotton as prevails in the mountains. In general information in regard to the hibernation of the Thurberia weevil is very meager.

A third point of interest in connection with the adaptations of the Western weevil to arid conditions is that the insects have shown a preference for bolls of the food plants for egg deposition. The Eastern weevil attacks the squares or buds almost exclusively as long as the supply of uninfested squares holds out. This gives an opportunity for climatic control to check the multiplication of the insect. The infested squares usually fall to the ground, where many dry out, with the result that the weevil is killed by heat or does not have a suitable food supply and starves. In hot, arid sections the Eastern form of the boll weevil is greatly handicapped by its preference for the squares, as the mortality of the larvae in the fallen squares is excessively high. The bolls, however, do not, as a rule, fall when attacked by the weevil, and the larvae in this case are not affected by the most excessive heat. The critical stage in the life history of the weevil is thus safeguarded to the extent that bolls are preferred over squares for the deposition of eggs.

Complications in Arizona Wild Cotton Problem

The wild cotton situation in Arizona is a complicated one. The Thurberia plant normally occurs in the mountains, but seed are brought down by water and seedling plants are sometimes found in the valleys many miles from the natural habitat. Although the wild cotton is a perennial, plants more than a year old occur only above 2,500 feet elevation, as a rule. The distribution of the plants in the foothills indicates that seed brought down by water is more likely to be left near the mouths of the canyons where the canyon beds spread out into sandy or gravelly washes, than farther down in the low lands. It is generally recognized by those who have given any attention to the problem that infested bolls of the Thurberia or active weevils brought down by water from the mountains are more likely to be deposited or liberated within a comparatively short distance of the mouths of the canyons. The water supply from the canyons becomes more and more undependable the farther away from the canyon mouth one goes. This is due to the absorption of the water in the gravel beds. Naturally, therefore, the water transported weevils are liberated in greatest numbers in the foothills, and it follows that a food supply should be maintained in the foothills, particularly near the mouths of the canyons, as long as the weevils exist higher up in the mountains. Otherwise these water transported weevils are forced to fly in search of food, endangering cultivated cotton.

The Thurberia weevil normally flies very little, but is undoubtedly capable of flying long distances if necessary in search of a food supply. The Eastern boll weevil in its progress from southern Texas to the Atlantic Coast demonstrated its ability to cover 40 miles without difficulty, and one season when cotton fields were scattering it progressed 120 miles. The same season in another section where cotton fields were almost continuous the insect moved only 20 miles into new territory. The Thurberia weevil, fortunately, has been provided by nature with an abundance of food in the mountains and there is no reason to believe that under normal conditions migrations take place. Water has been recognized as the most important danger, and as indicated above, the weevils thus transported are most likely to be left near the mouths of the canyons.

The wild cotton situation is particularly complicated by the presence of a second potential pest of cultivated cotton known as the Thurberia or wild cotton bollworm. This insect since 1913, when it was first investigated by Dr. Pierce of the U. S. department of agriculture and the writer, has been regarded as of as much importance as a potential enemy of cultivated cotton as the boll weevil. This pest in the adult stage is a moth presumably capable of flying long distances. The eggs are deposited on the wild cotton plants during July and August. The larvae or worms feed on the bolls and when full grown they go into the ground, where they transform to pupae and remain until the following summer. They begin to go into the ground at the lower elevations about September 1 and from this time until the adults emerge several months later the destruction of the food plants would force a migration of the moths in order to find plants upon which to lay their eggs. In fact, there is nothing that could be done that would more certainly force a migration of these insects and thereby endanger cultivated cotton than the destruction of the wild cotton when the insects are in the ground. The Thurberia boll worm moth belongs to a group of notoriously strong flying insects, and if driven from its natural habitat by a shortage of food from any cause, no cotton growing district within 500 miles would be beyond its possible range.

If there were no other insects than the boll weevil to consider and if all the wild cotton on an entire watershed could be completely eradicated, the period when this could be accomplished without danger of scattering the adults would be, obviously, during the season when the insects are not on the wing. Eradication work should not be started, therefore, until after the first killing frost. The average date of this in the cotton districts of southern Arizona is late in November, and at Tucson is on November 24. However, unless all the plants on an entire watershed could be destroyed beyond all doubt, leaving no debris in which weevils might survive, the natural growth of wild cotton at the lower ends of the canyons and in the foothills should be left as a trap to attract the adults brought down by water from time to time from the higher altitudes. Logically, considering only the weevil, any attempt to eradicate wild cotton should begin at the tops rather than at the bases of the mountains. The complication introduced into the problem by the bollworm, however, makes it utterly impossible to carry out any wholesale destruction of the wild cotton plants over any large area without forcing one or the other of the two major wild cotton pests to migrate. Eradication of the plants must be recognized as a secondary consideration. The insect pests must first be eliminated. If the wild cotton plants are reduced in number unwisely an overcrowding and forced migration of pests may result.

Destruction of Wild Cotton Near Tucson

Shortly before the middle of October, 1919, the Arizona authorities, believing they were acting for the protection of cultivated cotton, began the attempt to eradicate wild cotton in the foothills of the mountain ranges near Tucson. The work was done by Mexican laborers equipped with picks and bars, the plants being pulled or dug up and burned. The month of October being one when adult weevils are active and the majority of the bollworms being then in the ground, it is evident that a time was selected to begin the work when maximum damage would result by forcing then or at some later period the migration of two destructive insects from the area involved. In fact, if the two mild cotton insects here mentioned had been beneficial and the purpose was to drive them to cultivated cotton, the most effective plan would be to eradicate the natural food plants in the foothills and lower ends of the canyons, beginning in October and ending, if possible before frost. It is obvious that a more or less general and widespread infestation of cultivated cotton in Arizona during 1920 was inevitable. To a large extent this danger might have been averted by maintaining a supply of trap plants for the two wild cotton pests in the foothills, as advised by the writer. This would have meant in effect replanting the wild cotton in the foothill areas. By subsequent attention to these trap plants and destruction of the insects which appeared on them, if necessary, maximum protection to cultivated cotton, under the circumstances, might have been secured. Under normal conditions infestation of cultivated cotton might have occurred with the chances in the writer's opinion about ten to one against it. With the wild cotton plants eradicated in the foothills the chances of an infestation were evidently changed to more than a thousand to one in favor of the infestation. If a hay stack burns when a lighted match is applied to it there is little use in attempting to explain the conflagration as possibly due to spontaneous combustion.

Several months ago, having determined that the situation in Arizona was one which seriously menaced Arizona and California cotton interests, I secured opinions on the matter from several disinterested entomologists of high standing in the profession. All of these agreed that the destruction of the wild cotton plants under the circumstances, without suitable provision for trapping the two potential pests, was a serious blunder likely to result in great and perhaps irrepar-

Host Plant as it Grows in Arizona
Typical location of Thurberia plant, below rock, in Agua Caliente Arroyo, Arizona, about one and a half miles from the mouth of the canyon.

(Continued on Page 9.)

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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R. M. Teague, Pres. and Manager.
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C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

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Saturday, Jan. 1, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

EDITORIALETTES

Today is the day for making good resolutions. We admit it is rather of an old fogyish proposition, still we have heard something like this, that he who makes no resolutions, makes nothing. We may be slightly inaccurate in our quotation, but sufficiently near to convey the meaning we wish. Yes, we think that if one will sit down and formally take stock of his own mental and moral make-up on this first day of the year he will find possible loophole or weakness apparent somewhere which will make it advisable to take his pen in hand and "Hereby Resolve" to correct the aforesaid weaknesses. The wise merchant takes account of his stock and knows at the end of each period of a year or six months his exact standing. The wise farmer looks over his cash book, number of head of livestock, number of bushels or tons of products on hand and soon determines that he is better off—or possibly worse—than a year ago, same date. We may take the same precautions with our innermost or personal life, or, at least on one day a year, "take stock" of ourselves. Likewise on the material side, especially this year when there seems to be a bluish tinge over everything with which the producer has to do. It is barely possible he will find a certain number of tons, boxes or bushels of produce which has cost, say, one dollar to produce, which the market declines to consider at 75 cents. This calls for some long and most serious thinking, which it is probable will result in a resolution to hold until a reasonable price can be secured and save him from ruin.

* * *

Once made, such a resolution develops a number of obstacles, and in this it is not unlike various other New Year resolutions. How is the family to live while a non-productive crop, ready for market, rests in the bins, or, in the case of livestock, eats its head off? Serious thinking may develop the fact that credit is still good and must be used. As a rule, we believe bankers are endeavoring to aid in handling this situation. Possibly at times they are not just, but this the farmer can soon determine.

* * *

Now should enter another factor in the resolving business, and, as suggested in another column, it has to do with closer cooperation. If the Cultivator could say this loud enough so that every farmer in California could realize the truth of "Stick together or we are stuck"—which has become one of our cooperative slogans—and make that slogan or a similar one a resolution for the New Year, we believe one long step in securing justice for the food producer would be taken.

* * *

But we fear that, as in the past, too many cooperators are content with being merely passive cooperators, that is, entirely willing to have others cooperate with them. Make cooperation a real, live thing by insisting upon the opportunity of cooperating with others.

* * *

Come back to the farm and make one or two resolutions there: "I will fix the broken fence, mend the drill, sharpen the plow, remove the baling wire toggle and have the harness practically repaired, paint the old wagon—paint saves wood—, be kinder to Old Mooie and Prince and even the tractor, buy my wife a washing machine, and appreciate the fact that running water and a few other labor saving conveniences in the kitchen will make more efficient work in every department of farm activities."

* * *

Many a day has started wrong and continues wrong because of impossibility of rendering efficient service in the kitchen at breakfast time. We have seen some kitchens which make us wonder how life is endured by those who make it kitchen, dining room, living room, all combined, with hardly one appliance which makes it a real home. This isn't good business.

* * *

We have hardly started with the resolutions which are possible with the well regulated farmer, but let us suggest finally the unwisdom of resolving not to resolve. Make New Years 1921 a milestone.

* * *

O yes, we might suggest one more resolution. Let us resolve to pay our income tax with good nature. A farmer who so schools himself as to be able to pay his taxes in a year like this with good nature is certainly worthy of highest commendation, and, had you thought, there is nothing to be gained by grumbling, even at taxes? It may be well to make another resolution to quietly keep our eyes open and see wherein the voracious appetite of the tax eaters may be curbed. But don't grumble; that neither hurts the other fellow nor helps the cause. Get busy and—well—cooperate.

* * *

If an orchardist is intending to plant a tree, he should read Billy Wood's article on Page 3. That article bears the very modest head, "Hints on Planting Trees," but even the orchardist who has planted a tree before may still catch from these hints sufficient to avoid a mistake, and a mistake in planting a tree may possibly never be corrected. Lots of planters lack vision as to the size which is to be attained when the tree reaches maturity or as to the needs of the tree for sunshine and water. Trees planted by people who lack vision soon perish.

* * *

Furthermore, it's a good year to resolve to plant more trees. Another case of lack of vision is shown by the effect of one season's market depression on the planting of a crop which requires years to mature. A temporary slump will, we hope, be entirely forgotten by the time trees of 1921 bring in their first crop. In any case, don't allow the one year's situation to discourage the extension of permanent industry.

* * *

Be sure and note Mr. Wood's concluding paragraph. We mean what he says about "hidden mysteries," "unseen charms," "eternal vigilance," "good judgment" and, yes, there is something about "necessary toil."

INDEX

Only a short time ago a subscriber wrote most urgent appeal that the Cultivator should put into its household department so much of interest that the wife and children would not destroy but would aid in preserving the paper. We fear this subscriber has not been noting the most interesting material which has been given in that department. During the past year there have been a number of original stories written for the Cultivator and a world of home experiences with recipes tried in California homes and passed on to Cultivator readers. Some of the interesting things which have appeared there have been made of permanent value by being paged in the index on Pages 846 and 847 of last week's number. The home maker who will turn to that index will find there suggestions as to peeling peppers, making washing fluid, canning beans, making olives out of cherries, drying sweet corn, making olive oil and even avocado ice cream. All told, there are some three or four score of these items of interest to every home maker. We mean that number were indexed; of course, there are a great number which were not.

But there are about ten other columns of the same index material, making of highest value the preceding 26 numbers of the Cultivator. The 848 pages printed since July 1 were filled with matter which justifies our subscriber in his appeal to so arrange the paper that it will be preserved and kept in orderly manner. This is the first of January and this is the first issue of the New Year and of the new volume. Put a shelf up over the window or at some convenient place, and once the paper is read, file it.

To give force to this New Year resolution to save this valuable material for second or third use, we hope a few numbers covering the last three or four months, which may still be about the house, may be gathered together and inspection made of some of the exceptionally fine articles which have been appearing. They are worth saving, Folks, honest they are, and you will appreciate this more fully at the end of the next year, for we are going to give the biggest dollar's worth Cultivator readers ever got.

Then here's a suggestion as to one other, perhaps the most valuable of all features in the Cultivator. This is the advertising. There is no type of questions comes to the Cultivator so often as "Where can I buy ——?" These questions are usually answered by simply clipping ad copy from former Cultivators and mailing to the inquirer. It takes time to write a letter, stamp and post, and wait for mail reply, much more than it would to take down a file of the paper and secure the answer in one's own home. Many of our readers do not appreciate the full value of the reading matter that appears in advertisements. A well written ad sometimes contains more information than an encyclopedia, at least on that particular topic. The work of a good modern ad writer is worth preserving.

But about the index, don't forget there will be another in the last issue of Volume LVI, June 25, 1921.

WILD JUSTICE

It was with a great deal of interest and satisfaction that I read your editorial in a recent issue of the Cultivator, entitled "Wild Justice." You have expressed my views to a T.

Your paper is—pardon the comparison — like good whisky — improves with age.

Wishing you continued prosperity, a Merry Xmas and a Happy New Year, I am yours truly, T. R. Brown, San Bernardino.

Astonishing as it may seem, there appears to be a vast number of people in this state with the same opinion as our San Bernardino subscriber. We Californians have dropped into a feeling of smug content with things as they are, without stopping to realize to what length our indifference may lead us. Lack of strict law enforcement is even considered a virtue in some sections, and we even send to the murderer's cell bouquets and consider his promise to be good hereafter sufficient to secure for him probation or at least release from the extreme or sufficient penalty. Lots of pussyfoot stuff has been mistaken by some sentimentalists as a manifestation of the true forgiving and Christian spirit which will lead to the upbuilding of society. As a matter of fact, it is quite the reverse, and if healthy respect for law and order is to be created it will have to be through return to following the principles of the good old Mosaic law which has stood the test of centuries and the new dispensation was the fulfillment, not the destruction of that law.

We fully appreciate the commendation of our San Bernardino subscriber unless it be his up-to-date comparison. Just at present moonshine is depreciating fearfully in selling value. We will endeavor to follow the example of the other kind and improve with age.

About 15,000 Mexicon cotton pickers have been engaged in harvesting the crop of cotton in the Salt River Valley of Arizona this season. These have come very largely from the Mexican states of Sonora and Sinaloa. They were brought in on a special permit of the department of labor, under bond, and will be returned to Mexico when the season is ended.

Meredith Makes Recommendations

A bit of the serious side of American agriculture is shown on the cover of this issue in a few very short quotations from the report of Secretary of Agriculture Meredith. It may not be quite as serious as would appear from first reading, but the present agricultural situation calls for serious thought on the part of people other than those who are caught with big production harvested without capital to carry until market conditions permit securing part of the cost of production. Other recommendations given in the merest outline from Secretary Meredith's report are as follows:

Studies in the cost of marketing so that the proportion of the consumer's price received by the producer and the proportion received by various marketing agencies can be ascertained.

Extension and development of cooperative marketing work.

Establishment of a world market reporting service to make promptly available comprehensive and dependable information as to production, supply, prices of, and demand for agricultural commodities in different parts of the world.

The consolidation of the bureau of markets and the bureau of crop estimates for the sake of economy and greater efficiency.

Material expansion of the studies of the cost of producing farm products.

Thoroughgoing scientific study of the whole problem of farm labor.

The making of every feasible effort to aid the farmer in obtaining necessary personal credit.

Broader studies of the methods employed and results obtained by farmers in attempts to improve their credit through united and cooperative action.

The direction, through thoroughgoing studies, of national thought toward solution of the problem of farm ownership.

Increased attention to land settlement and colonization, to the end that the buyer may have full and complete information for his guidance.

An expansion of the studies of life on the farm, to the end that the better things of life may be brought in increasing measure to the rural community, so that strong, intelligent, well seasoned families will not abandon the farming community for the city.

Proper encouragement of all feasible means to limit the hazard of agricultural production.

Expansion of the work already begun by the department in finding means for utilizing surplus and waste farm products.

A still further spread of extension work among farm women, and an acceleration of research work in home economics.

That the nitrate plant at Muscle Shoals be put in operation, to the end that this nation may escape once for all from dependence upon foreign nitrate fields.

The appropriation by congress at its next session of funds to continue the federal aid road program, to be expended under the terms of existing legislation with certain modifications, at the rate of $100,000,00 a year for a period of five years, beginning with July 1, 1921.

The appropriation of sufficient funds to permit the department to cooperate effectively with all the states prepared to work with it in preventing and controlling forest fires and other causes of forest devastation.

The reforestation of devasted lands within the national forests and the enlargement of the national forests by further land purchases and exchanges of land or timber for private lands of equal value.

A restoration of forest experiment station work to the status it had before being curtailed by reduced appropriations, and the establishment of at least one station in each of the main forest regions of the country.

Action toward developing the public resources in Alaska by lodging authority in men on the ground to act without waiting to consult distant superiors, as has already been done by the forest service in administering the national forests.

Amendments to a number of important laws administered by the department of agriculture to the end that their enforcement may be more effective.

Authorization of the secretary of agriculture to appoint a director of scientific work and a director of regulatory work, to devote their attention to development and coordination of research and regulatory activities of the various branches of the department and their coordination with similar lines of work in the various states.

Appropriations sufficient to permit of justice to the employes of the department of agriculture in the matter of salaries and equipment for work.

PROPOSED PHYLLOXERA TREATMENT

When rooted grape vines are being purchased for new plantings the question of protecting localities free of phylloxera against infestation becomes acute. The urgent desire and legitimate right on the part of the grape grower to purchase rooted vines, and the nurserymen to dispose of such stock, is opposed by the county horticultural commissioners acting in the interest of their respective counties and who are unwilling to assume the grave responsibility of possibly causing the insect to be introduced in uninfested localities. Such a condition creates an issue which must be considered from a viewpoint of self preservation and one which should appeal to the conflicting interests.

When no mutual understanding can be definitely reached the only positive means of treating rooted vines should be employed, the hot water method of phylloxera disinfection. It should be applied at the shipping point and a certificate to that effect should accompany the shipment, stating that the treatment had been carried out under the supervision of the county horticultural commissioner.

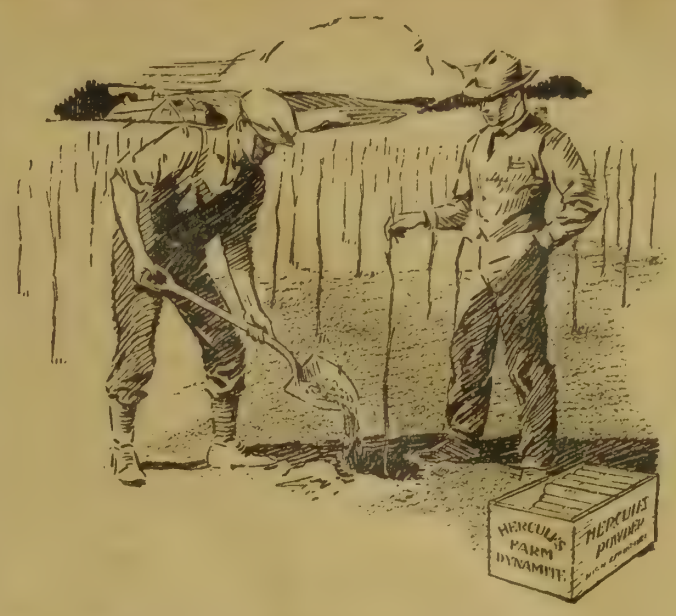
If at the point of destination the horticultural commissioner still has a reasonable doubt that the process of disinfection has been successfully done, the rooted vines then should be submitted to the treatment a second time, which should produce no injurious effects. Until a more practical measure as safe, effective and dependable as "the hot water method" is worked out, which is utterly impossible for this season, the suggestion is here offered that the contending parties come to an understanding upon the foregoing terms regarding disinfection.

The hot water method is quite simple in theory but rather complicated in practical application because of the difficulty of maintaining the temperature of the dip within certain limits. This, however, can be overcome to a certain extent by washing the bundles of rooted vines in lukewarm water prior to treating them, which has the double advantage of cleansing the roots of all adhering soil and reducing the difference of temperature of the vines compared with that of the dip.

The method consists in submerging the rooted vines in water at a temperature of not less than 125 degrees and not more than 130 degrees Fahrenheit for not less than three and not more than five minutes. Live phylloxerae and eggs are killed at 123 degrees for an exposure of three minutes. Rooted vines are not injured at 130 degrees during a submersion not to exceed five minutes.—R. L. N.

ORANGE TESTING WORK

It has been pointed out that some of the newer brix spindles put out by manufacturers are standard at 20 degrees Centigrade instead of 17.5 degrees. They are just as good as the old ones, but of course must be used with a different temperature correction table than that used for the 17.5 degree instrument, as explained in the orange testing circular issued from the office of the state department of agriculture under date of November 20.



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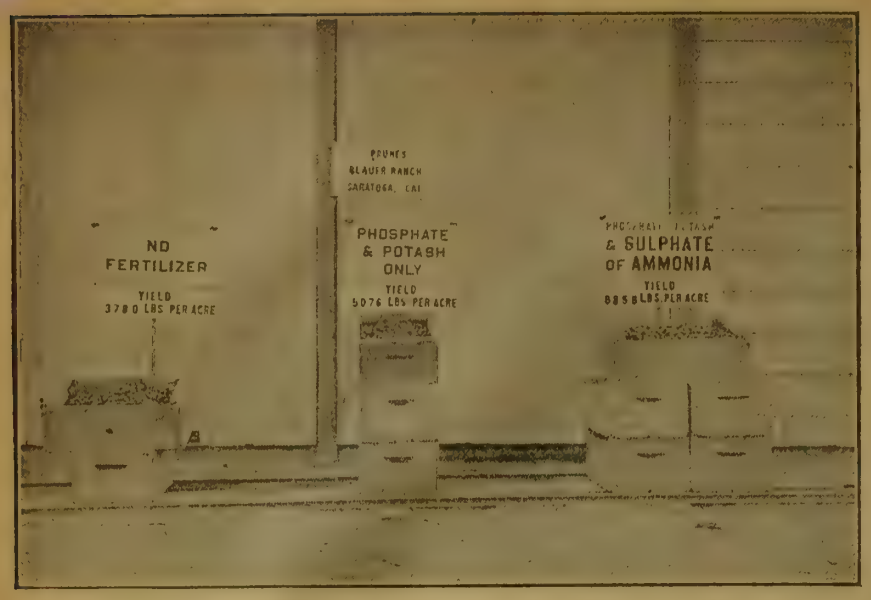

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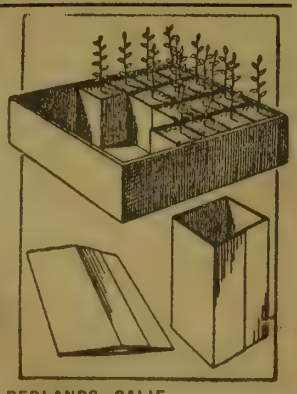

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Antelope Valley Growers Organize

By Ernest Braunton

CONSIDERING the sparseness of population in the district there have been few horticultural interests so united in a determination to organize as that witnessed by the writer on the part of the Antelope Valley fruit growers on the evening of December 10, at a meeting held in the school house at Little Rock, Los Angeles County.

Horticultural Inspector H. C. Pegler called the house to order, J. W. Scott acting as secretary. L. G. Haight, district manager of the California Fruit Exchange, came down from Fresno to tell of the advantages of organization, to answer questions as to methods, procedure, etc., looking to a permanent association of growers. In reply to questions Mr. Haight stated that they handled last year from 700 to 800 carloads of pears. Only one association in his district pools its fruit, the one at Atwater, where the crop is about half and half grapes and Elberta peaches. He favors pooling, however. After he had fully explained the workings of the association and answered many questions the growers in the audience grappled with the task of organization, which was accomplished in a few minutes.

Just 46, by their use of the written ballot, evidenced their desire to become members. The meeting was primarily one of pear growers but in a brief discussion it was decided to include all. Several speakers called attention to the growing acreage of apples and grapes. Inspector Pegler said Prof. F. T. Bioletti visited that section the day before, was much impressed with the outlook for grapes and would be back for three days in January to make a survey of the valley to determine the best varieties to plant. So the final vote was unanimous for the name "Antelope Valley Fruit Growers Association."

Five directors were elected, two from Little Rock and one each from Palmdale, Del Sur and Long View. The annual dues were placed at $5, the official place of business was left to the determination of the directorate who are: For Little Rock, E. E. Fugit and W. J. McAdams; for Palmdale, H. W. Menning for Long View, Norman Evans; for Del Sur, Donald Graham. These directors will meet in a few days, elect officers, perfect organization and get busy on welding all the valley growers in a cooperative movement for the marketing of crops, buying of supplies, etc.

The following morning found Vincent F. Blanchard, assistant county farm adviser, giving a demonstration of pear tree pruning in an orchard near Palmdale, and a considerable number of the participants in the previous evening's meeting were able to be present. Orchards of large trees are very few in the southern part of the valley, where nearly all the pears are grown, but the acreage is extensive and each year is still further extended, for no section of California grows better pears, and all residents are enthusiastic over present accomplishments and future outlook.

Purple Vetch in Humboldt County

By C. E. Robertson

A GOOD many years ago a practical farmer and dairyman sold his farm and dairy herd in the rich Eel River Valley, rested about two years and bought another farm on bench land near Rohnerville.

He soon missed the strong, rich productive soil of Eel River Valley and, nothing daunted, he put his hand to the plow to regain the same productive soil he had known and farmed since boyhood.

Once more the old adage that "Necessity is the mother of invention," rang true. Black purple vetch was recommended and given a trial. Three hundred pounds of very indifferent seed was obtained from Georgia and a small amount of first-class seed was secured in Oregon and put in by the two pioneers in purple vetch raising in Humboldt County, Edward G. East and John H. Meiser, both of the old county fair town of Rohnerville.

The first crop was not very good, but after that the raising of purple vetch in Humboldt, barring disease or aphis, was an assured success.

The yield for the 1920 season just closed was 150 tons, and the acreage now being planted is 2,000 acres under the auspices of the farm bureau, 200 acres under contract to a Los Angeles seed house and 200 acres seed not contracted. The farm bureau is making contracts netting the growers 14½ for the 1921 and 1922 crops, and the estimated yield of the 2,400 acres is placed at 1,100 to 1,250 tons for the 1921 crop.

At the present time the orange growers of the state are outbidding everyone for fertilizers. Reliable figures show that the citrus growers of the state spent over $512,000 for animal manures the past season, and their average expenditures for several years just past have exceeded $1,000,000 per year for all fertilizers, so it is no wonder that they are outbidding all others for the purple vetch seed to enrich their land by the nodules on the roots collecting nitrogen, and plowing under the green crop.

Not all the farmers who wanted seed to plant this fall in Humboldt County were able to secure it, but a year from now it is probable that all who want seed in this section can secure it.

Dr. Logan, our farm adviser, is simply camping on the job, gathering data about the way the present crop is being plowed and everything connected with the seeding, and after next harvest he will be in a position to give out much valuable information on growing purple vetch.

The bulk of the 2,400 acres now being seeded is being plowed by tractors and the amount of seed drilled in is being reduced from 50 to 60 pounds per acre of former seasons to an average of 40 pounds per acre this season.

The growers of purple vetch have organized and placed their dues at $1 per year, under the name of Purple Vetch Seed Growers Department of the Humboldt County Farm Bureau.

Purple vetch will be of more value right here at home to plow under and build up Humboldt farms that have been cropped with grain for so many years than all the returns our farmers will receive from the sale of seed. This idea is based on a pretty thorough trial that has been made in a quiet way of just what purple vetch would do when plowed under to enrich our worn out lands.

FUMIGATION

Fumigators will find much of interest in Bulletin 907, U. S. D. A., "Fumigation of Citrus Plants With Hydrocyanic Acid: Conditions Influencing Injury." It was written by R. S. Woglum while he was still with the department. This bulletin will be of interest to citrus growers or to anyone having to do with insect pest control through the use of hydrocyanic acid. Mr. Woglum summarizes:

It is necessary to consider the prefumigation and postfumigation environments of fumigated plants as well as that during the actual treatment.

Sunshine is the chief prefumigation factor that increases injury and this influence is greater at high temperatures than at low. Under darkness or diffused light, temperatures upward to at least 100 degrees Fahrenheit do not appear to increase injury unless the fumigation or postfumigation temperatures exceed 80 degrees Fahrenheit.

The environment after fumigation approximates in importance that during the actual treatment. Of the postfumigation factors both sunshine and temperature modify the degree of injury. Sunshine, the more important,

is most destructive to plants exposed immediately after fumigation, but affects them deleteriously at least two hours after the treatment. Temperatures of 80 degrees Fahrenheit or above injure plants more severely than lower temperatures.

The fumigation of citrus plants is most safely performed at temperatures below 80 degrees Fahrenheit.

Diffused light before, during or after fumigation exerts no more deleterious influence than darkness.

Moisture on citrus plants does not increase the degree of injury. An application of cool water to plants in hot sunshine immediately prior to fumigation appears to reduce slightly the effect of the gas.

Sudden changes of temperature over a wide range during exposure to hydrocyanic acid gas tend greatly to increase plant injury.

The optimum environment for safety to plants is diffused light or darkness at uniform temperatures below 80 degrees Fahrenheit before, during and after fumigation. The lowest temperature tried, 55 degrees Fahrenheit, was within the range of the optimum.

Fumigation at temperatures upward of 80 degrees Fahrenheit is safest under cool prefumigation and postfumigation environments. The maximum injury follows high temperatures for all three environments.

The physical and chemical conditions of the soil influence injury from fumigation. Trees in a wet soil tend to be more severely injured than healthy trees in a dry soil. However, trees in soils deficient in moisture for such protracted periods as to be severely weakened are more susceptible to injury than if grown under optimum moisture conditions. Irrigation should follow fumigation, not precede it.

The physiological condition of plants is one of the most important factors regulating fumigation damage. A condition akin to hardiness appears to be the optimum for gas resistance and is brought about by dryness of the soil, cold weather, and possibly by continued very hot dry weather which exceeds the optimum for the plant.

Sunshine fumigation can be conducted with safety by proper regulation of the dosage and length of exposure.

BOLL WEEVIL IN ARIZONA

(Continued from Page 5.)

able damage. The opinion of Dr. W. Dwight Pierce, now a consulting entomologist of Denver, Colorado, is of especial interest owing to his personal knowledge of the wild cotton and its insect enemies. The following paragraphs are extracts from his statement dated June 24, 1920:

In the opinion of the writer it is possible by proper methods to eradicate the pests of wild cotton and finally the plants themselves. It would be an expensive undertaking, however. It would probably require at least a half million dollars and a period of three or four years, perhaps longer, to bring such a project to a successful conclusion in the mountains near Tucson. For the present normal conditions should be restored and maintained with certain improvements and precautions, while principal efforts should be directed toward searching for and cleaning up infestations of cultivated cotton, both planted and volunteer. The need for the strictest measures to prevent the introduction of the wild cotton pests into California cotton growing districts is apparent.

BOLL WEEVIL SITUATION AS HANDLED BY ARIZONA AUTHORITIES

In connection with the foregoing we quote dispatch appearing in the daily press early in the present month. The dispatch is from Tucson:

"State Entomologist Don C. Mote is active here in the cleaning up of several hundred acres of Pima cotton in the Rillito section near Tucson, where native boll weevil has been found. Assistance is being given by the Pima County farm bureau, and $7,500 has been granted from emergency state funds for the employment of the necessary labor.

"The weevil is the same that has been known for possibly hundreds of years in the wild cotton that is to be found in the foothill country along the Santa Cruz Valley. It is considered of rather immaterial sort, but scientists fear that with abundant feeding upon domestic cotton plants, the weevil would become an active menace, approximating in size and vigor the weevil of the Gulf States.

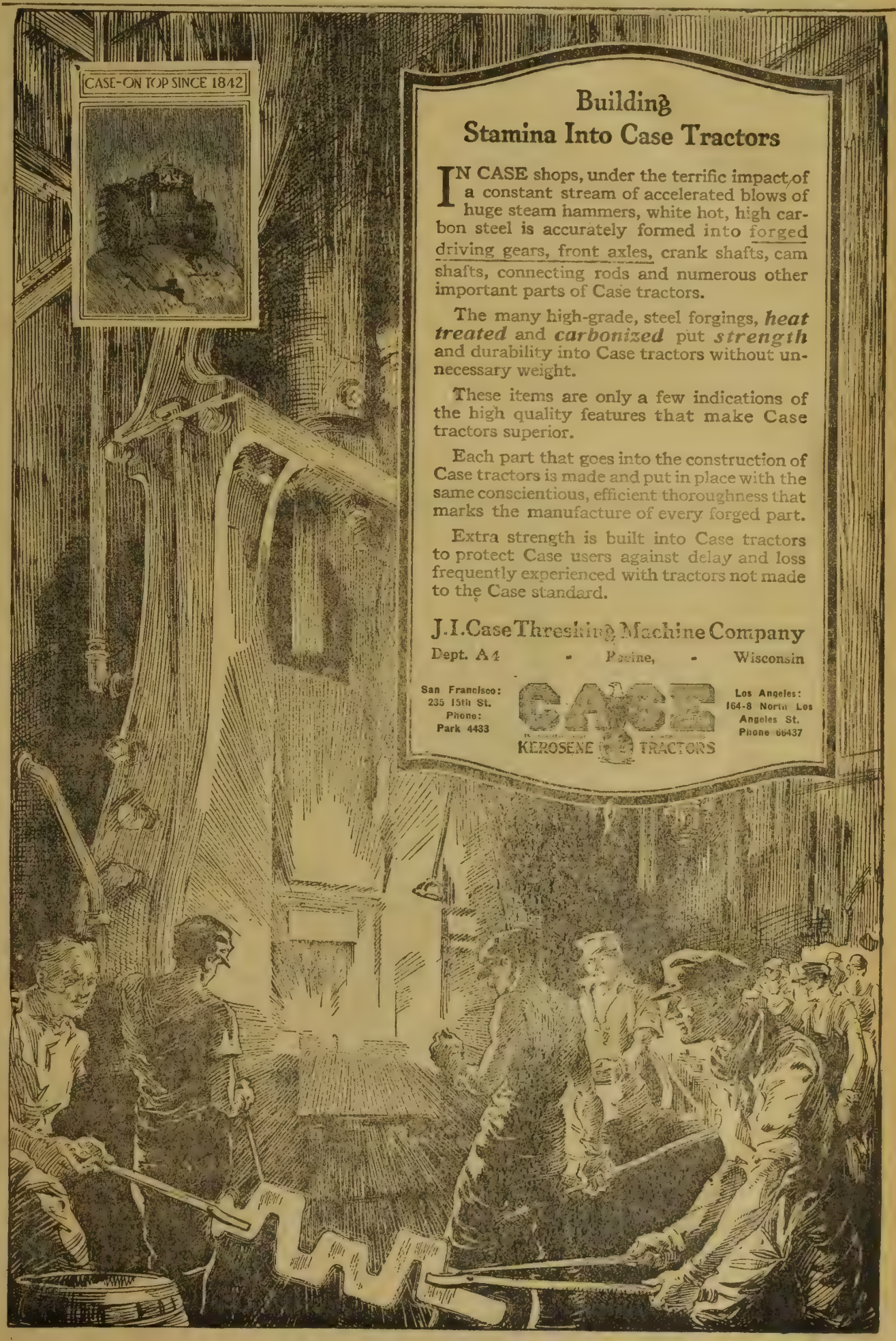
"There was full appreciation of the situation last spring when a careful hunt for wild cotton plants was started at a number of points. At that time there was belief that all the threatening plant growth had been destroyed. At only a few points, such as on the edge of the Rillito Valley, has there been any possibility of actual contact between the wild cotton and that of the lower irrigated fields. To this limited district, it is understood, the pest has been found confined, and there is belief that its further spread will be prevented by the vigorous measures set afoot.

"While further growth of cotton in this locality may be affected by the unwelcome discovery, it is believed there can hardly be spread of the trouble to other points in the Southwest, as the wild cotton is known only in this locality and to the eastward, while the main cotton fields of Arizona are to the westward, beyond arid plains, and in sections where the desert hills hardly could bear the offending plant.

"The state board of agriculture and horticulture and the planters' associations of the other cotton growing districts, such as those around Yuma, Phoenix, Mesa and Florence, are cooperating in quarantine measures that are expected to keep the embryonic pest relatively as far distant as is the weevil of Central Texas. There even is no assurance that the wild weevil would constitute a serious menace, but on that point there is to be no laxness in precautions. The transfer of seed, cotton or plants hence to other cotton growing sections of the Southwest will be put under the same limitations now known to southern cotton. Locally, there can be no doubt that the cotton industry has suffered a serious blow, whether the scientists do or do not succeed in total eradication of the much feared pest."

COURTESY

Courtesy is an obligation, an indicator, an introduction, a recommendation, a passport, an influence, an opportunity, an investment, a peacemaker and a pleasure. It is doing and saying the right thing at the right time in the right way. It makes friends, not only for yourself but for the company, shortens the day and makes the world a more pleasant one in which to live. Courtesy pays larger dividends than any other personal quality. Smile, look pleasant, be cheerful and every trouble will be lessened, every joy increased—Service Bulletin, Colonial Navigation Company.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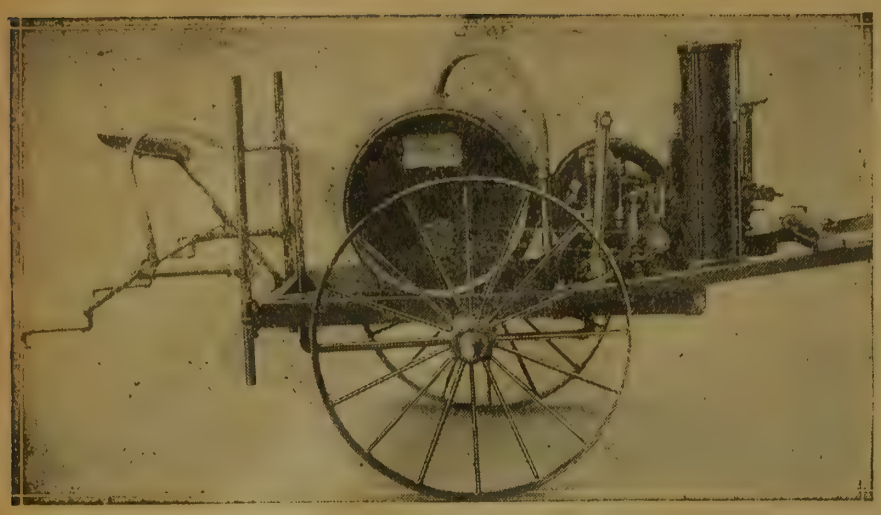

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New Black Scale Parasite Established

By H. J. Ryan, Los Angeles Horticultural Commissioner

THE history of the complete control of the cottony cushion scale, Icerya purchasi, by the use of natural enemies, and the more recent success in securing control of the mealybug, Pseudococcus spp., by beneficial insects introduced by the California state department of agriculture, makes us ready and eager to expect the ultimate control of other serious pests of citrus trees through the distribution of beneficial insects.

Horticultural officials and entomologists, in Southern California particularly, have been waiting with interest to hear the results of the liberation in selected districts of the new South African internal parasite of black scale, known as Aphycus lounsburii. Harold Compere of Alhambra has been in charge of the details of the experiment under the direction of Harry S. Smith, entomologist in charge, California state department of agriculture.

The work was carried on carefully, and recent reports of results secured on a considerable acreage of citrus under observation on the Limoneira Ranch at Santa Paula have aroused renewed interest in the possibilities of the biological method of control of insect pests.

The salient facts of the progress of the work to date were called to the attention of horticultural officials and entomologists of the southern citrus counties in company with a committee from the California Fruit Growers Exchange on December 10 at Santa Paula.

They were shown a block of 55 lemon trees which had one year previously been severely infested with black scale. The first liberation in Ventura County of the new parasite, aphycus, was made on these trees in the fall of 1919, when 1,000 of the insects from the Alhambra insectary were placed in the trees. This block has not been fumigated since, and at the time of the meet 14 months later it was almost impossible to find a live scale on the trees, though they were numerous on untreated trees.

As soon as the Limoneira Company saw the possibilities ahead, they set up cages and commenced raising aphycus by the thousands. From May to October, 1920, they liberated 72,000 aphycus on a block of 10,000 trees. These were not fumigated, though they were very dirty with black scale. The scale is now practically under control and the trees are rapidly cleaning up in appearance.

During November, 1920, over 67,000 aphycus were liberated on another block of some 2,500 trees. At the time of the meeting great numbers of parasitized scales were found in orchards in which no liberations of parasites had been made, almost half a mile east and northeast of the original block of 55 trees, showing that they are carried by the wind.

Another beneficial insect, a ladybird beetle, Rhizobius ventralis, collected in great numbers from the Rand McNally olive orchard at La Mirada, was liberated in some parts of the Limoneira Ranch and has done some remarkable work, but the chief interest is centered in the work of the aphycus, as it has been shown that this insect can be bred in great numbers under artificial conditions. S. H. Essig, who is in charge of the parasite distribution for the Limoneira Company, furnished the figures given above and made the statement that a $16,000 fumigation bill has been saved to the company through the work of beneficial insects the past year.

The question uppermost in the minds of those who know of the results obtained at Santa Paula is whether the same thing can be done over all the black scale infested citrus districts of Southern California. Assuming that under Santa Paula conditions the excellent control obtained since the first liberation of parasites can be extended and continued, we must face the fact that only in a comparatively small citrus acreage have we the uneven hatch of scale found in Ventura County. In most districts there is a fairly even, uniform hatch of black scale, preceded by a period where practically all the insects are in the adult stage and there are none which can be attacked by the aphycus. There is danger therefore, that the parasite may die out for lack of food unless there is enough uneven hatch in the vicinity to tide it over or they can be bred in great numbers in the insectaries for liberation each year.

Los Angeles County acreage is now being surveyed by the county horticultural commissioner's department in line with a plan agreed upon with Harry S. Smith several weeks ago, to locate the areas of uneven hatch, and it is expected the state will make the first introductions in these districts. in fact, such introductions have already been made in possibly favorable localities, and the state department is planning to take up the same work in other counties.

A certain delay must be expected in organizing and collecting equipment to breed and distribute the parasites over the enormous acreage of the Southland, even if these introductions are sure to be successful, and this is still a matter of experiment.

Were it only necessary to provide for stocking 1,000 acres or 10,000 acres it might be done in a short time, but this is a matter of perhaps preparing to care for some 150,000 acres. There are 60,000 acres of citrus in Los Angeles County alone, most of which requires frequent treatment for black scale.

The problem of furnishing a supply of beneficial insects sufficient to keep these millions of trees clean of black scale might be compared to the problem of organizing from the beginning and maintaining a poultry industry big enough to keep the population of Los Angeles supplied with eggs for the breakfast table.

Great numbers of beneficial insects must be provided. These will have to be bred in insectaries. A food supply of live scale must be provided for this purpose in the breeding cages. The scale live best on succulent plant growth. Potato sprouts have been found best for this. Temperature and moisture conditions must be kept just right or the potatoes will not sprout as desired and care must be taken to keep rots and burrowing larvae from attacking and destroying the tubers.

The men who have the work in hand are as expert in their line as the successful poultry rancher must be well trained in his, and the difficulties encountered in the latter calling are no more exasperating than the problems of the entomologist.

The organization of men and material cannot be built over night, but if the work continues to prove successful we are assured that organization will be pushed as fast as experimental work points the way to practical application.

BLACK SCALE CONTROL

In order to distribute the black scale parasite, Aphycus lounsburyi, so it will be most effective, the southern citrus counties are being closely studied regarding the uneven hatch of the scale. Every horticultural inspector in Los Angeles County is preparing a map of his district showing times of hatching. During the first week in January Harry S. Smith, entomologist in charge of pest control, state department of agriculture, will be in Los Angeles to canvass these maps with Horticultural Commissioner Ryan and plan a liberal distribution of aphycus at the time it will prove of greatest value.

SHIPPING POINT INSPECTION

A letter recently received by L. J Weishaar, supervising inspector of the shipping point inspection service, from a prominent member of the Eastern trade, reads as follows:

"I am mighty glad to note your progress in development of shipping point inspection, and this is filling a long felt need in the shipment and sale of California vegetables. The trade at first was rather skeptical, and so they were, you remember, when the bureau of markets first started operating This shipping point inspection service is being found by some dealers who have had their own representatives in California, an improvement

in that the reports have more detailed information and give the purchaser at this end a more thorough understanding of the character and condition of the products ordered.

"There have been some disputes at this end and some variations between the official reports at shipping point and the bureau of markets inspection here, but we are maintaining that the shipping point service is more thorough and dependable from the fact that in the majority of cases the goods are inspected before being loaded in the cars.

"We know of none at this end that do not hope for a continuance and further development of California inspection service."

DATES IN THE SAN JOAQUIN

(Continued from Page 3.)

"For 25 years he kept up interest in the dates. The success of the U. S. government plantings at Mecca and Tempe led to a conviction that the San Joaquin Valley with its immense treeless areas should be devoted in part to date production, provided hardy species could be found. Six years ago he began to put some of his ideas into practice. He bought lands and secured U. S. department of agriculture cooperation in getting seeds. He personally gathered seeds from early ripening varieties in the various corners of the San Joaquin Valley and planted 73,000 seeds, most of which germinated. His investigations led him to believe that the date palm would not only thrive in the alkali lands of the valley but that the better species would ripen a fine quality of fruit, and that other dates, those not ripening in time for the fruit pack, would make valuable feed for stock.

"Mr. Nutting has seen his work for the raisin growers bring wonderful results. He has the same faith in the possibilities of the date industry in Central California, and he backs his beliefs with action and his own money. His work in the Fresno district has attracted wide attention, an attention that may be yet more interested when the young trees add the luscious date to the valleys's already overflowing fruit basket, especially on the vast extent of alkali lands which grow dates and do not grow any other valuable crop."

BENEFICIAL SOIL ORGANISMS

By Howard C. Draper

Importance of soil organisms to agriculture is widely underestimated. Decomposition of nitrogenous organic matter may begin with either decay or putrefaction. Decay is produced by aerobic (requiring air) bacteria and occurs under favorable conditions for the bacteria. Under conditions adverse to decay putrefaction occurs, produced by anerobic (avoiding air) bacteria. The two processes may occur at the same time, one internally, the other externally.

Substances undergoing decomposition are broken down to carbon dioxide, water and ammonia. The ammonia will combine with oxygen to form water and nitrogenous compounds. In the process of decomposition two classes of substance are produced, one having been secreted by the bacteria and the other formed by the removal of certain materials from the original compounds.

A large number of bacteria carry on this process and the resulting product depends on the substance involved and the bacteria engaged. These changes involve a breaking down of more complex compounds and a formation of simpler ones. In all of the various steps different kinds of bacteria function. Each set of bacteria has its own particular field of action. It works when the substance undergoing decomposition reaches the particular stage for its optimum development. Under favorable conditions it remains inactive. The work concluded by one kind of bacteria is taken up by the next, and thus continued, step by step, until final decomposition is complete.

Details concerning the process by which this is done and the exact bacteria functioning are unnecessary. The important consideration is the circumstances under which nitrogen is made available to plants. During ammonification, which follows decay and putrefaction, ammonia is formed. Each bacteria has its maximum ability in the decomposition of certain substances.

Some plants are capable of using ammonium salts as a source of nitrogen. Other plants prefer nitrates. After ammonification nitrifaction occurs, which is the oxidation of the ammonia; that is, oxygen is added to the ammonia and the result is a nitrate.

The bacteria which form the nitrates are incapable of working in the presence of a large quantity of organic matter. Although the organic matter is decomposed, nitrates are not formed in any quantity. This serious loss may be avoided by not overapplying organic matter.

Aeration has much to do with nitrification. The bacteria acting in this capacity are aerobic, hence the more air available the greater production of nitrates. Nitrifaction will then take place most effectively within the limits of tillage.

AMERICA'S GREATEST PRODUCTION YEAR

(Continued from Cover.)

worse off than he has been in other years with short crops and high prices. One thing that would help to remedy this is some means, wherever feasible, of carrying over to periods of low production the surplus from years of high production. More attention to marketing and the development of a latent consumption demand in years of large supply will also be helpful."

SCHOOL GARDEN PRIZES

One hundred dollars in prizes has been offered by Hon. Lysander Cassidy, formerly of Phoenix, now of the farm loan bureau of Berkeley, California, to the chamber of commerce at Phoenix, to be given as a prize fund to the boys engaged in school garden work in the city of Phoenix. Professor J. D. Loper, superintendent of the city schools, in acknowledging the gift says: "At the present time we have ten classes in gardening and we will divide this up into ten parts, and each part into at least three or possibly four prizes for the best kept garden."

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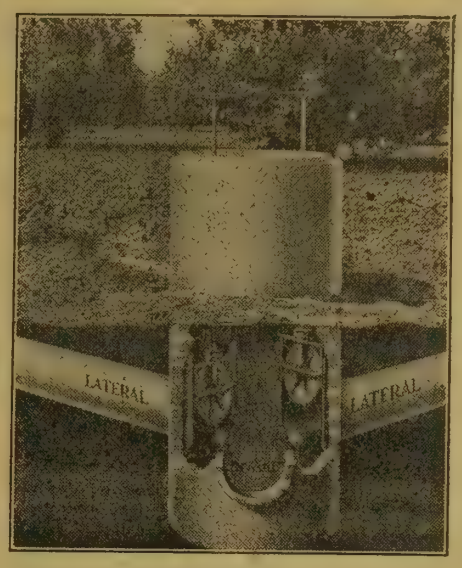

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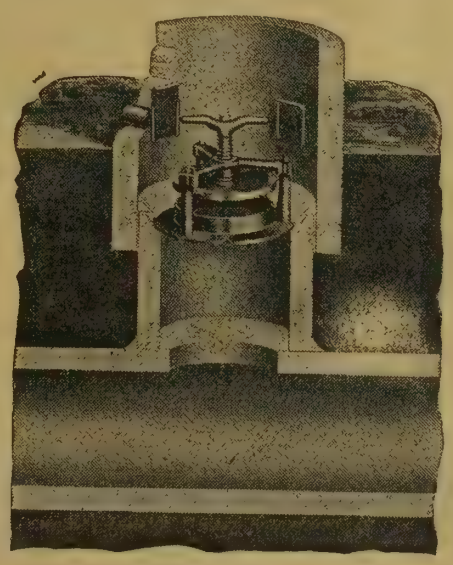

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January in the Vegetable Garden

Southern California

By D. F. Reichard

IT IS getting to that time of the year when we should be thinking of putting our land in shape for spring planting. You say we haven't had enough rain to put the ground in working condition. That is one thing we must look out for in Southern California. Many of our market gardeners would rather not have rains so that they can apply water as it is needed and in such quantities as they want it. Lacking in rain we would suggest that you turn on the water. You seldom use your minimum of water during the winter months, why not put it into your ground? If you are connected with a city water system it will no doubt be convenient to run a sprinkler, in which case let it run two or three hours at a time at each setting. If you have ditch or flume water, check off your plot intended for garden in convenient sizes and flood the ground about six inches deep. Either of these methods will wet the land enough to permit good deep plowing or spading.

If rains are not sufficient by planting time, furrow out and irrigate. As soon as the ground can be worked without sticking to your tools work it up, pulverizing thoroughly and sow the seed while the soil is still in good damp condition.

What are you going to plant this coming season? Where is the garden to be located and how large will it be? All these questions and many more come up when one begins thinking about gardening. Therefore, it is really necessary to sit down with the family and plan out the garden to be. Yes, get the whole family interested in the garden. Grow something of interest to each of them or get them interested enough so that they will want to care for their favorite item.

Select a piece of ground for the garden that is naturally rich, well watered, of a nature that drains nicely and with a southern exposure if possible. There should be a slight slope to the land so as to irrigate easily. The size will be controlled by the space available and the amount of work one wishes to apply. In cities the garden is usually confined to the back yard, where a space 50 by 75 feet would be a good sized vegetable garden, and one will be surprised how much stuff can be grown on so small a space. On a ranch the garden should comprise a much larger space, as most of the heavy work can be done with a horse and implements, a plow a harrow and cultivator. If the plot selected is to be the permanent location of the garden it is advisable to first consider the perennial plants that will be wanted and arrange for them in such positions that they will not have to be moved. In this list will be dewberries, blackberries, Himalaya, Mammoth and Thornless blackberries, Phenomenal and Loganberries, red, black and yellow raspberries, strawberries, grapes, currants, gooseberries, artichokes, asparagus and rhubarb. These should be arranged according to their habit of growth, the heavier growers or vines being planted at the outer edges. Allow six to eight feet between the rows of larger berries and grapes, four to five feet for the raspberries, four feet for the rhubarb, artichokes and asparagus, and two to three feet for the strawberries. All of these should be set out as soon as possible so as to get their root systems established before the growing season begins.

Next, allow space for the plants of tomatoes, peppers and egg plant. Although these will not be planted for some time, the space should be arranged. It may be used for a quick maturing crop like lettuce, spinach or radishes, or as a seedbed for cabbage, etc., before the plants are set. March is plenty early for setting out these plants.

If your garden has to be a small one, it is not advisable to plant potatoes, because they require considerable space to produce enough to make them worth while, but most of us like potatoes and feel we should put in some anyway. In favorable situations potatoes may be planted most any time after the middle of January. An average yield amounts to about 12 times the weight of the seed planted. Plant potatoes, dropping one good piece every foot in rows about two feet apart, covering the seed three to four inches. In order of their earliness plant Bliss Triumph, Red Rose, White Rose, American Wonder, British Queen.

Plant a row or two of peas; Senators or Stratagem are the best, sowing at the rate of a pound to 150 feet, giving each row about two feet and covering the seed two or three inches according to the nature of the ground. Sow deeper in the lighter soils.

Plant carrots and parsnips. Be sure to have your ground deeply worked and pulverized so that their roots can properly develop. With these in the same drill may be strewn a few radish seeds. These will come up quickly and break the surface for the more delicate carrot and parsnip plants. The radishts will be ready to use by the time the others are to be thinned out. Also plant turnips and beets. These will come up readily. An ounce of each of these will sow a row 100 to 150 feet long.

Put in some onion seed for dry onions, using Australian Brown for storing for next winter, White Globe for fall use and Crystal Wax or White Queen for early summer use and for pickling. An ounce of any one of these will plant a row 125 feet long and should produce about 75 pounds of ripe onions.

Set out plants of cabbage 15 to 20 inches apart in rows of two to three feet apart. Cauliflower plants should be set about two feet apart in rows at least three feet apart and tall kale the same. Plants all of these in the bottom of a furrow at least six inches deep and gradually work the dirt in around them as they grow.

In the frostless spots Canadian Wonder and Ventura Wonder Wax beans may be planted, but for the most of us it is advisable to wait until next month to plant beans. The same may be said of sweet corn, melons and cucumbers. So, in planning the garden it is well to reserve some space for the appetizing crops that cannot be planted for a month or two.

For those with trees and bush berries already established, this is the ideal month to prune and spray, giving them all a thorough cleaning, cultivating among any growing crops and thoroughly work up all idle ground so that it will be in good condition when it is time to plant.

To get the best results from the vegetable garden it is absolutely necessary to keep the plants in a continuous, healthy growth. To do this we very often have to supplement our rainfall with spring irrigation. This may be accomplished by sprinkling if the plot is practically level and you allow the sprinkler to run long enough at each setting. One big drawback with thorough sprinkling—anything less is not to be considered—is that the whole surface is wet so that weeds sprout and crusts are formed where one cannot conveniently get with the cultivator. The ideal way of irrigating is to make broad furrows between the rows of plants and allow the water to run slowly down the furrows. This keeps the water under control and away from the stem of the plant, so that there is no choking of the plant from having the surface soil packed and baked around the plant. The moistened ground is where it can be conveniently cultivated and mulched, leaving it in perfect condition to promote plant growth.

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Northern California

By A. R. Gould

TOWARD the latter end of the month a sowing may be made of both turnips and kohlrabi. For tender turnips sow Early Snowball and White Egg. Early white kohlrabi is the best. Sow very thinly in rows 12 to 18 inches apart. Both these crops require a fairly rich soil. If a sowing was made last month as advised these should be ready to thin out to six inches or more apart. Irrigate frequently.

Peas

Keep up a successional supply of peas by sowing early and main crop varieties. Sow Blue Bantam and Laxtonian, both dwarf. For main crop sow Stratagem, Alderman and Yorkshire Hero. Sow in rows two feet apart. They require much water and cultivation.

Lettuce

Sow on well prepared soil Los Angeles and Cream Butter, two fine heading varieties. Sow very thinly in rows and thin out the seedlings later.

Onions

If the main crop varieties are not already sown they should be attended to without delay. Sow Australian Brown, Ailsa Craig, Prizetaker and Southport White Globe, all fine keeping varieties. Sow in rows two feet apart and cultivate frequently after the seedlings are well through the soil. The earlier sown varieties need thinning to four inches apart.

Asparagus and Rhubarb

Both of these are very profitable crops and should certainly be more generally grown. They need quite a little manure and the beds should be dressed annually. Once established with standard varieties and well watered during the growing season these crops need little more attention for the season. Strong "crowns" or roots may be purchased from advertisers in the Cultivator and planted in rows well prepared with manure, about three or four feet apart. Selected roots of Asparagus Colossal and Palmetto should be secured and planted at once and Myatt's Victoria and Crimson Winter Rhubarb.

Carrots

Sow the early French Forcing variety in rows 16 inches apart in well prepared soil. They thrive best in a fairly sandy soil. Seed should be sown thinly, and if a frame is available a hot bed of manure may be made up and several inches of soil placed on the surface in which very early carrots may be raised. Window sash may be used for covering but this should be ventilated throughout the day.

Berries

There are quite a number of berry fruits and all may be grown in and around the vegetable garden. Blackberries and loganberries may be grown around the garden fence. Of the thornless varieties of blackberry we have seen little fruit, they appear to be thornless and fruitless. The Himalayan Giant and Mammoth are two good blackberries, and the Houghton gooseberry is usually free from mildew attack. For the best raspberries plant Cuthbert, Superlative and St. Regis, two to three feet apart in rows five feet apart in well manured soil. Strawberries, Banner, Marshall and Magoon should be planted now in rows two feet apart.

Southern Arizona

By M. E. Bemis

JANUARY reminds us of the coming of spring. While there is much cold weather and heavy frosts and usually more heavy rains than in any other of the winter months, the lengthening days toward the latter part of the month are comparable to the later spring months in the Northern and Eastern states. January

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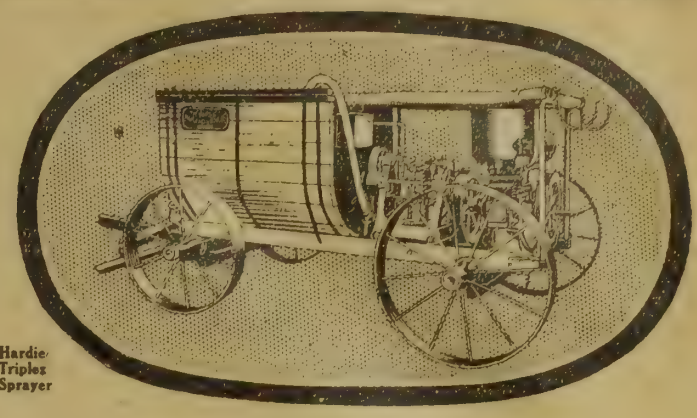

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should be the month for preparation.

The list of plantable things is greater than for December and approaches in variety the list of things that are planted in February.

Among other things that are worthy of consideration, asparagus of the Palmetto variety seems to be better adapted to southern Arizona than any other. Asparagus as a crop requires a good deal of care and does not bring immediate return as a commercial crop, but when producing returns as much to the acre, if not more, than any other garden crop grown. For the family garden it is a vegetable which is easily grown and should have consideration. It is one of the first of the spring vegetables to mature. Asparagus plants may be put out in January. The seed should not be planted until February or March. Asparagus does well in rich, loamy soil and is quite alkali resisting. Like many other plants, it seems to be highly adaptable to Southwest inrrigated land conditions, so much so that when once established it grows wild without attention. For garden crop, however, it requires constant cultivation, irrigation, etc. The land before planting asparagus should be made rich and plowed deep. Furrows should be dug 12 to 14 inches deep and about one foot in width. For field culture it should be sown four and one-half feet from center to center. Rotted manure should be put in the bottom of the furrows three or four inches deep and then covered by rich soil. The plants are then set in these rows and this gives opportunity for irrigation until the plants are well established. The soil should be gradually drawn in from both sides as the plants grow until the crowns of the plants as first set are covered to a depth of seven to eight inches. This will of course leave a ridge and the irrigation water should flow in furrows between the rows. Cuttings may begin the second year and will usually in this section furnish regular cuttings for a period of about three months. Irrigation should be frequent during the cutting season.

Beets, carrots, kale, lettuce, mustard, onion sets and seeds, parsley, snips, radishes, spinach, Swiss ard, turnips, cabbage and cauliflower are also in order for January. Peas may also be planted. While it is advisable to plant the slow maturing varieties of peas early in the fall, they may be planted in January with fair prospects of making a crop. Usually the later plantings, that is, the midwinter, should be of the early maturing varieties. Strawberry plants may also be set in January, and should do well if set any time during the month.

The importance of thorough preparation for the garden crops cannot be emphasized too much. A good coating of rotted manure is highly essential, although most of the soil is fertile and will do fairly well, but the extra cost of enriching the soil will make the crop better both in quantity and quality. The heavy soils require this for livening up and introducing humus. The lighter soils need the added fertility as well as the humus. A Bermuda grass sod turned under in this season of the year and allowed to decay keeps the heavier soils in friable condition and helps to insure a good garden crop. This is a good season of the year to saturate the soil with water, and irrigation is almost always necessary. Most successful farmers, and especially on the heavier soils, find it advisable to irrigate for a considerable period, several hours, or sometimes half a day, with a small stream of water which flows so slowly as to percolate deep into the soil. Irrigation in itself is not sufficient, but where the crop is already growing the irrigation should be followed, as soon as conditions will permit, with cultivation which keeps the top surface in a light loose condition and where the irrigation is being followed by planting the soil should be harrowed to prevent the soil from baking by forming a light dust mulch.

The crop year of 1920 just closed in quantity production far exceeded that of 1919. Owing, however, to the slump in prices of all farm products and livestock the total values are likely to show a decline over those of 1919. In general the crops on all projects were excellent, the season having been a favorable one.

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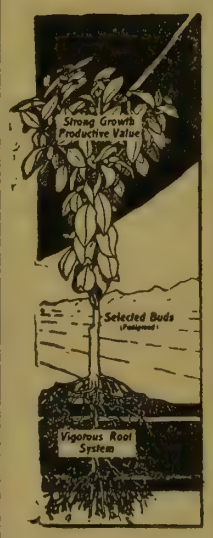

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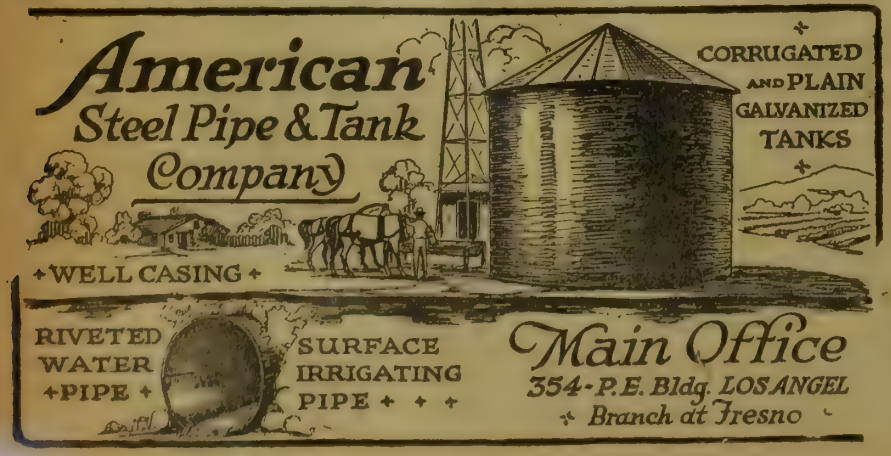

January in the Ornamental Garden

Northern California

By A. R. Gould

TO ALL my readers a prosperous New Year full of sunshine and flowers. The garden lover finds every year a busy year, and usually health and contentment. Success comes with practice and experience. There are many who think luck is responsible, but careful planning, soil preparation, sowing seeds at the right time and of the best quality, frequent cultivation and irrigation, all these are contributing factors, and we would urge all to be thorough in watering or irrigating. Plants need moisture and especially during the season of transplanting. Many good specimens are lost by careless watering and lawns turn brown by insufficient sprinkling. Keep the sprinkler in one place for 20 minutes or more. The rains in our northern section have been more than generous, but we still hope for more. There is still some cleaning up to do in the garden, dead wood to cut out from the rose bushes, etc. New lawns may be sown towards the latter end of the month. Careful preparation will be necessary, and it is usually better to allow the weeds to come up before sowing the seed. It will save much weeding as there is always plenty of weed seed in the manure applied to the soil during preparation. There are several good lawn mixtures carried by your seedsmen, some having the more hardy grasses. Kentucky Blue makes a fine turf if a straight grass is required, or white clover may be added. For shady places a special lawn mixture must be sown.

Some Choice Blue Subjects

There are many useful flowers which will beautify any blue scheme, and among the best we would mention the following, which may be planted now: Salvia uliginosa from Brazil, a tall pale blue; salvia farinacea two to three feet, S. pratensis, violet blue and S. virgata nemorosa, bright purple. Delphiniums, King of Delphiniums, D. Hugo Portman and Belladonna hybrids and Amos Perry. Asters or Michaelmas Daisy: T. S. Ware, Peggy Ballard, Ericoides Ringdove and A. amethysterus. Aquilegia glandulosa, Scabiosa caucasica, Agathea coelestis, Stokesia cyanea are perennials that should be in the border which must be well prepared with manure. Plant the clumps two to three feet apart. Some charming flowers in blue grown as annuals are nemophila or baby blue eyes, a native wild flower, nemesia blue gem, lobelia and violas all make fine border plants. The nemophila should be sown directly in the flower border where it is to flower. Iris may be planted in groups such as the flag iris or German, Spanish and Dutch, and these should be planted without delay.

Sweet Scented Flowers

Mignonette, best varieties: Giant Flowered Mechet and Allen's Defiance; Mathiola; evening scented stock and Nice stocks. Sow the first two broadcast and thin out where they are to flower.

Cinerarias and Mimulus

These are both good subjects for shady places and of the former there are the dwarf or grandiflora types and stellata in various shades of blue, violet, rose, pink and white. Mimulus tigrinus, "Queen's Prize," is well worth growing, having wonderful markings. Plant these two to three feet apart in rich soil.

Roses

Now is the time to plant nice young stock of the following: Ed. Herriot, Hadley, Los Angeles, Sunburst, Rayon d'or, Lady Hillingdon, Radiance, Gen. McArthur, Frau Karl Druschi, Ophelia, Joseph Hill and Cecile Bruner, all good roses. Some satisfactory climbers are La Marque, Bridesmaid, Ramona, Beauty of Glazenwood, Silver Moon, Excelsa and Tausendschoen. Have the beds deeply dug and manured.

Trees for the Avenue

Double flowering cherry, hawthorn or crataegus, beech, catalpa speciosa, poplar carolina, purple leaved plum, maple, birch, acacias and magnolia. These should be planted 25 to 30 feet apart to allow for proper development.

Southern California

By Ernest Braunton

LET us resolve, if space will permit, to start the New Year with more dual purpose plants, those of utility aside from their beauty. Some one has dubbed them "beautility" plants. We may perhaps cut out some shabby or useless garden inmates to make room for ornamentals of economic value.

The Paraguay guava or feijoa is hardy throughout California and Oregon, is an evergreen of attractive foliage and beautiful flower of brilliant coloring. The loquat will thrive in the same range of territory and the sapote is nearly as hardy. The Satsuma or Unshiu orange is unharmed by very heavy frosts and bears excellent fruits. The strawberry guava thrives in California generally, bears polished foliage and makes a good unarmed hedge plant. The avocado and cherimoya, or custard apple, are more tender, but the Northrup avocado is uninjured by frosts where the thermometer has registered 20 degrees, the instrument hanging on a tree ten years old. The Puebla and Fuerte are next in frost resistance and the latter is the best "cropper" of all. Other varieties need warmer localities and the mango illy brooks even a light frost. But some of this list should find a place in your home grounds.

Up to present writing this season is far behind that of a year ago, both in heat units and rainfall, and therefore we still may plant all manner of bulbs, Holland and others. Native flower seeds should also be sown, for in their native haunts few plants have started growth, either in annuals or perennials. Because of belated rains and soil warmth, one need not speed up the planting of tender plants or bulbs, or seeds more apt to rot than germinate. Better bide a wee until the natural genial glow encourages growth of all kinds.

One may profitably employ time and energy in soil stirring, incorporating animal manures. But even in this be cautious. If much rain comes and your soil is light, the nitrogen may leach to levels below the root zone, and it never returns. Or your soil may have a hardpan or impervious subsoil, so that excess of water will carry plant food away by flooding. For reasons indicated do not fertilize lawns until later in the season. If soil is close and sticky much good will come through a purification by turning it up deeply and allowing rain to beat the clods to pieces, thus completely aerating it. Allow it to so lie until needed; little oxidation or burning of humus material occurs in cool or cloudy weather. Dead weeds and organic rubbish of all sorts should be turned under in this aerating process, for if allowed to lie on the surface a harbor is provided for insect pests and fungous diseases.

Visit or write some reliable seedsman or look at the planting calendar in his catalog for the best seeds to plant at this time. Such lists are long and vary with climatic conditions, so that personal research is of more value than general advisory lists in our calendar of monthly operations. Nature helps those best who help themselves most. But seeds may now be sown of all plants common to gar-

dens of Eastern states, so that newcomers may observe such lists for guidance. Annual chrysanthemums and pinks, calliopsis, or coreopsis, cockscombs, centaureas, phlox, stocks, pansies and salvias may be sown in seeds or plants set out now. Do not forget sweet peas for spring flowers; they are far more promising now than later plantings, for sweet peas thrive best while both soil and air are cool.

Old clumps of chrysanthemums may now be torn asunder and planted for permanent effect or for the taking of cuttings for propagation in sand. Or both results may come from present division. There are also many hardy perennial rooted plants like golden glow, phlox, Shasta daisy, etc., that may now be divided and replanted, but do not replant canna, elephants ear, cyperus, papyrus, dahlia or any half hardy roots. These may, however, be taken up now and stored away for March or April planting. Aside from Dutch bulbs, gladioli do best from January planting, and so do Easter lilies. Dormant, bare root roses, all deciduous trees and shrubs of hardy nature may safely be set out, also all conifers, but citrus trees, subtropical fruits, etc., should be left for 60 days, at least. Let the dealer risk loss by frosts rather than yourself, but provide a future site for them and get your order in early, for future delivery. There is plenty of work for the home gardener in January, but do not be feverish for planting.

Southern Arizona

By M. E. Bemis

JANUARY is the month for putting out bulbs. The variety of flowers which may be grown from bulbs is much larger than most people are aware of. Those which may be put out this month are anemone, amaryllis, canna, calla lily, gladiolus, Spanish iris, lily of the valley, tuberose, hyacinth, tulip, daffodil, jonquil, crocus, oxalis, Chinese lily, freesia and ranunculus.

The canna is becoming more and more popular in Arizona and New Mexico, although not grown nearly to the extent it should be. These make one of the very finest bedding plants known to this section. Some of the superior varieties that do well here are the Louisiana, Parthenope, David Harum, Austria, West Grove and Italia.

The tuberoses are natives of Mexico. They withstand the hot summer and begin blooming in May and continue until frost. These are splendid for garden flowers in the spring or for cut flowers. No flower garden should be considered complete without them. Hyacinths, like the narcissus, daffodil, jonquil, crocus and iris, should be planted rather deep in rich soil. While the cost of the bulbs is considerable, a few add so much to the attractiveness of the home garden that they should be considered indispensable.

The list of flower seeds to plant for January is not a very extensive list. Cosmos, larkspur, petunia and sweet alyssum may be planted safely. But for better results it is advisable to wait until February or March.

January is the month for the planting of rose bushes. A large variety of roses do well in Arizona. The American Beauty is said to be at its best in this climate. Of the climbing roses there is a considerable variety, including the climbing American Beauty, Marechal Niel and Sunburst. Of the general collections of roses the American Beauty is the best, but there is a sufficient variety of others that do well here so that one may have continuous blossoms of almost all kinds throughout the entire year.

Roses should be set in well prepared soil and irrigation and cultivation should be extremely thorough and deep. Cultivation is one of the secrets of success in the growing of roses.

ANNUAL FIG INSTITUTE

The annual fig institute, under direction of the California Peach and Fig Growers, will be held at Fresno the first part of January. Tentative dotes are January 7 and 8.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Thumps

I have some young hogs about five or six months old. Some are affected with thumps and some have died. They are running on acorns, alfalfa and native grass, do a good deal of rooting under trees. Can you give cause and remedy?—Subscriber, Santa Ana.

This looks as if it might be a serious affection, though thumps in little nursing pigs is not so serious or at least may be easily prevented by exercise. On this point Dietrich's "Swine" says: "Thumps is a very common ailment among pigs under certain conditions. It occurs most frequently in young pigs that do not have enough exercise. The symptoms are labored, jerky breathing, similar to heaves in a horse. The most practical cure is removal of the cause, but this is insignificant in value as compared with prevention. To prevent this trouble pigs should have an abundance of exercise, but if this cannot be supplied the ration should be materially reduced."

Lovejoy's "Forty Years Experience" also touches thumps in very young pigs and insists on proper exercise and reducing the flow of milk from the mother by smaller quantity of bulkier feed. Then it speaks of another kind of thumps or pleura-pneumonia. Of this he says: "There is another trouble one often runs up against when he walks out among his pigs in the fall, or in fact at almost any time. He finds a half grown animal, or even a mature one, breathing short and fast with a perceptible jerk in the flank and back of the heart along the shoulders. This is a pretty sure symptom of serious trouble and is generally an unfailing sign of what is known as swine plague, or what would be called, in the human race, pneumonia. This is a dangerous disease and is one of the so-called varieties of hog cholera and is really more dangerous. There is little that can be done with hogs in this condition. They should be given a warm, dry place to sleep, thoroughly rubbed with some strong liniment, that is, penetrating, all along the sides; back of the elbow; between the forelegs; all about the vital organs; then, if in a shivering condition, cover them with blankets or something to keep them warm, and keep them where no draft or cold air can strike them. It would be well, in a severe case, to consult the family physician or a good veterinarian with a view of giving them some internal treatment. The animals will appear very gaunt and probably refuse to eat. If this is the case there is not much hope. Exercise in this case is always fatal."

Banks and Banks

Can you tell me which banks are the safer to deposit one's money in, a national bank or a savings bank, and if the two banks are affiliated and one fails, are both banks held responsible for the loss? What is the meaning of "First National Bank"? Also, the meaning of "Security Savings Bank"? Is a "First National Bank" any different from any national bank and is "Security" Savings Bank any more safe than any savings bank? When banks close their doors for want of funds, as they are now doing in many places, do the depositors lose their deposits?—Subscriber, Calipatria.

The safest bank is a matter of personality of the president and officers rather than of name or of the fact that it is a national or a savings bank, or a bank organized under state laws. National banks are under supervision of federal officials; savings banks and other banks organized under state laws have their books audited and their affairs under direction of state bank examiners. A lapse on the part of any of these officials or lack of vigor in watching the interests of the people might give dishonest or inefficient officials opportunity to impair the funds on deposit and the reserves of the bank. "First National Bank" often indicates that it is the first bank organized under the federal act in any particular city and has chosen for its name the word "First." The next bank organized under the same law may choose "Second" national bank or any other name which it sees fit. A "Security" savings bank is merely the name of that savings bank and means no more than would the name of the town in which the bank is located, or "Guarantee," or any other term which may be applied to the institution. The closing of a bank's doors does not necessarily mean that depositors will lose a penny. Of course, during the closing of the doors they may not withdraw any funds, but once a receiver or, sometimes, a state bank examiner has had opportunity to get the affairs of the bank so that its "liquid assets" are available or, rather, its notes and other assets are made available in the form of cash, then the depositors may have their money and the bank may again transact business. However, if the bank has been unwise and granted loans where the cash may not be secured and the funds are entirely exhausted, then the depositor may not receive the money which he deposited. National and savings banks under the law are maintained as separate corporations; each institution stands alone and is responsible for its own acts only.

Protectors from Frost

Can you direct me to a party who sells paper boxes with glass covers for early planting?—Subscriber, Texas.

We know of no covers having glass top. There is, however, a heavy waxed paper protector used in the cantaloupe fields of Imperial Valley and other sections of the state. These come in sizes from 12 by 12 to 24 by 36, the small size selling at $4.25 per thousand f. o. b. Los Angeles, the 14 by 15 size at $6, the 18 by 24 size at $12.50, and the 24 by 36 at $25.

Fumigating Beans for Weevil

How can I treat beans to keep from weevil infestation? Would it be all right to put in sulphur house and treat the same as for apricots for drying? This would not be so dangerous as the use of carbon bisulphide.—Subscriber, Madera.

We believe the sulphuring would destroy the germ so that the beans would be of no value for seed. Both carbon bisulphide and hydrocyanic acid gas have been used successfully. The use of carbon bisulphide is the simplest and there is no danger if fire is kept entirely away at time of fumigation. A word of warning in the matter of fumigation with carbon bisulphide may be in order. First, the temperature should not be below 60 degrees. When it becomes colder than that the gas is formed so slowly that its work is ineffective. Another warning is as to using too great amount of carbon, as it has been shown that where more than eight or ten pounds per thousand cubic feet is used there is danger of destroying seed germs. However, as eight or ten pounds per thousand cubic feet is sufficient to destroy the weevil, there is no necessity whatever for using the greater quantity.

Grape Syrup

Inquiry recently came as to the best grape for making grape syrup. The question was referred to Prof. Cruess who writes:

"Of the common wine grapes suitable for grape syrup making I think the Zinfandel will on the average contain as much sugar as any of the other common varieties. It is much superior to the Burger in this respect. It is not unusual for Zinfandels of the Lodi district to reach 25 per cent to 27 per cent sugar. The Alicante Bouschet and Petite Sirah both reach high sugar content. Of the white wine grape varieties the Palomino, Semillon and Sauvignonvert give juices of high sugar content. The Tokay, Cornichon and Emperor, among the table grapes, are very low in sugar content. The Muscat, Malaga and Sultanina (Thompson Seedless) reach a high sugar content and would be suitable for syrup making especially when blended with red wine grape varieties."

Citron for Dairy Cows

What is the food value in citron compared with beet pulp, silage and pumpkin for dairy cows? Would citron take the place of beet pulp or silage?—Subscriber, Newhall.

Citrons, pumpkins, beets and other root crops all have about the same value and none of them are of value in balancing with dried pulp or silage. That is, all of these feeds are short in protein — essential feed for dairy cows. If one is feeding freely of alfalfa or bran or other protein containers then any one of these feeds mentioned are of value as an appetizer and conditioner. The dried beet pulp, however, is the best for it is rated only about 10 per cent lower than corn or barley. If the dried pulp is moistened a few hours before feeding time it affords an excellent substitute for corn silage but ordinarily the corn silage is much more economical.

Picking Winter Nelis

A pear grower recently made inquiry as to determining time for picking Winter Nelis pears. The question was referred to Fred G. Stokes, horticultural commissioner of Lake County, the great pear growing section, and he answers:

"We pick our Winter Nelis after the Bartletts, mostly about two weeks after all Bartletts are picked. One can use his judgment by noting if the pears fall and whether they part easily from the first joint. As to keeping them from decaying, of course they must be free from worms, etc., or will soon rot. Our Winter Nelis are wrapped in proper paper and shipped to San Francisco. If wishing to keep an extra long time it would be well to put them in the ice house or keep in a cool place. If picked carefully and not bruised they will keep in the open lugs."

WE HAVE just issued an interesting booklet on growing potatoes which we will send free to any address on application. The booklet deals in an authoritative way with the whole subject of potato culture from planting to digging. No potato grower can afford to be without a copy—yours is waiting for you.

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Household Department

TODAY

Today, whatever may annoy,
The word for me is Joy, just simple Joy:
The joy of life;
The joy of children and of wife;
The joy of bright blue skies;
The joy of rain; the glad surprise
Of twinkling stars that shine at night;
The joy of winged things upon their flight;
The joy of noonday, and the tried,
True joyousness of eventide;
The joy of labor, and of mirth;
The joy of air and sea and earth—
The countless joys that ever flow from Him
Whose vast beneficence doth dim
The lustrous light of day
And lavish gifts divine upon our way.
Whate'er there be of sorrow
I'll put off till tomorrow,
And when tomorrow comes, why then
'Twill be today and Joy again!
—John Kendrick Bangs.

A PARADE AND A COOKY

By Clara Peterson

NOW children, don't think that this is only a story, for it really happened.

Once upon a time, not very long ago, there was a boy just eight years old, and he had to work very hard. He was quite thin and pale, but his eyes were brown and laughing and he was tall and straight. Even in his oilcloth baking apron—but there, I wasn't going to tell that yet.

His name was Silvester and he lived with his father's uncle-in-law, in a small bakery just around the corner. Uncle Jeremy was the only relation Silvester had, and he wasn't a very near one, was he?

The bakery looked quite high from the road. There were two wide, dusty windows, and the front of the building went up into a sharp peak, but there was nothing at all behind the peak, for the shop didn't have an upstairs—just the front room where Jeremy spread out rolls and cakes and pies on long, paper covered tables, and the middle room where the big stove stood, and the back room where there were two hard beds and a chest of drawers, and nothing else.

Silvester couldn't remember when he had had a really good time. It seemed to him that he had never done anything but sift flour and wash currants and cut fat cookies to lay in the tins. Of course, he had a great many broken cookies to eat, but his uncle couldn't afford, or so he said, to buy milk and eggs and fruit; no wonder Silvester was pale.

However, he was often happy when Jeremy wasn't too cross. He would stand at the long mixing bench and sift and roll and cut, or he would bend down to the hot oven and carefully lift out the gingerbread ladies and the raisiny buns.

One day, however, Silvester wasn't even as happy as usual. It was autumn and the leaves on the tree in the little sandy front yard were turning to red and yellow banners. Silvester did not like to look at them, for when the leaves blew back and forth he thought of the crimson blankets on trotting ponies and the gold of ladies' gowns.

You see, a circus had come to town and Silvester wasn't even to see the parade which always went up and down Main Street three blocks away. Uncle Jeremy had gone into the country for a load of flour and there was no one else to mind the shop.

Silvester might not have cared so much, but two years before he had seen the very last end of another circus parade and he knew just how wonderful it was—there had been two princesses on two humpy camels, and a steam piano and scarlet ponies too.

At this very minute people were hurrying past the shop down to Main Street to crowd and push and stand in line for the parade. They were smiling and talking loudly and happily and Silvester knew why they all were gayer than ever before—it was because they were going to see the elephants. There had never before been one single elphant in the town, but this circus was the biggest in the land and it had every animal you could mention. Of course Silvester had never seen an elephant, but he knew they were big, as big as two lions, he thought, and they had long dangling noses, too.

Silvester picked up the star cutter and stamped it into the brown dough. He always made dozens of star cookies for the children seemed to like them best. Finally there was just one humpy piece of dough left and as Silvester looked at it he began to smile.

"I'm going to make a peanut cooky out of this," said he slowly. "And I'll play that the biggest elephant is going to get it. Elephants like peanuts, and they like cookies too—Rannie said so." (Rannie was a boy down the street who traveled far and wide with his father. He had seen just about everything.)

Silvester piled the star cutter and the circle cutter and the animal cutters up against the wall and then he began to mold the peanut cookie. The dough was just the color of a peanut and when Silvester had shaped it fat at each end, and drawn little lines across it, anyone would have thought it was a big peanut all ready to be cracked.

It was fun to watch the hurrying people while the peanut cookie baked, but it wisn't much fun to look up toward Main Street and see the crowd and know that you wouldn't catch even a glimpse of anything and that the biggest elephant would never taste what you had made for him.

The door slammed and a stout lady in a blue checked dress bustled in to buy half a dozen cookies for her little boy so he wouldn't have to have so much popcorn at the circus. Silvester wondered how it would seem to have a mother buy things for him—though of course he'd never have her buy cookies. He counted six stars into a yellow paper bag, but the lady shook her head.

"Give me that funny looking one, little boy. It is bigger, I believe."

It was indeed bigger, for it was the peanut cooky. It had come out of the oven not a minute before and it lay on the table all alone, smelling gingery and sweet. Silvester walked slowly over and picked it up. Into the bag it went, on top of the five stars.

"The crowd's getting big," said the lady kindly, as she hurried to the door. "Better get over there or you won't see anything."

Of course no one would ever think that there was a little boy who wasn't going to the parade, and Silvester didn't tell her. He wound up the ball of string and went out upon the small porch to look up and down. Nearly everyone had gone past. The balloon man was crying down on Main Street and people in back of the others were standing on chairs and boxes, but that was so far away that Silvester couldn't tell one from the other.

He gazed the other way. The road led up a hill in the distance and there wasn't a moving thing in sight—or was there? What was that, trotting smartly over the hill? What was that coming down into the city but a team of four tiny ponies and a cart of yellow with wire wheels which sparkled like silver even so far away! Nearer and nearer they came. A man, bare headed and tall, was standing up in the pony cart and crying loudly through the megaphone:

"Parade will pass this way. Main Street bridge will not hold the elephants! Main Street bridge will not hold the elephants!"

The elephants! The man wasn't down to Main Street before people were thronging back. They crowded the sidewalk before the shop, they hurried along the street, they were everywhere.

Silent with joy, Silvester climbed up on the stool which stood in the corner of the porch. There was no one to wait on in the shop. His head was far above all the others—he was to see.

The steam piano was coming down the hill. It drove slowly past, whistling and tooting so that people swayed a little and stood on tiptoe to see their faces in the mirrors on its sides. Silvester's face was the very plainest; he smiled at himself and at the purple tassels swinging from black harnesses.

Arab men came leading the camels. The men wore robes of blue and gold and their dark heads were bound with embroidered turbans. A band in white marched past and the drummer smiled and nodded at the crowd and tried to

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wake every sleepyhead in the city. On a big white horse with a snowy flowing tail sat a little girl with gleaming yellow curls. She wore a dress of white lace and Silvester thought she must be a fairy with her wings folded tight.

There was a spotted clown leading a squealing pig, and there was an iron cage of lions who roared and growled and shook their heads. Away up the street four grey mountains were walking slowly. Silvester bent forward and gazed eagerly.

"May I stand beside you?" asked a sweet voice.

A grey haired lady in black was standing on the step. She had such a kind face that Silvester almost forgot the elephants for a second, and hopping down he said:

"I will get you a chair. I don't think —I don't believe Uncle Jeremy would care."

Even though the elephants were nearly there, Silvester ran into the shop and dusted a chair for the lady. He carried it out upon the porch and placed its legs firmly upon the boards. She sat down thankfully and Silvester climbed back on the stool. The last pony had gone and the elephants were coming so slowly. Several people crossed the road to be on the shadier side. The stout lady in the blue checked dress dragged her little boy across.

"Oh! Oh! Oh!" screamed the child. "My cooky! I lost my best cooky!"

But the elephants were coming and there was no time to go back. People laughed excitedly to think that even a small boy would speak of cookies at a circus parade, but Silvester did not laugh, for there, there in the middle of the road lay the peanut cooky.

The elephants wore blankets of rainbow colored velvet—ruby red and lavender, and glistening green and blue. They swung along so that the men who sat upon their fat necks bobbed back and forth. The smallest one with the ruby blanket come first. Tramp, tramp, tramp he went, straight over the peanut cooky without even stepping on it.

Tramp, tramp, tramp came the lavender elephant, shaking his trunk as though he smelled something spicy and good.

Tramp, tramp, tramp came the great elephant. The cooky still lay there while the crowd laughed and cheered. One big front foot just missed it.

Tramp, tramp, tramp came the blue elephant, the biggest of them all—almost as big as the bakery. Silvester leaned forward. Tramp, tramp, tramp went the elephant, and suddenly the peanut cooky wasn't there—it wasn't there because he had picked it up with his long trunk and tossed it plop into his pointed mouth. The biggest elephant was chewing Silvester's cooky.

And the parade was gone. The people straggled happily after it. Silvester looked up into the gray haired lady's face, and his eyes sparkled as he told her all about it. But he had not quite finished when Uncle Jeremy came scuffling through the store. The lady didn't know that he wasn't a real uncle who couldn't be expected to love the little boy, so she said very sweetly:

"May I take your nephew to the circus "

Uncle Jeremy shook his head and said gruffly: "Sorry, lady. He's got to sift a sack of flour for us—been idle too long, I'll bet."

The lady didn't ask again. She said goodbye to Silvester and went out. But he sifted happily for over an hour, for he had seen the biggest elephant smile an animal smile as he chewed something crisp and good.

* * *

But that isn't all.

The gray haired lady was the one who owned all the wheat lands outside the town—if Uncle Jeremy had only known that! She didn't have any child at all and whenever she sat down to breakfast or lunch or dinner alone in her gorgeous dining room, she thought of little pale Silvester sifting flour.

One day her lawyer went to see Uncle Jeremy, and that very afternoon Silvester went to live with the gray haired lady. Someone hired a big fellow to work in the shop, and Silvester learned to read the hardest books and to play the violin and also to love the gray haired lady as though she were his own mother.

But the very best story that Silvester had to tell until he grew old was the story of how the biggest elephant got the peanut cooky.

HINTS FROM HOUSEKEEPERS

Good Fruit Cake

Two cups light brown sugar (1 cup butter or 2/3 cup butter and 1/3 cup Snowdrift shortening), 1 cup sorghum molasses, 1 cup strong coffee, 4 eggs, 4 cups flour, ½ teaspoon salt, 2 teaspoons allspice or cloves, 2 teaspoons cinnamon, 1 teaspoon ground nutmeg, 1 teaspoon soda, 1 teaspoon baking powder, 1 pound raisins, 1 pound currants, ¼ pound candied citron, ¼ pound orange peel, 1 cup chopped English walnuts.

Cream together butter and sugar in large pan, add beaten yolks of eggs and cup coffee and beat vigorously. Put the teaspoon soda into cup of molasses, mix thoroughly, add to other mixture. Add salt, spices, raisins, currants, citron, orange peel and nuts, stirring in one at a time. Stir in one cup of flour at a time and mix thoroughly. Add beaten whites of eggs. The last thing I sift the baking powder over top of cake and stir it in the butter quickly, but do not beat. So often people make the mistake of beating the cake after the baking powder is added.

Place in large bread pan and cook in a slow oven for 2¼ hours. I always test my cakes by sticking a toothpick in the center of cake. If the batter sticks to pick it needs to be baked longer.

This cake is moist and can be eaten immediately or it will keep in stone jar for months.—Mrs. F. H. Merlan, Los Angeles.

Glazed Fruit

Someone asked for this recipe in December Cultivator:

Pick the finest of any kind of fruit and leave on their stems. Beat whites of eggs to a stiff froth, lay fruit in beaten egg, stems upward, drain them and beat part that drops off again. Select them out, one by one, and roll in finely powdered sugar. Cover a pan with sheet of waxed paper, place fruit inside of pan and put in an oven that is cooling. When the icing on fruits becomes firm, pile them in a dish in a cool place. If oranges are to be glazed, remove skin and all white to prevent bitterness. Always choose the best and largest of fruits.—Subscriber, Los Angeles.

Red Cabbage

Shave half gallon cabbage fine, put in a stewpan with a little water and meat fryings, pepper, salt, two tablespoons sugar, a small onion pierced with cloves, one sour apple sliced. Remove onion and stir in apple after boiling slowly.—Mrs. P. Freyman, Del Rey.

UncooRed Apple Candy

To the "Salinas Subscriber": To make apple candy without cooking the apples or candy, beat the white of eggs very stiff, add one tablespoon milk to each white (after beaten), then put in as much powdered sugar as it will take, flavor and work into same; color some with chocolate (melted), etc. Cut apples in dice, oblong, etc.; place inside a piece of this fondant and roll with your hands. Put on platter and dry over night or even a few days. Very nice.—Subscriber, Mountain View.

Butter Coloring

To "Chico Subscriber": Grate large carrot, squeeze juice through cloth. None better.—Mountain View Subscriber.

Spice Cake

This is a dandy little spice cake or fruit cake and can be baked a half hour before dinner and eaten either hot or cold:

Place 1 cup sugar in pan, 1 cup sour milk, 1 or 2 eggs, 1 tablespoon melted butter, ¼ teaspoon salt, 1 teaspoon cinnamon, ¼ teaspoon allspice, little nutmeg, 1 scant teaspoon soda dissolved in milk and mix thoroughly, adding one cup at a time until you have used 3 cups flour. Lastly, I add 1 teaspoon baking powder. Sometimes

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I add 1 cup raisins or 1 cup nut meats. Can be made in large cake pan or makes nice little cakes by using muffin pans and icing them.—Mrs. F. H. Merlan, Los Angeles.

Good Raisin Pie

Line a pie tin with good rich pastry and try this for filling: 1 cup chopped raisins, 1 cup clabber milk or cottage cheese, 1 cup granulated sugar, 1 egg and a pinch of salt. Beat egg until light, add to other ingredients, mix thoroughly. This makes a good raisin pie and the milk or cheese takes away that sickening taste in the raisins. Cover top as for other pies.—Mrs. F. H. Merlan, Los Angeles.

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Sweet Potato Pie

In answer to a request in your paper for a recipe for sweet potato pie will send the following, which is very delicious: Two cups sweet potato (mashed), 1 cup sugar and ½ cup butter creamed together, yolks of 4 eggs; add ginger, cinnamon and nutmeg, 2 cups milk. Lastly add the egg whites, beaten well. This will make two pies and can be made from canned potatoes as well as fresh.—Mrs. David Lindberg, Richvale.

HOUSEHOLD QUERIES

Cheap Fruit Cake

Please send me recipe for cheap fruit cake that was in the Cultivator in 1916.—Subscriber, Los Angeles.

The following recipe was given by Mrs. Floy Crosby Smith of Fairoaks in the Cultivator of November 18, 1916. We hope it is the one wanted by our subscriber:

"So often one hears the objection that fruit cakes are not only expensive but rich and indigestible. The following recipe makes an excellent cake which is neither costly nor too rich. Sometimes in place of currants I use chopped dried figs. One cup butter, 1 cup brown sugar ½ pint molasses, 2 eggs, 1 cup sour milk, 1 teaspoon soda, 1 pound flour, 1 pound currants, 1½ pounds raisins, a little citron. Bake as a loaf in a deep pan, preferably two or three weeks before it is to be used."

Another Cure for Poison Oak

I have noticed in your paper several cures for poison oak, and that brings to mind my first acquaintance with it. I was cutting a trail to the mine through thick brush and noticed a black oil coming out of some of the cut roots. I put my finger in it—and found out later it was poison oak. An old granny said to boil the roots and bathe in the water and that would be a sure cure. I tried it on one arm and the effect was wonderful — it nearly killed me. I suffered for three weeks, trying other remedies suggested, sometimes wishing somebody would tell me to swallow a stick of dynamite with a fuse attached to it. Then a friend wrote me to try an emulsion of ammonia and soda. It seemed rather late in the game to use ammonia—on raw flesh. I did though, commencing on one arm and gradually putting on all of the afflicted parts, and it commenced healing almost instantly. Do not bathe until you are well of the itching, then you will find that it will peel off and you will have new life. Since I used it I want to tell everyone. The other day, while passing through the suburbs I noticed an old lady leaning on her staff and scanning the street for a clear passage between automobiles. Finally she made it across, and as she turned around something flashed by at about 50 miles an hour, and, stamping her old staff on the walk she said: "You hell devil, where you come from?" And that's what I say about the oak when it appears on me.

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KING SEGIS PONTIAC JANNEK, the great proven son of King Segis Pontiac, an outstanding individual and sire of outstanding individuals.

FORTY DAUGHTERS OF KING SEGIS PONTIAC JANNEK, including all of the sensational show ring winners at Los Angeles.

A BEAUTIFUL LOT OF 29 AND 30 POUND COWS, several on yearly test, will finish right at or above the 1000 lb. mark.

THREE YOUNG BULLS, one a son of Baron Annabel Lilith, one a son of Maid Tuebie Segis, both of these sired by King Segis Pontiac Jannek. The third bull a son of Sir Ormsby Skylark out of a 30 lb. dam.

A SPLENDID LOT OF YOUNG COWS with records from 22 to over 28 lbs. butter in 7 days, some now making big yearly records.

IF YOU WANT THE GOOD KIND, DON'T MISS THIS SALE!

BREEDERS—Don't wait until sale day to form your companies to buy King Segis Pontiac Jannek. He is widely rated as the greatest proven sire yet offered at public auction in California, and there are many combinations of breeders in California who could well buy and use him at the price he is worth.

Every animal positively guaranteed to be a breeder; every animal Tuberculin tested and sold subject to retest by the buyer.
Catalog free on request.

Management

California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.
Auctioneers: Rhoades & Rhoades, Los Angeles

REGISTERED
60 GUERNSEYS 60

AT PUBLIC DISPERSAL

Revada Ranch, Yountville, Cal.

Thursday, January 20, 1921

This is an absolute dispersal of the well known Revada Herd of registered Guernseys, founded by B. E. Nixon, and now owned by Mission Land & Cattle Co., who will devote the ranch to other purposes.

IMPORTED FEMALES—The herd contains a number of imported females, including daughters of such famous sires as Governor of the Chene, Raymond of the Preel XIII, Robert's Secret, and others of corresponding merit.

THE HEIFERS—Bred and open heifers, and heifer calves comprise a large percentage of the offering. Many of these are out of imported dams, and by such sires as Auricle's Cherub of Edgemoor, Imp. Ricardo of Edgemoor, Itchen Daisy May King of Langwater, and other sires of most desirable breeding.

THE BULLS—The offering of bulls marks a most important event in the affairs of the Guernsey breed in California, for never before have so many bulls of the breed been offered at public auction in the state. The sale list includes a number ready for service, others nearly ready, and some very choice bull calves. Included in the list are several sons of Itchen Daisy May King of Langwater, brought to Revada Ranch at the then world's record price of $8000.00. There are bulls in the list that should offer desirable selection to both breeders and dairymen.

Every animal positively guaranteed to be a breeder; every animal over six months old Tuberculin tested and sold subject to retest except as announced in sale ring.

CATALOG OF SALE FREE ON REQUEST

Management

California Breeders Sales and Pedigree Company
C. L. HUGHES, Sales Manager, Sacramento, Calif.
Auctioneer: Col. Ben A. Rhoades, Los Angeles

Good Prospects for Hog Raising

By J. P. Bennett

TO make any definite predictions as to the future market conditions and demand for pork and pork products one would need to be possessed with a sixth sense. However, since history repeats itself, the past is a very good guide by which we may gauge the future. We may think what we like upon this subject, but there really are times when the law of supply and demand controls market conditions. This is nearer true at the present time than it has been during the past few years of exorbitant prices, senseless buying and wild investments when the speculative demand dominated market values. We are now emerging from an era which we will have to disregard in adjusting our ideas to the new price levels on which we are to base our future operations. Several things combined to bring about this situation: the unsettled condition resulting from the World War; the unusually high price of grains, caused not so much by the actual shortage as by manipulation of speculators on the large grain markets; the low pork prices, caused largely by the cessation of buying orders from the European countries; the general tightening of money and shutting off of credit—all have contributed to affect the profit rightfully expected from pork production.

The average farmer is the really big factor in pork production, and whenever the ratio between grain and pork prices does not yield a profit he suspends operations until conditions adjust themselves. A good share of the time during the past few years the man with grain to spare could cash it for a greater profit than hog feeding could possibly produce. However, that time has passed. The low market price of grain and the difficulty of selling makes the business of producing pork more attractive than it has been for some time. True, the price of pork has declined, but not in the same ratio that grain and many other farm products have dropped.

The withdrawal of the small farmer from the market dealt a severe blow to the breeder of pure bred hogs just at a time when the breeder was needing strong support. The general prosperity of the country at large during the past few years affected the pure bred industry and attracted many men who were neither qualified nor prepared for the business. The influx of these men without knowledge of values or the fundamental principles of breeding, buying many animals far above their real worth, caused prices to soar. The effect is too well known to need comment. Generally speaking, it was the men who rushed blindly into the business who were the first to try to unload on a weakening market. However, the man who kept his operations on a conservative business basis has sustained comparatively small losses.

The present ratio of pork and grain will yield a profit for the feeder, and the hog industry looks brighter for the farmer than it has in years. There is bound to be a strong demand for breeding stock prices on a business basis to restock the depleted herds on the farms, hence the breeders might well be making their plans to handle the situation. There are few, if any, farms that will not show an added profit when at least a few hogs are kept. They will fit into most any system of farming operations, consume the waste from the farm, convert it into cash and assist in conserving the fertility of the soil. This in itself is worthy of consideration as one of the most serious agricultural problems confronting us—the conservation of soil fertility. The best method of doing this is by feeding as much of the farm crop as possible into farm animals and using the manure to good advantage. The high price of commercial fertilizers and the ever increasing need for them should make the land owner realize the value of manure as a by-product of the farm. In some parts of the state manure commands such a high price that it can be considered quite a valuable asset. Barnyard manure is nature's best fertilizer and should be given greater consideration than it is receiving. Many of the cover crops could be pastured part of the year with hogs and the same result obtained in humus supply as well as additional fertility at a profit. As agriculture progresses and develops, this need will become more and more acute. The man who will be prepared is the man who plans ahead to meet the growing demand.

The present outlook for the pork producer and the hog breeder is much brighter than it has been in some time. It will be necessary to adjust ourselves to a new scale of prices in order to meet the present situation.

The breeding herd should be maintained on as near an economic basis as possible. It would not be well to underestimate the worth of a valuable herd boar, the addition of sows to strengthen the foundation herd, or neglect to feed adequately in case of preparation for the show ring, but the bulk of the herd can and should be handled on such a basis that if the demand for breeding stock is lax the animals can be put across the scales and still show a neat profit. More attention should be paid to the selection of breeding animals and greater discrimination made in animals maintained in the herd and a larger per cent sold for pork. Indeed, every pure bred producer will do well to bear

this fact in mind: pure bred livestock of all kinds is capable of making a profit because such livestock is efficient. If a breeder cannot make his stock show a profit he certainly can not expect it to prove satisfactory to the average purchaser. The time should have arrived long ago for the breeder to get his operations on a profitable basis. If he can show that his herd is making him money, he will have little difficulty in selling to his neighbors. On the other hand, if his herd is losing him money he can hardly expect to gold brick the public.

The present deflation from which the hog industry is suffering is only a recurrence of conditions that have occurred on an average of every ten years since the pure bred hog business was founded, and tend to prove that present conditions will readjust themselves. The business of pork production is of too much importance to be permanently affected by temporary fluctuation in prices.

THE SERIOUSNESS OF A NAIL PUNCTURE

Large wounds inflicted in the horse, regardless of their location, ordinarily are regarded as very serious. As a matter of fact, the small puncture wounds of the foot, inflicted by nails or other small objects, do immense damage by causing to be set up in the foot imflammatory conditions which in many instances render the animal useless.

When the anatomical structure of the horse's foot is taken into consideration, the reasons for serious apprehensions regarding wounds of any kind to the underlying soft tissue are quite apparent. Briefly, the gross anatomy of the horse's foot consists of inner bony structures and the outer surface of a rather resistant horny box or covering. Between these two structures are found the soft tissues, varying in thickness, and extremely vascular. The soft tissues are quite susceptible to the growth of certain kinds of bacteria which gain entrance to them through wounds. The facts to be considered with regard to foot injuries are the nature of the wound, the anatomical structure of the foot, and the introduction of harmful bacteria into the wound.

When a nail or other object penetrates the hoof there is set up in the soft vascular tissue inflammatory processes produced in the first place by the penetrating object, and later, as a rule, continued to a greater extent by septic processes induced by the action of bacteria.

Considering that a number of horse owners apparently do not realize the seriousness of nail punctures, which they quite often treat in a rather careless way, prompts a few remarks on this topic. Severe lameness appearing suddenly is an indication of nail puncture which should not be difficult to recognize. Observation, however, often reveals that the cause is not discovered until some time after the injury has occurred. Many people handling horses give but little attention to the foot in a case of lameness, but look for the seat of trouble elsewhere. In view of this fact the division of animal industry advises that considerable attention should be given to the foot for the seat of disturbance, especially when lameness develops suddenly.

In making an examination of the foot for wounds the under surface should be scraped thoroughly clean and careful observations made for any evidence of blood which may exude from a wound. After this procedure, if no puncture is found, a thin layer of the superficial horn should be shaved off, preferably with a sharp farrier's knife. This is done for the reason that an almost invisible wound orifice may be more readily detected on the smooth surface produced by trimming. When seeking the wound small discolored areas should be shaved off in order to make sure that they are not extending inward, and it should be borne in mind that the puncture is frequently presented as a small dark spot from which blood or inflammatory products may be oozing. A light tapping or squeezing of the hoof may aid in locating the wound. When a puncture wound is located the treatment applied depends upon its location and the nature and extent of the injury. In all cases of penetrating wounds of the foot the first logical procedure in applying treatment is to see that no foreign particle remains in the wound.—S. O'T.

CANADA'S EXHIBIT AT CHICAGO

One of the most interesting sights at the International Livestock Show at Chicago was the evening parades of horses and cattle. As the Canadian section of these parades came into view, and as it passed around the ring, there was continued applause. There were two or three reasons for this, the principal one being that in this section there were the wonderful Clydesdales, the Belgians and the Percherons that had carried off championships and first prizes. The province of Saskatchewan had a splendid display of Clydesdales and showed in a number of classes, and in every class they got in the money. A remarkable and noted winning was that of the University of Saskatchewan, showing Lady Bruce, female Clydesdale, in a class of 24 and taking second. In competition there were entries from such famous studs as Conyngham Bros. of Wilkesbarre, P. L. James of Easton, Massachusetts, and George Chiett of the same state.

The following are some of the good things that Canada won at the International, in a fair fight and no favors: Grand championship for Clydesdale stallions; championship for American bred Clydesdale mares; reserve senior and reserve grand championships for Clydesdale mares; grand championships for Southdown sheep; Sweepstakes grand championship for wheat for the continent of America; championship for Durum wheat for America.

CEREAL PLANTINGS AT UNIVERSITY

By G. W. Hendry

Several new and improved cereal varieties are being grown on 200 acres of fallow land at Davis this season. Hard Federation wheat, which is expected largely to replace other wheat varieties in many of our grain districts within a few years, will be distributed from Davis for the first time next summer. Burt oats, which has many good qualities and an enviable record to recommend it, is another one of the headliners to be sent out for the first time next season. Peacock barley, an improvement over the old two row Chevalier barley, has been developed especially for the Salinas Valley and will be grown there for the first time next season. Visitors at the university farm this spring may have the pleasure of inspecting a 40 acre field of Mariout barley which tests 100 per cent in purity. Never before has this been seen in California. Several large plantings of Four Thousand barley are also to be made. This new pedigreed barley is ten per cent more productive than common barley and is increasing rapidly in popularity. A number of standard wheat varieties are also being grown in pure cultures.

FARM ACCOUNTING SCHOOLS

Several farm accounting schools will be held in various parts of the county by Prof. R. V. Wright, farm management demonstrator for the state college of agriculture. At these schools special attention will be paid to income tax returns required of farmers, and new forms for keeping farm records will be demonstrated and explained.

A few minutes invested in putting machinery under cover and oiling the bearings pays good dividends.

It is not at all safe to hire a stenographer that knows less than three times as much as you do.

"Kindness," says Victor Hugo, "is the sunshine of the spiritual world." The most of us know where the shadows come from.

Life is made up not of great sacrifices or duties, but of little things in which smiles and kindness and small obligations, given habitually, are what win and preserve the heart and secure comfort.—Humphrey Davy.

Use Hereford Bulls

The Hereford is the range bull without a peer.

My Herefords have size, bone, constitution and are notably thick fleshed. Visit my ranch and get my prices. Send for free literature.

Mission Hereford Farm

John A. Bunting

Mission San Jose Cal.

DIAMOND G HEREFORDS

A few choice young bulls, big, heavy-boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.

H. H. Gable Esparto, Cal.

History Repeats Itself

There is a story that is repeated nearly every working day of every year, on the pages where the records of public sales are kept, a story that if analyzed proves to be only a true record of the results that must certainly follow any breeding herd of registered Holsteins built along similiar lines.

KING KORNDYKE PONTIAC

His sire, KING OF THE PONTIACS, with 268 A. R. O. daughters, outranks any other bull of the breed in this respect, and among them are 40 with yearly records, including five that have over 1,000 lbs. butter. His presence in any pedigree lends strength, and his worth is too well known to require further description here.

His dam, MAY KORNDYKE 2ND, made 776.46 lbs. butter from 18,868.9 lbs. milk in one year as a 3 year old, a record that does not truly indicate her capacity, as she was a cow of wonderful capacity and splendid type, but unfortunately never had an opportunity to show what she could do in mature form. Her dam was for many years the youngest 30 lb. cow of the breed. She is by the same sire as Prince Gelsche Walker, and is therefore half sister to the dam of Carnation Pietertje Segis Prospect, who recently broke the world's yearly record with a production of over 37,300 lbs. in one year, and also made over 1,440 lbs. butter the third highest record.

KING KORNDYKE PONTIAC was not bred by us, but was calved in our ownership, raised by us, and then used as one of our herd sires, at a time when we were using so many sires that no one of them had an opportunity to produce a large list of daughters. He sired the $12,000.00 bull King Korndyke Pontiac 20th, who in turn sired the $41,000.00 bull King Korndyke Pontiac Acme, subjects of our two previous announcements in this series.

We regard KING KORNDYKE PONTIAC as one of the most valuable breeding bulls in California, with unquestionably great production in his pedigree. He himself has 15 A. R. O. daughters, one of which recently made 31.12 lbs. butter from 623.1 lbs. milk in 7 days. He has a large list of young daughters yet to freshen, a number of which will no doubt be heard from this winter, and they are a most pleasing group of excellent individuality.

KING KORNDYKE PONTIAC is now owned and in active service in one of California's largest high class herds, at Jane Garden Farm, owned by

FRED W. KIESEL

SACRAMENTO CALIFORNIA

It is the story of the breeder who founds his herd upon good, average, substantial females. In their development one or perhaps several outstanding producers and breeders are established, and upon these and their female offspring the larger foundation of the herd is laid.

Then one day comes the reason for the dispersal of the herd, and the various individuals composing it are exposed to the critical appraisal of buyers at the public sale ringside. The good cows find ready bidders at most substantial prices, but the heifers out of these good dams go begging, and often the owner can not understand the process by which buyers rate his great producing cows so highly and the next minute place so low a valuation on their daughters.

But the whole story is on the catalog page, where everyone may read, in the sires of the heifers. It tells the story in actual words of how a foundation of well bred, high producing cows were mated with a bull of inferior or unattractive breeding, detracting largely from the value of every heifer he sired out of a good dam. An investigation of the beginning of the story will often reveal the fact that the original purchase price of the herd sire was less than was paid for any one of the foundation cows. And that sort of a bull was responsible for one-half or more of the value of every calf he sired.

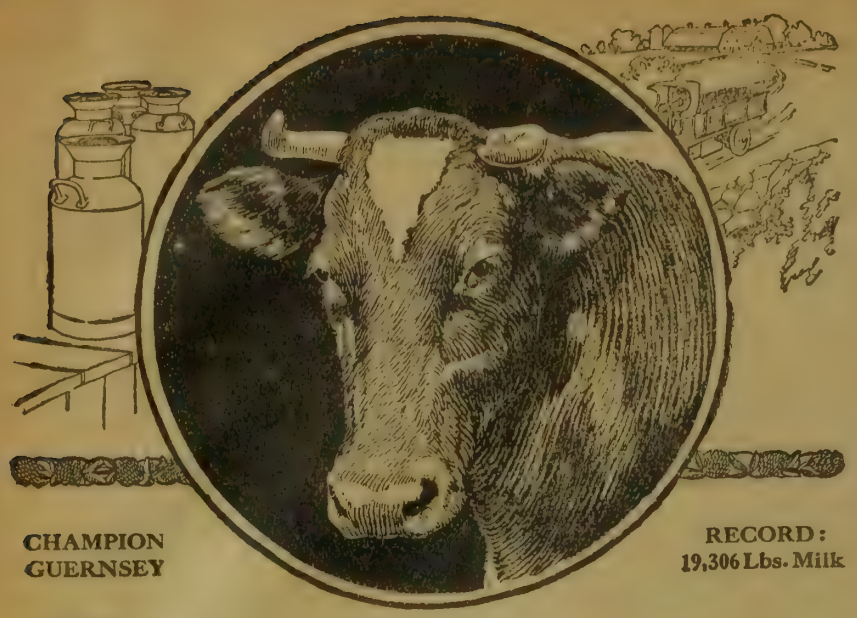
Will history repeat itself in your herd? Or will you decide right now to lose no more time in placing at the head of your herd a sire not only backed by large production records, but also representing the blood lines that have been thoroughly proven in great yearly production, and are so well and favorably known that they meet with keen demand in any sale event?

Perhaps we may be of assistance to you in solving your herd sire problem. We have developed a number of outstanding families of yearly producers, and have blended them in some matings that are proving highly satisfactory in the hands of many good breeders and dairymen.

Our knowledge of the quality of several generations of ancestors behind the bulls we have to offer is at your service. Correspondence is invited if you are unable to visit our herd.

A. W. Morris & Sons Corporation

Woodland, California



CHAMPION GUERNSEY

RECORD: 19,306 Lbs. Milk

The real facts on Big Milk Production

THE function of milk-making depends so entirely on the health and activity of the vital organs directly concerned, that the slightest loss of vigor in these organs affects at once both the quantity and quality of the yield.

Because Kow-Kare so quickly reaches and builds up the organs of production, it is fast becoming as generally used as an aid to production and a PREVENTIVE of ills as for its fundamental use in treating disease.

Most cow diseases—such as Abortion, Barrenness, Retained Afterbirth, Scouring, Lost Appetite, Bunches, arise in an impaired condition of the digestive or genital organs. It is just these organs that Kow-Kare is designed to build up and restore.

Feed dealers, druggists and general stores sell Kow-Kare; 70c and $1.40 packages.

DAIRY ASSOCIATION CO.
LYNDONVILLE, VT.

NOTE: The trade-mark name has been changed from KOW-KURE to KOW-KARE—a name more expressive of BOTH the PREVENTIVE and CURATIVE qualities of the remedy.

Kow-Kure and Bag Balm Distributor for California,
Germain Seed Co., Los Angeles, Cal.

TREAT YOUR OWN LIVE STOCK
PROMPT FIRST AID IS VERY IMPORTANT

You never know when an animal is going to be sick, or some accident occur, requiring quick action to prevent loss or permanent injury. If you know what to do and have the necessary medicines on hand you can save a valuable animal that otherwise may be lost.

There is a Dr. David Roberts Prescription for Every Animal Ailment

Study the *Practical Home Veterinarian.* Get our medicines of your local druggist. You can successfully treat Calf Cholera, Constipation, Abortion, Udder Troubles, Colic and dozens of other ailments common to livestock. If no dealer near you, write us direct. Veterinary advice free. Ask for free copy of the "Cattle Specialist" with full information pertaining to abortion in cows. Tells how to treat your own herd at small expense.

Dr. DAVID ROBERTS VETERINARY CO., Inc. 212 Grand Ave., Waukesha, Wis.

Over Two Million Calves

protected against Blackleg for Life with ONE treatment vouch for Purity Blackleg Aggressin (Germ Free Vaccine made by the Kansas Process). Absolutely safe to use. Cannot transmit disease. Brand, castrate, etc., when you vaccinate. OTHER PURITY PRODUCTS: Anti-Abbortion Vaccine for Cattle; Hemorrhagic Septicemia Vaccine for Cattle and Sheep; Anti-Hog Cholera Serum, and High Count Mixed Infection Vaccine for Swine. For service that counts write, phone, or wire.

PURITY SERUM CO., J. L. Thatcher, Mgr. Riverside, California

Rhoades & Rhoades

Expert Livestock Auctioneers

Col. Ben A. Rhoades — Harold B. Rhoades

Sales conducted in all parts of California and arjoining States

and adjoining States

REG. DAIRY CATTLE

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We conduct sales of grade dairy cattle and general farm sales in all sections of California. Absolute satisfaction guaranteed. Forty years of successful sales in California and thousands of satisfied customers.

Write, phone or wire for dates and terms.

RHOADES & RHOADES

1501-3-5 So. Main St. Los Angeles, Cal.

Cattle Prospects to Date

By A. L. Spellmeyer

THE relief promised by the emergency tariff bill is the first attempt at remedial legislation the cattlemen have experienced. Many folks do not know what it means, but there is a stiffening already in cattle holdings that will soon be reflected in the Kansas City and Chicago market quotations, if the measure passes. From the appearance of the Middle West market (and this statement is made when it looks as if the emergency tariff was certain to pass over the presidential veto if necessary), it looks as if the insiders thought it would not pass. If the opinion exists that this emergency measure would go through soon, it would seem that there should have been stronger prices for lambs and Chicago beef.

An ad valorem tariff on meat would stop importations of beef and mutton from Argentine or Australia. A duty on cattle would cut down the fat cattle from Canada and the stockers from Mexico which still come through.

If the war corporation measure is applied to a practical purpose there will be activity in cattle circles as money is the present cause for forced liquidation.

With a national slaughter exceeding 20,000,000 cattle and calves yearly, a certain dwindling of the 44,000,000 beef cattle supply we are supposed to have in the census about to be published, cattle should come to a living profit basis for producers very shortly if producers get money and get protection from cheaper foreign meat.

The regulation of the packers is still a matter agitating the legislative bodies; the nation is demanding cheaper food, and retailers are yielding to the universal clamor for less profiteering. A drop in retail meat prices cannot injure meat producers but will be of much benefit inasmuch as it will increase volume consumed.

As far as California is concerned several things have come to pass. The cattlemen have organized to financially care for any temporary excess in supply which would permit market manipulation. The 40,000 per month necessary to supply California alone will make killers hunt hard for beef until the April and May cattle volume starts. The indications are that fed steers may go to 12 cents within two months and that there may be a disruption in the Vernon killer ranks, either through desire to profit or the realization that certain practices will not be much longer permitted by a people or its lawful representatives. At present the South has more beef in sight than the north in fed stuff, but the north has early grass beef prospects. The San Francisco men have been working far south and within a month the Los Angeles men will be working far north.

California has had good rains and has every guarantee of early beef. In Kern County, however, which has the most of any California county in cattle and the bulk of steers of age to make the desirable weights of grass beef, the year has been backward. The large lots of steers are going to come on slow and that will help the cattlemen to a price.

If the Chicago market and the Kansas City market see money and cattle shortage there will be a May or even April run on the California half fat steers to finish on Kansas and Texas spring and summer pastures. Proportionately, we have more than our share of steers. Although the nation is killing 12 to 14 million steers and cows yearly, it is very doubtful if there are 8,000,000 steers in the entire nation. The fact that even Kansas City low prices, netting only $18 to $23 for the kind of good yearling steers which usually sold at $40 to $50, did not make the districts which supply range yearlings drop below $35 for the same kind is in itself significant. The $35 yearling steer is still on the ranges and when a yearling sells for $35 there won't be any surplus $35 to $40 cows very long.

In fact, there is every reason to believe now that fall shipments are about through from the cold districts, that a California cow will in 60 days, irrespective of the beef price, again resume a $60 to $75 value.

The fact cannot be denied that there is a general feeling out for cattle starting in California, a more or less quiet confidence that cattle will be in demand, and a general trend to ten cent grass beef, with possibly more if shortage affects us.

It is realized that retailers cannot continue their enormous profits gross and that lower prices to consumers must mean more beef eaten. The cowmen feel that the reactor cow will not be a competitor against the beef animal much longer and that the possibilities in remedial legislation, finance, and range grass all bring a possible advance until a living profit can be secured.

DAIRY SHORT COURSE

The first annual dairy short course will be given under the auspices of the argicultural extension service, California Dairy Council, and the dairyman's department of the Los Angeles County farm bureau at Downey auditorium, January 3, 4 and 5; Van Nuys high school, January 4, 5 and 6. At an afternoon session in each course there will be a cow judging demonstration and judging classes. Another afternoon will be given over to the holding of a postmortem examination on a tubercular cow.

Similar courses will be held at Ontario and Riverside, January 7 and 8.

Following is from the program: Downey, January 3, and Van Nuys, January 4, 9:30 a. m.: Relation of the Agricultural Extension Service to the Dairy Industry, Robert W. Hodgson; Breeds and Breeding, W. E. Tomson, U. C.; Selection of the Herd Sire, B. C. Bougher, assistant farm adviser Los Angeles County; Building Up the Dairy Herd by Cow Testing, C. V. Castle, U. S. D. A.

Afternoon, Downey, (L. A. Co. Farm), Van Nuys, (Adohr Stock Farm), 1 o'clock: Cow Testing Methods, G. E. Gordon, assistant farm adviser, Geo. E. Knight, head cow tester; Cow Judging Demonstration, F. H. Scribner; Dairy Cow Judging, in charge of G. E. Gordon.

January 4, at Downey, and January 5, Van Nuys, 9:30 a. m.: Does the Dairy Industry Need a Publicity Department? Sam H. Greene, Dairy Council; Dairy Equipment and Sanitary Milk Production, Dr. C. F. Hoyt, superintendent dairy inspection, state department of agriculture; Contagious Abortion, Dr. J. P. Bushong, Los Angeles city veterinarian; Tuberculosis, Dr. F. B. Wilcox, deputy state veterinarian; Postmorten Examination of Tubercular Cows, Drs. Bushong and Wilcox.

Downey, January 5, Van Nuys, January 6, 9:30 a. m.: Dairy Farm Crops, Prof. P. B. Kennedy, U. C.; Business Principles Applied to Dairying, C. V. Castle; Dairy Produce Markets, Sam H. Greene; Feeding Dairy Calves, C. V. Castle; Feeding the Dairy Cow, Prof. W. E. Tomson; Rations Employed by Los Angeles County Dairymen, G. E. Gordon.

THE J. G. THROCKMORTON BERKSHIRE SALE

The sale of Berkshire hogs held by J. G. Throckmorton, Sebastopol, Saturday, December 18, was fairly successful. Owing to rainy weather the crowd was smaller than expected. This, together with a total lack of breeders' support, had quite a tendency to hold values down. However, an average of close to $50 per head on everything of breeding age was as much as could be expected under the circumstances. Every hog sold went to the farmers and dairymen around Petaluma, Sebastopol and Santa Rosa. Col. Geo. W. Bell, Tulare, was on the block and sold the offering in his usual satisfactory manner.

CHOOSING

Life is short—too short to get everything. Choose you must, and as you choose, choose only the best—in friends, in books, in recreation, in everything.—Museologist.

Livestock News Notes

HIGH RECORDS IN THE GIBSON HERD

Several noteworthy official records have just been completed in the herd of registered Holsteins owned by the J. S. Gibson Company, Williams. Aaggie Korndyke of Nevada, a mature granddaughter of Pontiac Korndyke, started on test 30 days after calving, made 30.19 pounds butter from 704.3 pounds milk in seven days. Her dam is a daughter of Aaggie Cornucopia Johanna Lad, sire of Winnie Korndyke Cornucopia De Kol, the great Gibson cow that was the first in California to make over 1,200 pounds butter in one year. Princess Roma Alcartra, daughter of the Gibson herd sire, Prince Alcartra Korndyke, he a son of Tilly Alcartra, made 30.01 pounds butter in seven days from 702.6 pounds milk, while her full sister, Roma Princess Korndyke Alcartra, as a senior two year old has to her credit 22.01 pounds butter from 407.7 pounds milk in her first seven days. Of interest to a wide circle of breeders is the record of Queen Pontiac Charlotte Korndyke, whose record of 321.12 pounds butter from 623.1 pounds milk in seven days ranks her as the highest record daughter to date of her sire, King Korndyke Pontiac, the great son of King of the Pontiacs, now owned by Fred W. Kiesel, Sacramento. As nearly everyone knows, this bull is the sire of the $12,000 Burr Farm bull King Korndyke Pontiac 20th, who in turn sired King Korndyke Pontiac Acme, the $41,000 bull owned by Anita M. Baldwin. Another Gibson cow, Sigma of Linwood, made 25.08 pounds butter from 569.1 pounds milk, and milking with one teat so badly cut that a milk tube had to be used during the test. A noteworthy feature of the above records is the splendid flow of milk present in each instance.

PURE BREDS FOR SOUTH AMERICA

American pure bred animals to the value of $400,000 were sold in South America during the first six months of this year, and livestock commissioners sent to South America to develop the American pure bred industry in that country report that the field is very promising. Even in out-of-the-way places where transportation facilities are poor, purebred hogs and high grade and pure bred bulls have been found by the commissioners. At Lavras, a town about 250 miles northwest of Rio de Janeiro, there is an American mission college whose farm contains pure bred Duroc-Jersey hogs and Brown Swiss and Holstein cattle, the foundation stock of which was imported from the United States.

Most of the cattle in the State of Minas Geraes, one of the important stock raising sections of Brazil, are dairy stock showing considerable Holstein blood. The cows are milked once a day and produce on an average about three quarts of milk. The commissioners are of the opinion that this production could be materially increased by better feeding and more scientific handling of the cows.

According to reports received by the bureau of markets, the outlook for the future marketing of American pure bred livestock in South America would seem to be particularly good, if it is properly developed, and the commissioners are doing everything possible to encourage the business.

FRAMPTON BROS. BUY SON OF KING KORNDYKE PONTIAC 20TH

Southern California added another star to its list of great Holstein sires recently when Frampton Bros., Artesia, purchased from W. J. Higdon, Tulare, a son of King Korndyke Pontiac 20th, the $12,000 Burr Farm bull, out of Trout Brook Pontiac Starin, who made 35.47 pounds butter in seven days, 129.59 pounds in 30 days, and is now making a yearly record that promises to go over the 1,000 pound mark. The dam is by a son of King of the Pontiacs and out of a cow bred strongly in the lines that produced Riverside Sadie De Kol Burke, former world's yearly record milk producer. The youngster secured by Frampton Bros. is a straight, well marked calf with plenty of middle, and brings to the Frampton herd a line of breeding that is fast being introduced into the herds of some of California's most substantial and far sighted breeders.

LIVESTOCK SALE CALENDAR

Holsteins

February 3, James J. Jeffries, Burbank.
February 5, W. A. Thompson, Hynes.

Poland Chinas

February 17, Bassett, Ross & Crawshaw, Hanford.

Berkshires

February, Italian Vineyard Co., Guasti.

Durocs

February, Falfadale Farm, Perris.

Percheron Horses

February 17, M. Bassett, Hanford.

Sam H. Greene, secretary of the California Dairy Council, announces a series of dairy meetings to be held in Southern California, December 31 to January 8. The meetings will be conducted cooperatively by the college of agriculture, the state department of agriculture and the California Dairy Council. The first meeting will be held at Balboa Park, San Diego, Friday, December 31. A three day meeting will be held at Downey, January 3, 4 and 5. A meeting of equal length will take place at Van Nuys, January 4, 5 and 6. The Riverside meeting is scheduled for January 7 and 8 and the meeting at Ontario will be held at the same time.

The Sutter Basin Company, which has one of the largest herds of Duroc-Jersey hogs in the Sacramento Valley on its 45,000 acre tract north of Sacramento, recently purchased four herd boars. One of these came from the held of Harvey Berglund of Dixon. This boar was a prize winner at the last state fair in Sacramento. Also the purchase included a senior boar pig and two spring boars from V. L. Dolcini of Davis. These last were sired by the grand champion at the recent state fair. Agricultural Superintendent A. R. Waybur reports that good litters are being obtained from the sows and gilts at the hog farm and that the hog raising department is making a nice profit.

An important meeting of veterinarians will be held at the university farm, Davis, January 3 to 7. An extensive program has been arranged for the five days and some of the leading veterinarians of the United States will participate. Aside from special lecturers, members of the veterinary divisions of the University of California and the University of Nevada, members of the state department of agriculture, members of the faculty of the college of agriculture and local practitioners will appear on the program, which will consist of lectures and demonstrations. While the event is of particular interest to the professional men, an invitation has been extended to all who are engaged in livestock production.

Harvey M. Berglund of Dixon has recently sold three Duroc-Jersey bred gilts to Stanley Rodgers of Davis, who is developing a herd of pure bred Durocs as a commercial proposition; two bred gilts to Carl Hess of Dixon; a service boar to William Chase of Adin and a young boar, a litter mate to the fourth prize senior boar at the last state fair, to the Boys Pig Club at Petaluma.

Three thoroughbred stallions have been placed in Modoc County by the United States war department and their services will be available to the ranchers of that section. The department hopes to encourage the production of horses suitable for army use.

Allen Rae of Modesto has purchased from J. W. Lorenz of the same place 12 Holstein females at an average price above $400.

Holstein breeders in Nevada plan to organize a state association for the purpose of extending the influence of the breed in the Silver state. There are now about ten herds owned in Nevada and most of these herds have been founded with purchases made in California sales. Professor V. E. Scott of the University of Nevada is largely responsible for the growth of the Holstein industry of his state.

The sale of Poland China hogs scheduled for December 15 by R. J. Yates, Orland, has been postponed until January 5. This was made necessary by the extremely rainy weather that has prevailed in the Sacramento Valley.

Les McCracken, Ripon, has definitely decided on January 24 as the date of his sale of registered Poland China sows and gilts. He will sell 30 head, the tops of 200. The sale will include King's Big Bone Leader, grand champion at Sacramento in 1918 and sire of the 1920 champion, also Waukeen Prospect, the gilt Les paid $1,100 for over a year ago. She has a fine litter by King's Big Bone Leader and three of her boar pigs will be sold in the sale.

Manager H. W. Hanman of Sierra Vista Vineyard Company, Minturn, re-

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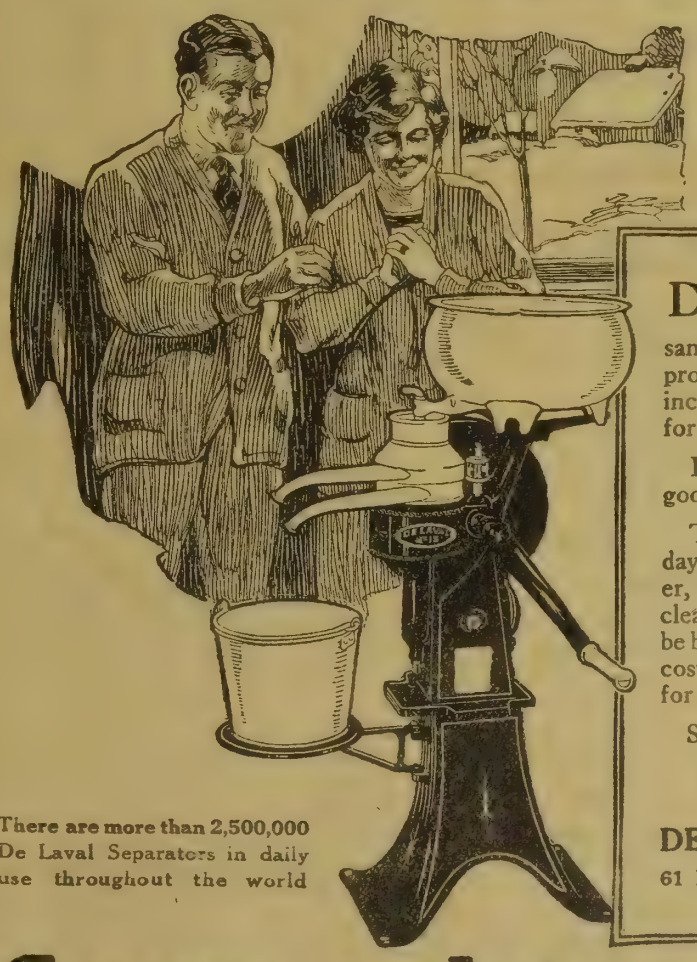

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ports the purchase of two yearling Berkshire boars from A. B. Humphrey, Escalon. It is the intention of the Sierra Vista Company to put their swine herd of several hundred head on a pure bred Berkshire foundation.

Alex D. McCarty, Modesto, reports sale of Liberator Len to the Cloverdale Farm, Escondido, recently. This boar was a September yearling and was sired by Liberator.

The dairy department of the Fresno County farm bureau has organized a cow testing association with more than 1,000 cows entered.

E. Lovell, manager of the Blackhawk Ranch, Diablo, has arrived at the home ranch with the first importation of Shorthorn cattle ever made direct to this state from Scotland. Included in the importation is the young bull, Collynie Prince Lavender, secured in the Duthie sale. This calf is the only Duthie bred bull owned in the West and is one of the very few from that noted herd in any American herd. Lovell states that the cattle came through on their long journey in fine condition. The shipment was held up 30 days in quarantine upon landing at a Canadian port.

Bassett Bros., Hanford, have recently received a young Poland China boar sired by the popular Eastern sire, Designer. This firm owns one of the very oldest Poland China herds in the West, and the fact that they are continually strengthening their herd while many breeders are restricting their operations can be regarded as significant. As usual, they are preparing a sale offering to be sold early in February.

Col. Tim Anspach of Sacramento says that farmers of the Sacramento Valley are evidencing more interest in hogs than he has noted in the past year. At a recent auction of pure bred Durocs conducted by himself and Col. Bell of Tulare a large crowd of ranchers absorbed the offering in short time and at prices that were regarded as very satisfactory. Col. Anspach finds that many owners of grain are planning to market their holdings through hogs and that they figure they will net from two to two and one-half cents per pound for the grain.

Eldorado County farmers have launched a small abattoir and packing plant by means of which they expect to solve many of their local meat and livestock problems. About $30,000 has been invested in the enterprise.

Jersey breeders of San Luis Obispo County have organized an association for the promotion of the breed in that locality. The membership embraces nearly all of the owners of Jerseys in the county. Miss Sylvia Stornetta is president and W. C. Day is secretary.

The first consignment of Holsteins, numbering 700 head, to be sent from this country to Germany arrived at their destination early last month. The cattle were "donated" by various interests and title will be retained by the donors so that they will not be included in the cattle levy demanded by the Allies.

Toyon Farms Association reports the death of their great Holstein cow, Cascade Fleta Johanna, that was the second cow to ever make a 30,000 pound record under full age. Her record of 30.012.30 pounds of milk and 956.12 pounds of butter was made at the age of four years. She was shot following an accident in which her leg was broken. Cascade Fleta Johanna was sired by Johanna Colantha Champion.

C. C. Ellis of Lindsay has purchased the entire Duroc breeding herd of the Arenal Ranch owned by Dr. E. Avery Newton. Mr. Ellis intends to have one of the largest Duroc plants in the West before long.

VETERINARY WEEK AT DAVIS

Veterinary practitioners week will be held from January 3 to 7 at the university farm, Davis. The program for the entire session follows:

Monday, January 3, 10:30: Address of welcome by an officer of the university; response, W. A. Boucher; 11-12, "Swine Management," A. T. Kinsley; 1:30-2:30, "Feeding Hogs," J. I. Thompson; 2:45-3:30, "Organization and Functions of the State Department of Agriculture," G. H. Hecke; 3:45-5, "Diagnosis of Swine Diseases," A. T. Kinsley; 7:30, symposium on cattle practice; "Foreign Bodies and Impaction of Rumen," J. L. Tyler; "Mammitis," J. F. McKenna; "Obstetrics," Charles Rey.

Tuesday, 8:30-10, "Judging Sows," E. H. Hughes; 10:15-12, "Hog Cholera Serum and Its Use," M. Dorset; 1:30-2:30, "The Pure Food Law in Relation to Stock Foods and Tonics," C. H. McCharles; 2:45-3:45, "Plants Poisonous to Livestock," P. B. Kennedy; 4-5, "Parasitic Diseases of Swine," A. T. Kinsley; 7:30, "Filterable Viruses," M. Dorset.

Wednesday, 8:30-10, "Judging Boars," E. H. Hughes; 10:15-12, "Diseases of Suckling Pigs," A. T. Kinsley. 1:30-2.30, "Infectious Abortion in Swine," F. M. Hayes; 2:45-5, "Botulism," K. F. Meyer and J. C. Geiger. 7:30, special meeting of California State Veterinary Medical Association; smoker.

Thursday 8:30-10, judging beef cattle, dairy cattle and sheep, R. F. Miller, W. E. Tomson, J. F. Wilson; 10:15-11, "Proposed Tuberculosis Legislation," J. P. Iverson; 11:15-12, "Some Conclusions Drawn from Tuberculin Testing under the Pure Milk Law," J. G. Jackley. 1:30-2:30, "Cooperative Tuberculosis Eradication in Nevada," Edward Records and N. E. Nielson; 2:45-3:45, "Complications Associated with Infectious Abortion," L. R. Vawter and Stephen Lockett; 4, some results in the treatment of sterility (with demonstration of technique employed), J. A. Woodside. 7:30, "Tuberculins," M. Dorset.

Friday, 8:30-9:30, "Anaesthesia," C. A. White; 9:45-12, clinic on local and general anaesthesia applicable to field cases, demonstration of nerve blocking for dental anaesthesia, J. F. McKenna, H. Phipps and others. 1:30-2:30, "Canine Medicine," C. A. White; 2:45-3:45, "Rabies," F. L. Kelley; 4-5, "Disinfection and Disinfectants," M. Dorset. 7:30, "Infectious Necrotic Enteritis," A. T. Kinsley.

ITALIAN VINEYARD BERKSHIRES

The Italian Vineyard Company at Guasti has established one of the largest and best Berkshire herds in the entire country. If the term "big type" can be applied to the Berkshire hog at all these are the "big type" Berks. These sows are big boned, high backed and deep sided and of excellent conformation.

The Laurel Champion and Grand Leader 2nd blood lines have been chosen as the ones to accentuate and most of the herd is rich in the blood of these great herd boars.

Winona Leader Champion, a son of Laurel Champion and a litter mate to Laurel Champion's Best, shares the leadership of the herd with Rincon Leader, a mighty fine sow of Grand Leader 2nd.

Alex M. Wilson, the superintendent, has picked out 30 of these fine sows and gilts and bred them to the great herd boars for his sale which will be held at the Italian Vineyard at Guasti, which is three miles east of Ontario, on February 1.

It will be the Vineyard's first sale and a mighty attractive offering is promised.

NEW SHORTHORN ENTRY RULES

The American Shorthorn Breeders Association announces that the pedigree of no animal over two years of age will be accepted for registry in the American Shorthorn Herd Book after February 1, 1921, or in the case of animals imported from Great Britain or Canada, two years after date of importation. After January 1, 1921, a fee of $5 will be charged for entering the pedigree of an animal between one and two years of age. The fee formerly was $10. The seller of an animal must furnish transfer and pay the transfer fee after January 1, 1921. The pedigrees of twin animals must be entered for registry at the same time.

HOG AUCTION DATES

Hog auction sale dates for January are announced by the farm bureau marketing association: Modesto, 4; Tegner, 5; Chowchilla, 6; Fresno, 7; Wasco, 8; Tulare, 11; Visalia, 12; Hanford, 13; Corcoran, 14; Bakersfield, 15; Turlock, 18; Merced, 19; Madera, 20; Fresno, 21; Tulare, 25; Visalia, 26; Hanford, 27; McFarland, 28.

COST OF RAISING DAIRY HEIFERS

The importance of providing cheap feed for growing heifers and practicing thorough culling is brought out by the results of feeding experiments recently completed. In these experiments groups of calves were fed from birth to one year and two years of age and a record kept of all feed consumed.

In one experiment, 11 heifer calves were raised to the age of one year. The amount of feed consumed by each calf was as follows: Hay, 571.8 pounds; grain, 885.5 pounds; silage, 3,693.1 pounds; milk, 110 pounds; skim milk, 2,414 pounds. Estimating the hay at $30 per ton, grain at $60, and silage at $8 per ton, milk at four cents and skim milk at three-fourths cent per pound, the cost of raising each heifer to one year of age was $72.42.

Five of the calves from the first experiment were then fed for one more year. During this second year each calf consumed on the average 1,117.8 pounds of hay, 1,221.6 pounds of grain, 8,031 pounds of silage. Using the same figures for computing the cost of the feeds consumed during this second year, the total cost of raising a heifer from birth until two years of age was $157.96. These figures emphasize the necessity of providing cheap feed for heifers such as pasture and silage, and bring out the importance of carefully culling the heifers to avoid raising those which will prove to be inferior cows.

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ON PAIN KILLER FOR THE HUMAN BODY
Gombault's
Caustic Balsam
IT HAS NO EQUAL

For — It is penetrating, soothing and healing, and the for all Old Sores, Bruises, or Human Wounds, Felons, Boils, Corns and Bunions. CAUSTIC BALSAM has Body no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

A Perfectly Safe and Reliable Remedy for Sore Throat Chest Cold Backache Neuralgia Sprains Strains Lumbago Sore Lungs Rheumatism and all Stiff Joints

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $130.00 paid in doctor's bills." OTTO A. BEYER.

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The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

POSTPONED SALE
—OF—
POLAND CHINA HOGS
At Orland, Cal., Wed. Jan. 5th, 1921

On account of weather conditions, I have postponed my sale until January 5th, at which time I will offer 60 head, including 30 spring gilts, 10 fall yearlings, 10 tried sows and a few young boars sired by Long Jumbo, Yates Big Orphan, Glenn Chief, Young Hadley and bred to Yates Big Jones, Y. C. 4, Reformer and Black Bob. Write for catalog.

R. J. Yates Orland, Cal.

King's Big Bone Leader

A Grand Champion and the sire of a Grand Champion heads my herd of high class sows. He has sired a high class of pigs. I will sell 35 head of selected sows at public auction in January. Write for prices and information.

Les McCracken Ripon, Cal.

Trewhitt's Big Type Polands

Are the result of careful mating and selection. Size and feeding quality have always been essential features in this herd. Write for prices and information. I can interest you.

W. D. Trewhitt Hanford, Cal.

Eastman Ranch Poland Chinas

Herd headed by Buster Bob, Grand Champion at the strong Los Angeles Live Stock Show. He is the largest junior yearling in the state and is siring some great pigs. Young stock for sale at all times. Satisfaction assured.

H. L. Graham, Mgr. San Fernando, Cal.

Victory Bob, the Greatest Son

of the grand champion Giant Bob heads the Sunland herd of big type Poland Chinas. Some choice young animals of select breeding for sale at all times.

H. A. Johansen Fresno, Cal.

Fortuna Herd Poland Chinas

Special prices on gilts sired by The Californian, either open or bred to The Skipper by The Pilot. Two sisters to Orange Lady, first prize senior gilt at Sacramento. Also some choice weanling boar pigs. Satisfaction assured.

Hugh C. Shinn Tulare, Cal.

Get Into the Hog Business

By Jack Klein

"If I wasn't already in the business, right now is the time I would buy a lot of hogs," said a big breeder the other day. He is one of these men who follow the idea of the Missouri farmer who refuses to sell a bushel of corn but feeds every ear he raises to some kind of livestock. Backing up his faith in hogs as the best means of getting a good price for the grain he has on hand this man has just purchased a lot of feeders.

Instead of worrying about the low grain market, get a few hogs and feed up your surplus. There is every indication that next year will be another banner year for grain and the market will continue slow and low.

If you examine the hog market carefully you will see that porkers are paying a good return even though the price is apparently low.

During the past period of high prices many sows went to market—happily most of these were grades or the indifferent variety of pure breds. For that thing let everyone give thanks.

It has been proven so many times that pure breds of the right type are the only hogs which will make pork profitable that the matter is beyond the point of argument.

The breeders of good hogs who have stayed in business during the period of high priced feed are to be commended and everyone should pitch in now and help them by buying some of their animals. At the prices which prevail you may not help them greatly but you will surely help yourselves. There will be a number of sales in the next few months and you will have a chance to pick from the tops of the big herds of the state for the breeders have kept nothing but their best for breeding purposes.

For the man who raises a lot of grain there is no better solution of the marketing problem.

Removing Hides and Skins

A number of people engaged in the business of slaughtering food animals reduce their profits by careless methods.

When we take in consideration the present prices of various leather commodities, on first thought we begin to figure the enormous profit the leather producer makes on the country hide we sell him. A little further investigation of the factors required to constitute a good hide discloses that the methods of removal and care of the hide were responsible in a large measure for what was regarded as an unsatisfactory price for the commodity.

The packinghouse quotations on hides are rather confusing to the ordinary country butcher. When he examines the quotations he may be inclined to feel that the hide buyer was a little unfair in his dealings. A little further knowledge on the subject of hide quality may considerably reduce his suspicions regarding the methods practiced by the purchaser of the hide.

The packer hides and skins are removed from carcasses by men skilled in the art of their removal by standard methods which, barring an occasional accident, bring top notch prices on the hide market. The price of the country hide is established by the quality of hide produced by the packer, and it remains for the country butcher to become familiar with certain defects in a hide or skin, produced by skinning, which reduce its worth, and then avoid such defects in the future.

The state department of argiculture offers the following remedies for the prevention of defects in removing hides or skins:

Instead of skinning out the head in one piece, cut across at the base of the horns and then down the left side of the face close to the eye and through the left nostril. Cheek meat should not be left on the hide or skin.

When skinning the legs first cut off the dewclaws, make a transverse incision at the heel, then rip in a straight line along the back of the leg to what is known as the knee and skin out the leg on either side of the incision.

From the ripping open cut down the belly, start well forward at the brisket and make a slanting cut back to the knuckle joint of the fore limb and skin carefully from the incision. Then again, from the ripping open cut down the belly between the root of the tail and the bag (preferably nearer the latter), but up along the hind leg to the point of the hock (sometimes termed the knee), and skin around the leg from the incision.

Removing the hide from the butt and rump requires extreme care if scoring is to be avoided. In these regions the knife is used sparingly and the hide should be pulled taut when it is used. Pulling and beating the hide as much as possible prevents scores.

When skinning along the belly and side of the carcass make long, sweeping strokes with a sharp knife by pulling the hide firmly up against the cutting edge held where the hide and flesh join. Bad scores on the neck and shoulders will not result if a sharp knife is used and the hide is pulled up against its edge and at the same time large sweeps are made instead of short blind cuts.

Rip down the under side of the tail to the tip and remove all the bone.

When the hide or skin is removed, spread it on the floor and slit each ear lengthwise so that all parts will lie flat while being cured.—J. P. I.

KEEP MILK RECORDS

Any farmer who is making a specialty of milk production and wishes to carry on his work in a businesslike way will keep milk records, individual performance records for each cow in the herd.

Here are nine good reasons for keeping milk records, as stated by the Louisiana state university:

"They enable the dairyman to feed each cow according to the quantity of milk she produces.

"They form the only basis on which a dairy cow can be improved. The time is here when no dairyman practicing business methods will buy a herd bull whose dam does not have an authentic record showing creditable milk and butterfat production.

"Records alone will sell cows when no other quality will. Grade cows with records can be sold for 25 to 50 per cent more than those without records.

"A system of records is the first step in building up a herd. The unprofitable cows are the most expensive. Their heifer calves are usually non-producers.

"Records stimulate better feeding and breeding. The dairyman who keeps records usually keeps a balanced ration and becomes interested in winter dairying, which has numerous advantages over breeding cows to freshen in the spring.

"The weighing of the feed and milk keeps the owner in close touch with the daily condition of each cow.

"Records stimulate better milking. Milk scales serve as a check on the milker and induce him to milk the cows more thoroughly than when the milk is not weighed.

"A knowledge of what each animal is doing develops personal pride and interest in the herd.

"Finally, records make dairying a business proposition."

SUPERPOWER SURVEYS

A program for completing the topographic map of the United States for the use of this generation was outlined in last year's report of the director of the United States geological survey, but congress has not yet approved that plan, though it promises to get results most expeditiously and economically. The power program, also presented in the report for last year, has found more encouraging support, as the superpower survey of the Eastern industrial zone has been authorized by congress and is now under way. It is hoped that the engineering report on this survey will commend itself so highly to congress that similar investigations of other parts of the United States may be authorized before the demand for unified electrificiation becomes so urgent as it has already become along the North American seaboard.

Condition of stock on the Arizona ranges is fairly good, although cold weather and some snow storms have caused some shrinkage. Snow and rainfall so far have been light in a large part of the range country.

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A Shoe Boil, Capped Hock or Bursitis
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BY MAIL
DECEMBER BARGAINS
No. 1—SPRING BOAR
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No. 4—TRIED SOW BRED TO
MY PARTNER
No. 5—GILT bred to a 1920 champion
Every Hog Registered and Guaranteed.
Write For FREE December List of Bargains.
WILLIAM V. MONG
YOUR DUROC FARM, Whittier, California

MAMMOTH DISPERSAL SALE
FIRST WEEK IN FEBRUARY
FALFADALE FARM DUROCS
EVERYTHING GOES INCLUDING
GREAT ORION SENSATION JUNIOR
Grand Champion at Tulare, Riverside and Los Angeles
40 Sows and Gilts Bred to the Grand Champion
40 of his best spring pigs
B. H. Wilkinson, Mgr. Perris, Cal.

WINSOR RANCH DUROCS
Spring Pigs by and Fall Gilts Bred to
WINSOR'S GIANT ORION
Morris C. Allen, Mgr, BONITA, CAL. Carl Woolsey, Hog Dept.

Johnson's Defender Jr.
Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.
H. C. WITHEROW Live Oak, Cal.

FIRST PUBLIC SALE
Big Type Berkshires
Tuesday, February 1, 1921
30 Bred Sows and Gilts
Laurel Champion sows bred to Grand Leader 2nd boars
Grand Leader 2nd sows bred to Laurel Champion boars
The greatest combination of championship blood ever made.
Every animal free from tuberculosis and cholera immune.
Italian Vineyard Company
Alex. Wilson, Supt. Guasti, Cal.
Col. Ben A. Rhoades, Auctioneer

GEORGE W. BELL
A BUSINESS AUCTIONEER
When in need of high class auctioneering service I would be glad to have breeders and farmers correspond with me. I have had years of experience, know values and know pedigrees. I am selling for many of the leading breeders of California and am prepared to deliver the same results that have attracted this custom. Terms reasonable. Write, wire or phone.
GEO. W. BELL Tulare, California

Guernsey Females

Our herd reduction sale still continues and there is a lot of fine Imported and A. R. cows with high production records and show ring honors left to be sold. We are also offering the choicest lot of young stock ever in one herd in the West. A number of bulls of all ages from the above sired by King of Hollow-Hill and Effie's King.

Also 30 head of females 15/16 Guernsey that will make wonderful family cows.

All T. B. tested and guaranteed breeders.

Everything Priced Reasonably.

Hollow-Hill Farm

Colton, California

King Korndyke Pontiac Mead

Average of his Dam and Sire's Dam (Both Former World Record Holders)

At Average Age of 4 yrs. 2 mo. 10 dys.
Semi-Official, 365 Days — 1062.64 lb. Butter, 21173.75 lb. Milk

Official Test, 7 Days — 31.91 lb. Butter, 615.60 lb. Milk

His Sire—King Korndyke Pontiac 20th
His Dam—De Kol of Valley Mead 2d
Four of his seven nearest Dams have held World's Records

LOS ANGELES COUNTY FARM **Hondo, Cal.**
3 miles south of Downey on Downey-Long Beach Boulevard

Maxwell Farms' Holsteins

Sir Ormsby Skylark
Sire of the World's Champion Cow

The fountain head of the Ormsbys with over 50 daughters of Sir Ormsby Skylark in the herd which has two sons of Sir Pietertje Ormsby Mercedes at its head. Write for our sales catalog of service bulls.

D. G. Maxwell, Owner

Garden Court, Hollywood, Cal.

Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

BURR FARM

Box 220, Route 2. East 26th and Downey Road, Los Angeles

Sunny Side Farm

where efficiency is our watchword and the production of extra heavy milking Holsteins and big type Poland Chinas is our specialty. A few choice animals of either breed or sex for sale at all times at reasonable figures. Write for information.

R. F. Guerin **Visalia, Cal.**

COW MANURE

COMMERCIAL FERTILIZER

For Fall Application

MELILOTUS INDICA

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Hartsook Secures Interest in Wonderful Bull

The outstanding deal in California Holstein circles was recently consummated when Fred Hartsook, Lankershim, purchased from A. W. Morris & Sons Corporation, Woodland, a half interest in the sensational bull calf, Prince Aaggie Mead. The price paid has not been made public, but is known to be greater for the half interest than the total purchase price of any bull previously sold in California. The Morris firm prized the calf so highly that they declined to sell him outright, and several other breeders who had been figuring on securing an interest in him will no doubt be disappointed when they receive the news of the sale.

Prince Aaggie Mead represents some of the very richest breeding in the Morris herd. He is sired by King Aaggie Mead, he by King Mead of Riverside and out of Aaggie Acme of Riverside, who made 1,054.1 pounds butter in one year at 11½ years of age, and is therefore a full brother to Aaggie Acme of Riverside 2d, whose record of 1,331.7 pounds butter in one year is the world's strictly official record, and she is the dam of Miss Aaggie Acme Burke, who made 1,034 pounds butter from 24,690 pounds milk in one year as a first calf junior two year old, her milk record a world's record for age, and she in turn the dam of King Korndyke Pontiac Acme, the bull for which Anita M. Baldwin paid $41,000 in the St. Paul National Sale.

The dam of Prince Aaggie Mead is the famous Miss Valley Mead De Kol Walker, who broke three world's records as a heifer, won the California Dairy Cow Competition over all ages and breeds, and made 36.81 pounds butter in seven days and 1,113.58 pounds in 339 days as a junior three year old. She is by Prince Gelsche Walker and out of De Kol of Valley Mead 2d, who made 906.27 pounds butter in one year as a three year old and 1,011.71 pounds butter in one year as a four year old, which was a world's record for two years production at age when made.

Thus, Prince Aaggie Mead descends from the great foundation cow, De Kol of Valley Mead, through her greatest proven son on the sire's side, and through her greatest producing daughter and granddaughter on the dam's side. He is out of the same dam as the $12,000 Burr Farm bull, King Korndyke Pontiac 20th, who sired the $41,000 bull, King Pontiac Acme, owned by Anita M. Baldwin. Another son of Miss Valley Mead De Kol Walker, Sir Aaggie De Kol Mead, who is sired by Sir Aaggie De Kol Acme, is now in active service in the Morris herd.

The purchase of a half interest in this great youngster looks like a ten strike for Mr. Hartsook. He has assembled a very high class herd of registered females, and through this bull will link his herd up with some of the most popular high record breeding in the West, a line of breeding that has already been adopted by a large number of the most progressive breeders in the West.

Sacramento Holsteins Make Fair Average

Considering the fact that the Holstein cattle offered in the consignment sale held at the state fair grounds, Sacramento, December 16, were sold without any guarantee save that they were breeders, that many were young things and not a few were sold with defective udders, the average price of $207 was regarded as a fair valuation. It was admitted by all that there were a number of real bargains sent through the ring, and it is certain that if the better things could have had the backing of a tuberculin test that the average would have been much higher. The sale demonstrated that California buyers are becoming more and more critical in their selections. First of all, they want clean cattle, and, second, they want high production and are willing to pay a fair price for both.

The top of the sale was reached with the attractive four year old daughter of Prince Gelsche Walker Korndyke, May Walker Gelsche Korndyke, with 27.84 pounds of butter to her credit in seven days, that was consigned by the Bridgford Holstein Company, Patterson, and purchased by Earl Graham of Compton for $1,250. R. N. Clapp was the runner up. The Bridgford Company had the high average of the sale, registering $590 on the four head they contributed.

R. F. Fisher of Carlotta, who dispersed his entire herd in this sale, furnished the second high animal in the outstanding Sequoia Sugra Queen Hengerveld, that has 650.87 pounds of butter in 298 days and is a daughter of Sugar Queen Topsy with a 365 day production of 1,038.63 pounds of butter. She was secured by William Dreher of Sacramento, who also got her dam for the disappointing price of $575.

The sale, which was under the management of the California Breeders Sales and Pedigree Company, Sacramento, served to attract a number of new Holstein buyers, who doubtless will become factors for good in their local communities. Col. Ben A. Rhoades of Los Angeles was on the block and Col. John A. Davis of Manteca assisted at the ringside.

A list of representative sales follows:

Consigned by R. F. Fisher, Carlotta

1. Sugar Queen Topsy, 1038.63 lbs., 365 days, William Dreher, Sacramento, $575.
2. Sequoia Sugar Queen Hengerveld, 650.87 lbs., 240 days, William Dreher, $1,025.
6. Sequoia Pontiac Cris, Dec. 1917, 225.5 lbs., 150 days, William Dreher, $300.
7. Sequoia Pontiac Carlotta, Nov. 1918, R. E. Mills, Lodi, $150.
9. Amy Veedam Pontiac, Sept. 1913, 764,186 lbs., 305 days, R Zangl, Bellflower, $285.
10. Sequoia Pontiac Bess, Dec. 1916, 25.56 lbs. 7 days, R. Zangl, $225.
11. Sequoia Pontiac Gert, Jan. 1918, R. Zangl, $225.
14. Sequoia Snowflake Segis, Oct. 1915, 19.17 lbs. 7 days, R. Zangl, $325.
16. Sequoia Lady Zozo, May 1917, S. H. Cowell, Santa Cruz, $370.
17. Sequoia Aralia Juliana, Jan. 1916, D. W. Blower, Oroville, $265.

Consigned by F. W. Kiesel, Sacramento

23. Ignaro Belle, Dec. 1910, 21.33 lbs. 7 days, Frank Hatch, Modesto, $190.
24. Pennant Dora Dorndyke, July 1915, R. Zangl, $195.
25. Pennant Canary Hengerveld, July 1915, 16.15 lbs., D. W. Blower, $275.
26. Beauty Mercedes Nudine, August 1910, 23.89 lbs. 7 days, R. E. Mills, $225.
27. Martha Netherland Abbekerk, Feb. 1912, 13.98 lbs. 7 days, James G. Smith, Del Paso Heights, $305.
29. Tehee Pontiac Abbekerk, Nov. 1911, 21.85 lbs. 7 days, R. Zangl, Pontiac, $175.
31. Creamcup Lassie Ignaro, Feb. 1916, 12.05 lbs. 7 days, H. E. Frost, Elmira, $225.
33. Gelshe Nellie De Kol, Jan. 1916, 15.6 lbs. 7 days, A. R. Strother, Acampo, $155.
36. Olive Beets Segis, Feb. 1915, 18.42 lbs. 7 days, H. E. Frost, $225.
41. Flossie Johanna Sadie Vale, March 1917, R. E. Mills, $155.
42. Stanislaus Abbekerk Maid, May 1913, 25.77 lbs. 7 days, J. G. Smith, $240.
43. Juliana Zozo, May 1916, R. Zangl, $225.

Consigned by Bridgford Holstein Company, Patterson

47. Piebe Laura Ormsby, May 1913, 32.78 lbs. 7 days, J. W. Scudder, Escalon, $550.
48. Briar Aaggie Jewel Rag Apple, May 1916, 23.14 lbs., A. R. Strother, $210.
49. May Walker Gelsche Korndyke, March 1916, 27.84 lbs., Earl Graham, Compton, $1,250.
50. Alcartra Sadie Vale Abbekerk, April 1918, A. W. Morris & Sons, Woodland, $350.

Consigned by J. McKindley, Acampo

59. Cobossie Korndyke, Aug. 1914, 19.29 lbs., G. H. Colby, Clarksburg, $275.
63. Wilhelmina De Kol of Nevada, Jan. 1913, 20.69 lbs., D. W. Blower, $190.
65. Prince Gelsche Pondyke Walker, June 1918, R. Zangl, $150.
66. Eva Korndykek Loraine, March 1920, A. W. Morris & Sons, Woodland, $150.

Consigned by Toyon Farms Association, San Francisco

67. Daisy Pride Colantha 4th, Nov. 1911, R. Zangl, $205.
68. Pearl Astrea 2d, April 1909, R. Zangl, $150.
69. Oakdale Lady Wit Cornucopia, Dec. 1916, D. W. Blower, $265.
70. Kakenstein Gerben, Sept. 1911, 25.19 lbs., G. H. Colby, $300.
71. Lady Pietertje Melva 2d, Feb. 1917, R. E. Mills, $170.
72. Toyon Colantha Fayne Valdessa, R. Zangl, $205.
73. Cascade Ruth 2d, Nov. 1915, 415.37 lbs. 145 days, R. Zangl, $325.
76. Cascade Ayacnora, Jan. 1915, J. W. Scudder, $300.

Consigned by E. D. Barry, Jr., Daggett

77. Princess Contenta Walker, Jan. 1917, 17.70 lbs. 7 days, A. W. Morris & Sons, $700.

Good Herefords to California

William G. Briggs & Son, Dixon, and John A. Bunting, Mission San Jose, recently bought eight head of well bred and very promising young Herefords from four Missouri breeders. The Californians arrived in Kansas City about two weeks prior to the American Royal show and spent the time visiting and inspecting many of the Hereford herds in the Kansas City territory. They made their purchases while on this tour and were interested guests of the Royal before returning to California.

Briggs & Son bought one bull and five females, six head in all, while Mr. Bunting's purchases consisted of two young bulls. A list of the animals purchased follows, with a description of their breeding, ages and other information of interest.

Briggs & Son's purchases were: Belle Blanchard 83d, by Beau Blanchard 53d, dam Belle Blanchard 34th, by Beau Blanchard; calved January 9, 1919. Purchased from Jesse Engle & Sons, Sheridan, Missouri. This is a double granddaughter of Beau Blanchard that stood well up in the large classes at the various state fairs this fall.

Bonnie Dorana, by Bonnie Lad 20th, dam Gondola 5th, by Beau Modest; calved November 1, 1918. Purchased from Walter L. Yost, Lees Summit, Missouri. Bonnie Dorana is a show heifer of beautiful type that won the female junior and grand championship at the Missouri state fair and was first in her class in most of the eight state fairs in which she was exhibited.

Bonnie Valentine, by Bonnie Lad 20th, dam, Josephine; calved November 14, 1918. This is another choice daughter of Bonnie Lad 20th that has made a good record in the 1920 shows. She also was purchased from Walter L. Yost.

Beau Prince 33d, by Prince Donald 526154, dam, Vernet Princess 33d, by Point Comfort 14th; calved January 3, 1920. Purchased from O. G. Lee, Kansas City, Missouri. This is an outstanding herd header prospect that won first prize in the class of 22 junior bull calves at the American Royal Show and headed the fourth prize calf herd class of 20 entries in the same show. Misses Donald 33rd and 44th, mentioned below, are his half-sisters and completed the calf herd group.

Miss Donald 33d, by Prince Donald, dam, Miss Gay Lad 55th; calved December 11, 1919. Bought from O. G. Lee. This senior heifer, though of very short age, stood seventh in her class of 42 entries in the Royal Show.

Miss Donald 44th, by Prince Donald, dam, Miss Repeater 19th; calved June 11, 1919. Bought from O. G. Lee. She stood fifth in her class of 38 junior yearling heifers at the Royal and, like her half-sister, was very short aged.

Mr. Bunting's purchases were:

Golden Gate, by Blanchard by Beau Blanchard, dam, a Gudgell & Simpson bred cow; calved June 8, 1920. Purchased from Chas. D. Davis, Grandview, Missouri. This is an outstanding calf. He is an unusual herd bull prospect. Mr. Bunting selected an appropriate name for this calf that he believes is destined to make Hereford history in the Golden Gate state.

The Pier, by Beau Blanchard, dam, Miss Disturber 11th; calved June 5, 1919. Purchased from Jesse Engle & Sons, Sheridan, Missouri. This bull's name was formerly Disturber's Lad, but Mr. Bunting renamed him with a more appropriate cognomen that is more in keeping with his new home.

William Briggs & Son and John A. Bunting are among the leading Hereford spirits in the Pacific Coast country. The former firm started in the Hereford business only a little over a year ago, but has assembled an unusually good herd of well bred animals of outstanding merit and is well on the road to a successful career as a Hereford breeding firm, while the latter maintains a splendid herd on his Mission Hereford Farms. He has strengthened his herd from time to time by the judicious purchase of strongly bred bulls. He has been the secretary of the California Hereford Breeders Association for several years. These men are to be congratulated on the acquisition of such splendid additions to their herds, which we are certain will assist in the development of a bigger and better Hereford business in the Pacific Coast states.—The American Hereford Journal.

WHEN MILKING IS UNPOPULAR

It is not likely that everybody has experienced the disturbed peace of mind produced when attempting to get milk from the udder of a cow commonly known as a "tough milker." Those who have will, no doubt, agree that some of the Ten Commandments were in danger of being broken during the said milking operation. The California department of agriculture, therefore offers the following suggestions with the hope of making milking more popular:

An examination of the cow's teat reveals that it is conical in shape, the base beginning at the udder, gradually tapering until at the end it nearly comes to a point. The tissue of this organ is rather dense, containing considerable elastic tissue. Running through the center of the organ is a more or less extensive cavity which is found to be larger at the base and is known as the milk cistern. The lumen in the teat gradually becomes smaller until near the end it becomes a rather narrow canal. Through this cavity milk is removed from the udder by the sucking calf or the milker.

Several kinds of obstructions may interfere with the free flow of milk during the process of milking.

The mucous membrane lining of the teat cavity may form a fold at some point and act as a valve, thus preventing the milk from flowing freely under ordinary manipulation.

During the course of certain udder diseases clots or curds may form and obstruct the exit of the fluid.

Quite commonly an obstruction is formed by the presence of warts or tumors.

The majority of the cases of teat obstructions which make milking difficult are caused by inflammatory processes induced by injuries near the end of the teat.

The lumen may be unusually narrow or the sphincter muscle (closing band) may be wanting in elasticity.

It is quite evident that relief is dependent upon the determination of the cause of the condition.

Sometimes an inflammatory condition is located at the orifice of the canal. This is usually only of a temporary nature and the use of a sterile milking tube is indicated, especially in cases where inflammatory processes have rendered the end of the teat tender and sore. The tube is gently introduced at each milking, and when in place the corresponding quarter is gently rubbed from above downward, thus forcing out most of the milk. The milk tube, of course, is then removed, thoroughly cleansed, and sterilized.

In case of a permanent constriction of the canal instruments known as teat dilators are used periodically to enlarge the lumen. If the introduction of the dilators does not accomplish the desired results the canal is enlarged with a special cutting instrument known as a teat bistory. Often a very shallow incision suffices to bring about the desired results. Even in cases of the most simple nature the services of a competent veterinarian are recommended if the owner desires extreme precaution against accidental infection which may ruin a good udder.

When the obstruction, from whatever cause, cannot be removed, the udder is not apt to be completely emptied at each milking, thereby impairing its productiveness.

Frequently dairy laborers do not seem to regard milking through normal teats an enjoyable pastime, consequently it devolves upon the owner to require that the udder of "the tough milker" be emptied at each milking in order to prevent impaired function of the organ.—S. O'T.

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Bargains in Polands—600 pure bred Polands—sows, gilts, boars, feeders, must be disposed of to make room. Take one or more at your own price. Santa Anita Rancho, Santa Anita, California.

For Sale—Big Type Polands, February, March and April gilts and boars. From the herd that took 21 ribbons in Los Angeles and Riverside Fairs. J. L. Dunlap, R. F. D. 2, Pomona, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

HAMPSHIRES

Registered Hampshire Pigs, excellent individuals, prices reasonable. H. G. Ranch, Solvang, California.

MISCELLANEOUS

Distributors to appoint agents and sell Powerene at wholesale. Agents make $30 a day. Special terms to distributors. Equals gasoline at 5c. The equivalent of 20 gallons, express prepaid, $1.00. P. Barnes, H424, Santa Rosa, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale—About 100 ton A-1 pure barley hay. Will put aboard car Hollister. For price write or call Harry Locke, two miles east on Santa Anna Road, Hollister, California.

Orchard Deciduous Pruning by Whitten long system. Acreage only. Address: W. I. Scibird, 2212 Nicholson Avenue, Monterey Park, California. Phone Alhambra 656-W.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Mo.

Leaf Tobacco — prepaid, 3 lbs. either chewing or smoking $1.25. WHICH? 5 lbs. weak $1.30. Guaranteed. Aden Francis, Dept. Y, Dresden, Tennessee.

Electric Farm Lighting Plant, in good condition. Used one year. Bargain. L. E. French, Sebastopol, California.

For Sale—300 nurserymen's flats (second-hand) in good condition, cheap. H. A. Phelps, Sherman, California.

For Sale or Exchange—2 ton truck in good condition, $800. Would consider orchard tractor. Box 333, Placentia.

FERTILIZERS

Gypsum and Lime—Price Right
Order early for prompt delivery.
H. B. Matthews, 1010 N. Madison Ave., Pasadena.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 237-241 Court St., Los Angeles.

FARM LAND FOR SALE

Agriculture—the Mother of Civilization, but who is going to do the work when the hired man quits or the boys go to the city? Don't try to farm so much land that you make life a burden. We have an ideal one man proposition to offer you. Soil and climate where you can grow anything that grows in California. Water piped under high pressure to your door for irrigation and domestic purposes. Good schools and churches in a 100% AMERICAN colony. A limited amount of cleared land for $200 per acre. PARADISE RANCHITA, Paradise, California.

For Sale by Owner—50 acres choice river bottom alfalfa land, gradually changing to prunes, apricots, pears, peaches, vines, etc.; 2½ miles from growing railroad town 30 miles from Fresno, California. No alkali or hardpan, abundance of water. Priced at half value to insure quick sale and half down. Price $9400. Box S W R, CULTIVATOR, Los Angeles.

Plenty of Government Land in Oregon and California still to be had for little or nothing. Fruit, grain, grazing, mining, timber, near to railroad. Ask for free folder, stating kind of land you'd like. RALLY, Dept. 9, 312 Grant Bldg., Los Angeles.

For Sale—40 acres in Oakdale Irrigation District, four room plastered house, barn room for 20 cows and six horses, 12 acres in alfalfa, the rest checked ready for seed. Price $10,000; $3,700 cash, 7 years on balance. Write, Owner, P. O. Box 585, Oakdale.

For Sale—28 acres of Rogue river bottom land, mile from Grants Pass. All under gravity water improved, fine alfalfa or garden soil. Your chance to buy reasonably from owner. Write: J. F. Webster, Grants Pass, Oregon.

For Sale — 10 acres, 640 Valencias, 300 Fuerte Avocados, 11 room house, garages, water, gas, electricity. West of Charter Oak. Address Owner, Box 56, Charter Oak, California.

For Sale—20 acre date garden, ¾ mile Indio. Best date growing section Coachella Valley. E. A. Miller, Box 192, Indio, California.

For Sale — 240 acres, very desirable; 200 acres very rich delta suitable for gardening or potato soil. Great bargain. $250.00 per acre. Box 3, Wasco, Calif.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

TURKEYS

GIANT BRONZE TURKEYS
Large turkeys can be raised at practically the same cost as small ones. It is in the strain. One of my toms will give you five more pounds of meat to market in all of his get the first year, besides vitality and beauty.
GOLD NUGGET STRAIN
Again win at California's two greatest shows, Gold Special Sweepstakes for best turkeys at California State Fair, 1920, against sixty-six of the state's best turkeys. Also every first, second and third prize and Gold Special Sweepstakes at Los Angeles Live Stock Show, 1920.

The Gold Nugget strain have continually proved their superiority by winning Gold Special Sweepstakes at every show exhibited in the last six years including six state fairs and all the largest shows in the West.
AN UNEQUALED RECORD
Toms and eggs for sale, also a few high class exhibition toms to win in any show. Circular after first of year.
J. WILL BLACKMAN
Originator of Gold Nugget Strain
607 East Third Street,
Los Angeles, California.

Turkeys—"Goldbank"—"Copper King V" strain. Selected Giant Bronze toms. Sired by son of famous "Copper King V." First Prize Yearling, N. B. T. Club Show, Madison Square, N. Y., January, 1919. Bred to 20 lb. hens. Egg orders taken. Prices reasonable. Address: BRONZE KING MOUNTAIN FARM, P. O. Box 308, Calistoga, California.

Mammoth Bronze Turkeys, Stafford strain, Eastern stock, beautiful plumage, extra large frame and bone. Money back guarantee. Send for circular. R. M. Dodge & Son, R. D. 2 Box 129, Bakersfield, California. Phone 31F4.

Earl E. Sanders, Modesto, breeder of Mammoth Bronze turkeys and Single Comb White Minorcas, is booking orders for eggs, chicks and breeding stock. Route D, Box 1880.

Only a Number of Large Heavy Boned Mammoth toms and hens left. Well marked, money back guarantee on every bird. You make no mistake on this stock. A. W. Gauger, Dos Palos, California.

Mammoth White Holland Turkeys for Sale—Choice hens and toms from our famous breed of large vigorous turkeys. Earl V. Smith, Loma Vista Ranch, Willows, Calif.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Mammoth Bronze Eggs from prize winning stock. Order now for early delivery. $30.00 per 100. T. T. Middleton, Lankershim, California.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, S. Reservoir, Pomona, California.

Bourbon Red Toms for sale. L. S. Grosse, Scottsdale, Arizona.

GOVERNMENT LAND

300,000,000 Acres Free Land in U. S.—Send for free descriptive circular of our 100 page book THE HOMESEEKER which tells you where this land is and how to acquire it, or send $2.00 for book direct. The Homeseeker, Dept. M, 336 S. Broadway, Los Angeles, California.

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ROOFING PAPER
One ply $1.50, 2 ply $2.00, 3 ply $2.50 complete with fixtures. Rubber roof paint 50c per gallon in 5 gal. lots.
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FOR SALE—POST PAID
Famous Catalonia Sweet Spanish Onion Seed
(the sweetest in the world)
and
Valencia Sweet Spanish Onion Seed
These seeds are just imported from Spain and are in fine condition to germinate. They can produce four hundred or more sacks per acre. Rich ground not necessary. Best time to plant from September to January to insure big crop. Sample packages 30 cents. Write for price by the pound. Jose Llach, Ventura, California.

Berrydale Berries and Roses—"De Roo's Mary Lewis" New Everbearing Raspberry. The finest, largest and best flavored berry grown. Can ship 500 miles in perfect condition. Plants strong and need no supports. Plants ready for delivery now. Price per 12, $3.00; 100, $20.00; 1,000, $150.00. Sample plant 30 cents, parcel post. Write for catalogue, sent on receipt of 5 cents in stamps. Salesmen wanted. Our salesmen are making good up to $600.00 per month. BERRYDALE GARDENS, Dept. D, 1715 Webster Street, San Francisco, California.

Strawberries—1,000,000 plants, leading varieties; 200,000 Cuthbert raspberry; 100,000 Black Cap Tips; 100,000 Loganberry Tips. Order now; low prices. Also 100,000 choice peach seedlings — will graft in plums or prunes on contract for fall delivery 1921. Lafayette Nursery Company, Lafayette, Oregon.

For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

Increase Your Potato Yield by planting clean healthy seed. I have some Great Divide seed potatoes of excellent quality at 3 cents. Present crop 200 sacks per acre. Come and see. W. G. Brumund, Cucamonga, California, on Foothill Boulevard.

Berry Plants — Strawberries, Loganberries, Currants, Gooseberries, Blackberries and Raspberries, for immediate delivery. All stock first class and strictly true to name. Write for prices. M. J. MONIZ, Berry Specialist, Sebastopol, California.

Brandywine Strawberry Plants from stock which produced $3,000 worth of berries from acre this season. Price reasonable. Lon King, 1158 West Fourth, Riverside, California.

Rhubarb Plants—Wagner's Giant 1 year, per dozen 50c; per hundred $4.00. Wagner's Giant, 2 year, per dozen $1.00; per hundred $8.00. Seed per pound $5.00. Currier Bulb Co., Santa Cruz, California.

Strawberries six months in the year. Plant Everbearers, Superb, Progressive, Americus, $2.50 per hundred prepaid. Catalogue. Fred Leissler, R. 6, Box 429, Seattle, Washington.

For Sale — Mountain grown strawberry plants. Brandywine $1.50 and Banner $2.00 per hundred by mail postpaid. B. Bryan, Camp Baldy, California.

Grape Cuttings, Tokay, Cornichon, Dattier, Muscat and Emperor $3.00 per 100, or $25.00 per 1,000. S. W. Knouf, Box 86a, R. F. D., Beaumont, California.

Pumpkin Seed — Mixed Pumpkin Seed, good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

For Sale—Good clean common variety alfalfa seed at 22 cents per pound. Chas. A. Haug, Star Route, Corona, California.

For Sale—30,000 New Oregon, 40,000 Wilson strawberry plants, $5 thousand f. o. b. Sutherlin, Oregon. A. E. Bamber.

300,000 Grape Rootings $30.00 a 1,000 while they last. Four kinds. Box 501, Fowler, California.

My Price List contains interesting reading. Send for it. Bishop's Nursery, Highland, California.

For Sale—Unrooted grape cuttings, fruit trees, rooted grapevines. Burke's Nursery, Lodi, California.

Fine Klondyke and Brandywine plants for sale, $12.00 per M. L. E. Hall, R. D. No. 2, Box 61, Pasadena, California.

California Wonder Corn for seed. Write now. James McKee, Riverside, Calif.

CATTLE

Pure Bred Guernsey Bulls at farmers prices. Three are ready for service. Also a number of calves sired by a son of Rex of Rich Nech.
Adohr Stock Farm
Ventura Blvd. near Van Nuys. Phone Van Nuys 119R2. Mail address — Van Nuys, California.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

35 Excellent Jersey Cows—1 reg. bull, 12 calves for sale reasonable. Address: H. E. Watson, Rt. D, Box 91, Modesto, Calif.

For Sale—Six heavy milking young Holstein grade cows. Right in every way. B. M. Lederer, Chino, California.

Registered Holstein Bulls, various ages at Nuevo Stock Farm, Wineville, California. E. R. Stalder, owner.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

TREES

Nursery Stock—We are offering commercial lots in Bartlett pear trees, at prices which will save you planters big money. Have apple, pears, prunes, cherry, strawberry, berries, etc. NO AGENTS. Try our Mail Order System. Send for planters List. 30 years in business. CARLTON NURSERY COMPANY, CARLTON, OREGON.

Goin' To Plant? Can still supply a limited quantity of our bud selected French prune on peach, Bartlett pear on Jap, and broken line of other trees. BETTER TREES ARE NOT GROWN. Prices most reasonable. We ship any quantity anywhere on approval. J. F. Miller & Sons, Healdsburg, California.

For Sale—10,000 Valencias one and two year buds; 2,000 Eureka lemon two year buds; Navels, M. S. Pomelos; 1000 Wonderful Pomegranates; 3000 Texas Umbrellas; 100 Kadota figs; 2000 Mission Olives; Sweet and Sour orange seed-bed stock. Southland Nurseries, 1941 East Colorado Street, Pasadena, California.

Royal Apricots, Tuscan, Sims and McClure Clings, Elberta and J. H. Hale Freestone Peaches, Santa Rosa and Beauty Plums, Pear, Apple and Walnut Trees. Grapevines, Berries, etc. Order now; leading varieties scarce. Los Nietos Valley Nursery, Downey, California.

For Sale — Placentia Perfection and Eureka walnut trees, also Eureka Lemon and Almond trees. These are all high grade stock. Ketscher's Nursery, 1101 E. 4th St., Santa Ana, California. Phone 572WK

For Sale — 80,000 Black Walnut Seedling trees, one year old next spring, ready to graft, at Van Nuys, California. Can leave on ground as long as desired. Get my price. Geo. M. Ketscher, 1101 E. 4th Street, Santa Ana, Phone 572W.

For Sale—Walnut trees, fine stock Eurekas grafted on black root. Prices, 4-6 feet in height $2.00; 6-8 $2.25; 8-10 $2.50; 10-12 $2.75. La Puente Walnut Nursery, Puente, California. Phone 103.

For Sale — Elberta, Phillips, Tuscan peaches, French and Sugar prunes, Franquette walnut, almonds, berries, etc. Send for price list. Ben Putnam Nursery, Winters, California.

For Sale — 100,000 Florida Sour Orange Seed-bed Trees; 100,000 California sweet seedling orange seed-bed trees. SOUTHLAND NURSERIES, 1941 East Colorado Street, Pasadena, California.

I Have Just a Few Thousand Elberta peach trees three to four feet at 50 cents f. o. b. Los Angeles. Wm. Kelly, El Centro, California.

Seed Bed Stock—Florida sour and California sweet. Nursery 100 Ventura Street. Address Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena.

For Sale—Budded English Walnut trees grafted on Northern Black Walnut stock. Address: Italian Vineyard Company, Guasti, California.

TREES—TREES—ALFALFA SEED Etc. Full stock—best varieties, now. Write J. L. LAWSON, San Jose, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited.

Grape Vines, orange, lemon, grapefruit trees; citrus seed bed stock. L. A. TUTTLE, R. 1, Box 385, Pasadena.

For Sale — Three thousand Mission and Manzanilla olive trees. York Nurseries, Highland, California.

Peach and Apricot Trees—Leading varieties. C. Truelsen and Son, Hemet, California.

LIVESTOCK

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

18 Milk Goats—$15, $18, and $20, Betsy St. Clair 5556—¾ Saanen hornless bred to Echo Prince 5087—$45; El P. Mark Anthony 6672 pure Togg, $60. Zufich, Chittenden, California.

Duroc Hogs and Shropshire Sheep. Pure bred stock for sale at all times. J. J. Prendergast, Redlands.

WANTED

Should be glad to hear from party owning small fruit and chicken ranch who would be willing to rent on shares to reliable party. Address: E. L. Cook, Eureka, California.

Wanted To Hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

Wanted — Mission Grapes, Grafted Walnuts, Grafted Loguats, Mammoth Thornless Blackberries, apricot, peach and plum trees. Mission Oak Nursery, Santa Barbara, California.

Wanted—Walnut Meats. Fred L. Mitchell & Son, 214 French Street, Santa Ana, Phone 551-M.

FOR RENT
IMPROVED
LAND

For Rent, all or part of 2,000 acres IMPROVED LAND, near Pixley, Tulare County, with water, electric power, buildings, etc., in tracts of from 80 acres upward. Either cash or share rental. Suitable for grains, alfalfa, cotton, grapes, fruits, etc. About half of this land is ready for seeding. Ideal stock or hog ranch.

Apply to H. G. Coffee, Pixley, Cal., or R. Schiffmann, Chamber of Commerce Building, Pasadena, Cal.

During the past ten years Riverside County has gained 42.7 per cent in its irrigated area.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Oil Lease

Upon lease for oil development is a clause proper wherein the lessee is required to begin drilling within a stated time.—Subscriber, Ontario.

Such matters are entirely within the discretion of the parties making the contract. Such clause as that spoken of is quite the usual thing in cases where it is believed that oil is almost certain of development. In other cases where it is what is known as "absolute wild cat territory," such clauses are seldom found, but it is a matter of ordinary bargain between the land owner and the lessee.

Contract of Employment

Some years ago a party came to my ranch and desired to help me for the privilege of making his home with me temporarily. We agreed that he should have the opportunity to develop mineral on the land and I would furnish him with food and lodging. He soon gave up the mineral hunt and has stayed for several years. There has never been anything but a verbal understanding and relations have become somewhat strained. Would it be possible for this party to claim wages for his employment?—Subscriber, Palmdale.

The statute of limitations would undoubtedly run on any wages for a period prior to two years from the date of filing action. The matter of the contract of employment in this case would be entirely one of proof and it would be the word of one party against the other. An agreement such as that made by you is, to say the least, unusual, the usual thing being that the laborer is worthy of his hire. It would be well for you to have the matter reduced to a written contract or at least have the evidence of some disinterested parties as to the nature of the contract. As it remains, it is entirely a case of which party would be believed.

Renewing Note

I made a loan on first mortgage in 1915. In 1918 this loan was extended for two years. It is now again due. Should I allow the mortgage to run any longer?—Subscriber, Willowbrook.

The statute of limitations would not bar action upon the note secured by a mortgage until four years from the date of its maturity. The note being past due, the mortgagor would have the right to come in and pay it up at any time or the mortgagee has the right to commence to foreclose at any time. It is usually considered that it is better to renew such an obligation for a definite period of time by the giving of a new note or a new note and mortgage.

Riparian Right

Can a party whose lands border upon a stream take water out of the stream to irrigate his land, regardless of ditch rights that have been established below him?—Subscriber, Kaweah.

Under the established law of riparian rights a title by prescription cannot be acquired against a tract of riparian land by diverting water from a stream at a point below such land and not interfering with the stream at the riparian land for the reason that the lower appropriator invades no right of the upper riparian appropriator. The latter has no right to prevent such use for he is in no wise injured. However, it has been held that where the water taken by the lower appropriator is diverted to a public use, such as supplying of farm neighborhoods with water for irrigation and towns with water for domestic use and the riparian owner during the period of this diversion for public use has knowingly stood by while the diversion was being made and has seen this water so supplied in quantities inconsistent with use of the water in the stream on his own land, he is thereafter debarred from asserting his riparian rights to the use of this water, to the extent which would conflict with the public rights theretofore acquired. Under that section of the rule restraining the rights of the riparian owner, it must, however, be a public use, and it would seem that the rule would not apply in the case where it is a mere private use.

Pipe Line from Cistern

In a deed made in 1892 conveying to me my home ranch, which has been duly recorded, there is the following reservation: "Reserving to the grantor the right to maintain and use a cistern as now constructed upon the northwest corner of the above described premises." The grantor has been dead about ten years. His heirs are using the cistern for domestic purposes, conveying the water therefrom across from the place in a small iron pipe. There is nothing of record giving any right of way for this pipe. What are the rights as to this cistern and pipe line? Does the right of the grantor run forever, or did it cease on his death?—Subscriber, Duarte.

It might be an interesting question as to whether the reservation was one which was personal to the grantor or constituted a covenant or reservation running with the land, but it is hardly of importance at this time. The pipe has been connected with the cistern and used by the grantor's heirs for a period long past that necessary to give them a right by prescription. All of the elements of the title to an easement by prescription exist. They claim under color of title, to-wit, the reservation in the deed. Their possession has been lawful and peaceable and in good faith. It has been a right exclusive and hostile to the right of the owner of the land. It has, therefore, very probably ripened into a right, which has become an appurtenance to the land upon which the heirs reside, and your lands are doubtless subject to the easement of taking water from the cistern by means of this iron pipe for domestic purposes, which would involve a right to repair such iron pipe and maintain the cistern and give adequate ingress and egress for such purposes.

Line Fence

I have two miles of line where there are six different parties owning land adjoining me. All are non-residents who do not wish to fence. Can I build a line fence and compel the neighbors to pay me one-half of what the fence is worth at the time they wish to join it? Can they make an enclosure by setting their fence post close to my fence and still not connecting therewith? Can I move the fence if I wish to do so, if no one joins it, and can I move any part that belongs entirely to me and my adjoining neighbor has not joined it?—Subscriber, Arbuckle.

The rule in respect to fences is very clearly set forth that co-terminus owners are mutually bound equally to maintain the boundaries and monuments between them and the fences between them, unless one of them wishes to let his land lie without fencing, in which case, if he afterwards encloses it, he must refund to the other a just proportion of the value at that time of any division fence made by the latter. You would, therefore, be entitled to build your line fence and compel your neighbor to pay one-half the value thereof, not when he wisnes to join it, but when he afterwards encloses his land, whether he wishes to join it or not. It is not a question of his connecting his fence with your fence, but a question of whether or not he fences his land. He would not be able to avoid his obligation to you by any such subterfuge as by putting his fence near to but not joining the fence which you have made. Until the neighbor has fenced his land and paid to you one-half of the value of the fence which you have built, it is entirely optional with you whether you shall maintain the fence or remove it, as he has gained no rights in the fence which you have built. You have the same right in this respect as you have in any other construction on your property.

Rebuilding Line Fence

My neighbor and I are in need of a new line fence. Am I required to pay an equal share of the cost of construction? I have no stock and never ex-

(Continued on Page 31.)

Quit Gambling

S. C. White Leghorn Hens

Never get too fat to be prolific layers. They are excellent foragers, picking up most of their living around the farm.

Where all the feed is supplied, the White Leghorn hen or pullet eats 10 pounds less per year than other breeds. This is a statement of fact based on experiments carried on at the Connecticut Agricultural College.

Don't gamble with poultry—don't use Ouija Board methods. Learn more about the famous Oak Dale S. C. White Leghorns.

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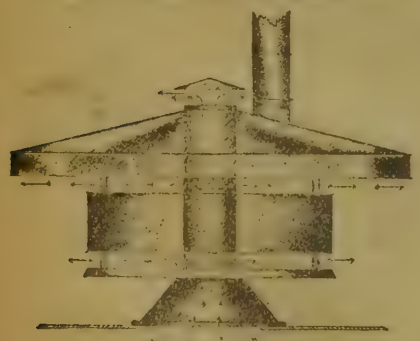

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Broods from 500 to 1,000 CHICKS. Fire NEVER goes out—temperature the same during STORMS and COLD SPELLS. WARM, FRESH AIR, radiates HEAT to FLOOR where CHICKS CREATE DEMAND for HEAT. Stove burns COAL or COBS ECONOMICALLY.

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The Little TWISTER
Write me Today!

You can run this Twister—must run by belt power—from your gas engine or tractor or motor truck or Ford or Dodge. BELT POWER TRANSMITTER is all that you need. Catalog free. Frank R. Weisgerber, Salina, Kansas.

Roast Goose for Christmas

By Jean A. Koethen

TENDER and juicy, with that "gamey" flavor so highly prized by epicures, bigger than the average turkey and far more easily raised, roast goose is a dish for any Christmas dinner table. It cannot be raised everywhere, for the goose is a bird that does best on green range, and is not altogether an agreeable companion in a crowded neighborhood, but on the farm or in the suburbs, where its voice does not disturb the neighbors, it is worth while from every point of view.

For one thing, a goose lives forever, or at least a hundred years or so, if it does not come to an untimely end. One need not raise new breeding stock every year or so, as with other birds. William Rankin tells of a goose owned in Boxford, Massachusetts, which was the property of one family for 101 years and was then killed by the kick of a horse. It was not uncommon in former times for the farmer's daughter on her wedding day to receive a goose from the old homestead. Sometimes these geese were kept far beyond the life of the bride to whom they were presented. Good geese may easily be kept for 25 years as breeders, but ganders are generally preferred not over eight years of age. Few geese live to this venerable old age, for the simple reason that they become so domineering in time that they are absolutely impossible. The goose, like the goat, has a mind of its own, and thinks too much to be always a satisfactory pet.

Those who wish to raise a goose for their Christmas dinner in 1921 should be about it before the bells ring in the New Year, for early goslings are best, and the earlier the better. Geese should be mated in the fall so that they may become accustomed to one another before the hatching season begins. Goslings, like ducklings, do not do well in warm, dry weather, and there is much to be gained in getting them out in January or February.

Mating the Breeders

Wild geese mate in pairs, but the domestic geese have been so far domesticated that one gander will mate with two or even three geese. As the ganders grow older, however, they are inclined to neglect all but the favorite, and for this reason it is better to replace them after eight years.

The breeding goose and gander should not be too nearly related, and should be stocky and massive without being fat. They should be clean in plumage, for the dirty looking birds are never the most vigorous. The gander should be from one to three years younger than his mates; more than this if the geese are old.

"A nice meadow, with a brooklet running through," says Theodore Jager, "is an ideal place for them to roam. Not all people have meadows. A field sown to rye the fall previous is the next best place. Provide water in some manner, that the birds may partake whenever inclined. Galvanized iron pails, fastened with four or five sticks to the ground, are sufficient if filled once a day and kept in a shady place. They are not in actual need of water to swim in. If the vegetation is scarce or the drain of producing eggs too much for the birds, feed them once a day with wheat and hulled oats. Do this at night. Use V shaped troughs and keep them at the farthest place in the pasture so that the birds when starting for their quarters may yet have a chance to hunt some choice morsels of grass."

Old barrels make excellent nests, and they should be hidden in out of the way places. Fill the bottom of the nest with dry sand and on top of this place dry straw for the goose to cover her eggs with. If the goose is not to be allowed to sit, the eggs should be removed every day, but a large sized hen's egg should be left in the nest or she will become discouraged.

Three or four goose eggs are as many as a chicken hen can cover. Goose eggs require from 28 to 34 days for hatching, according to breed.

Feeding the Goslings

Goslings grow more rapidly than any other fowl, Emdens often weighing from 12 to 15 pounds at ten weeks of age. If they are to be marketed as green geese it must be at this time.

For the first eight days stale bread crumbs, crumbled fine, are sufficient feed. After the eighth day mix a little bran and corn meal with the bread crumbs, and moisten slightly. The amount of bran and corn meal may be increased gradually and the bread crumbs dropped. As the goslings grow older they will eat more grass and are raised much more cheaply and easily if they have good pasture. If they are to be pushed for market, however, they will have to be fed all the mash they want, with grain morning and evening. The year I raised Emben goslings I found that while they grew with marvelous rapidity they were also marvelous eaters when kept mainly on a grain diet. On this account I doubt if they are profitable when they cannot have pasture. Geese, it is said, will improve any pasture where cows are kept, since they dig out the weeds and keep the grass fine and tender.

Goslings are less susceptible to disease than any other kind of domestic poultry, but they must be kept warm at first and must not be allowed to get wet till their down is replaced by real feathers. They do well when raised in brooders, as well as with chicken hens.

Breeds of Geese

The geese best known in this country are the Emden, the Toulouse, the African and the China. Of these the Embden is most popular, being among geese what the Pekin is among ducks, very hardy, quick growing and a splendid table bird. The Toulouse is a French breed, large, but no heavier than the Embden, which often reaches 25 to 30 pounds, and the flesh is darker. The African is somewhat smaller, but its skin is dark and it is less easily picked than the others. The China or Chinese goose is more ornamental and is said to lay more eggs than the Embden or Toulouse.

SONOMA COUNTY EGG LAYING CONTEST

The Sonoma County farm bureau egg laying contest began in Petaluma the first day of November with 432 hens entered, 36 entries of 12 hens each. The purpose of this contest is to stimulate interest in scientific breeding for egg production, and the land, building and feed have been donated by business men of Petaluma. F. P. Eckland of Hayward has been engaged to manage the contest. The advisory board of the contest is composed of Professor Dougherty, R. B. Eason, extension specialist, and Melvin W. Buster, assistant farm adviser.

The ration used during the contest will consist of 180 pounds each of barley, milo and cracked corn, and a mash mixed according to the following formula: 160 pounds bran, 90 pounds mids, 130 pounds ground corn, 60 pounds ground barley, 50 pounds meat scrap, 50 pounds fish meal, 15 pounds charcoal, 3 pounds salt.

REMOVE HAZARDS FROM HATCHING EGGS

Fertile eggs from vigorous breeding stock are necessary in order to obtain good hatches. Free range for the breeders is most desirable for the production of fertile eggs with vigorous germs, but all eggs produced from such hens should not be used for incubation. Eggs that are abnormally small and poorly shaped or those having thin or very poor shells should be eliminated. Dirty eggs or those badly soiled should not be used. If it is found necessary to set slightly soiled eggs they may be cleaned by rubbing lightly with a damp cloth, care being take not to rub off any more of the natural bloom than is necessary.

It is never advisable to use for hatching eggs that are more than two weeks old. Neither a hen nor an incubator will hatch strong chicks from eggs containing weak germs or from those which have not received proper care.

In preparing the nest for the sitting

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hen put from three to four inches of damp earth or a piece of grass sod in the bottom of the nest before the nesting material is put in, to provide moisture. When the hen becomes broody, and before she is transferred to the nest for sitting, she should be dusted with insect powder or sodium fluoride. In doing this hold the hen by the feet with the head down, working the powder well into the feathers. This should be repeated about the eighteenth day of incubation so as to be sure that there are no lice present when the chicks are hatched.

The hen should be moved at night from the regular laying nest into the nest where she is to be set. The latter nest should be in some out of the way place where the hen will not be disturbed. In order to make sure that the hen will continue to stay in the new nest, she should be started with one or two china nest eggs. If, at the end of the second day, when the hen should be permitted to leave her nest for food and water, she returns in a short time, the nest eggs may be replaced with the eggs that are to be incubated.

Throughout the period of incubation the eggs and nests should be kept clean. Sometimes it will be necessary to change the nesting material. Eggs should be tested twice during the incubation period, preferably on the seventh and forteenth days, and all infertile eggs and those with dead germs should be removed. When the eggs begin to hatch, the hen should be confined and not disturbed until the hatching is complete. If she becomes restless remove the chicks as they are hatched and keep them in a warm place until the hatch is complete, when all should be returned to the mother hen.

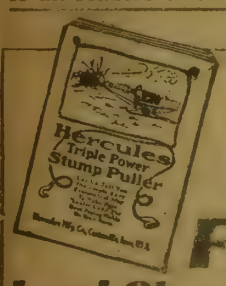
A New Log Saw

Cuts Faster, Costs Less, Makes More Money for Users and Works While You Rest

A new improved power log saw, now being offered, outdoes all other log saws in cutting wood quickly and at little cost. A new 4-cycle, high power motor equipped with Oscillating Magneto—no batteries to fail you—makes the saw bite through logs faster than other log saws. It finishes its cut and is ready for another before the ordinary saw is well started. This log saw—the Ottawa—has a specially designed friction clutch, controlled by a lever, which starts and stops the saw without stopping the engine. Others have imitated, but no other power log saw has this improvement just like the Ottawa. The Ottawa Log Saw sells for less money than any power saw of anything like its size.

Patent Applied For
The Improved Model, 4-H.P. Ottawa Log Saw

One man wheels this outfit from cut to cut and log to log like a barrow. Separate attachments cut down trees and cut up branches. Extra power lets the engine do heavy work of all kinds. Owners of the Ottawa Log Saw laugh at coal shortages and are making big money with ease, the machine doing the work. 35 to 50 cords cut any day, rainy or dry, by one man, are normal figures. And wood is approaching $20 a cord! The Ottawa is compact, simple and durable. It sells for cash or easy payments and is guaranteed. If you have wood to cut the Ottawa Log Saw will be the most satisfactory machine you've ever owned. We suggest that you write the Ottawa Mfg. Co., 2744 Wood St., Ottawa, Kas., for their complete new illustrated book and prices, sent free to all readers of this paper.



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UNITED STATES WILL TABULATE FARM EQUIPMENT MANUFACTURE

A census which will show the number and value of different items of farm operating equipment manufactured in the United States during 1920, the number sold in the United States, and the number sold for export, is being undertaken by the United States department of agriculture. Information will be collected from the manufactures of farm implements, vehicles and other equipment.

Since 1916 the department has compiled yearly reports showing the production and sale of tractors, on information supplied by manufacturers to the office of farm equipment control and later to the division of agricultural engineering. In order to meet the continued demand for similar figures regarding other machinery and equipment it has been decided to collect information concerning the manufacture and sale of all the more important items.

The use of improved equipment by farmers in this country is necessary for the welfare of agriculture, and it has had much to do with the prosperity of American farmers as compared to those of other countries. The importance of the farm implement and vehicle industry has long been recognized, but little information regarding its size as compared with other industries has been available. Such figures also will furnish a better basis for estimating the extent to which farmers are using machines and equipment and the amount which they invest annually in equipment for their farms.

The cooperation of the manufacturers, who generally realize the value of such statistics to their industry, has been assured. The division of agricultural engineering of the bureau of public roads will have direct charge of the collection of this information cooperating with National Implement and Vehicle Association. The present plan is to send to each manufacturer of farm equipment a form on which to report by mail the manufacture and sale of different items by his firm during 1920. The department wishes it to be clearly understood that it will follow its usual custom of keeping the reports of the individual manufacturers confidential and that they will be used for no other purpose than that outlined.

MARKET NEWS BY WIRELESS

Arrangements for trying out the wireless as a means of sending out agricultural market news to the farmers of the country are being made by the United States department of agriculture. The trial service will be offered to half a dozen or more counties adjacent to the District of Columbia, going out probably from the wireless station of the federal bureau of standards to numerous private licensed operators who would aid in distributing the reports to farmers and others interested in the territory covered.

Should the experiment prove practicable the service will be extended to other parts of the country. Although no system of dividing the country and of operation has been determined upon as yet, the plan favored at the present time calls for the use of 17 wireless stations throughout the country.

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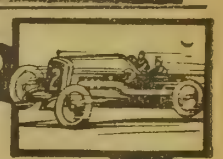

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Los Angeles Markets

Los Angeles, December 29, 1920.

BUTTER

Butter, creamery extras, Produce Exchange price 54 cents.

Dec.	23	24	25	27	28
'20	54	..	..	54	54

CHEESE

Brokers' prices:
California flats, 25@28.

EGGS

Fresh extras (case included): Produce Exchange closing price 70 per dozen case count, Produce Exchange closing price 68 per dozen; pullets, Produce Exchange closing price 66 per dozen; pewee pullets, 60.

Dairy Exchange price last week on extras:

Dec.	23	24	25	27	28
'20	70	..	..	70	70

POULTRY

Price to producers: Hens, lt., 29; heavy 30; colored, 33; broilers, 40@45; roasters, 31; old roosters, 14; fryers, 40; ducks, old, 23; ducklings, Pekin, 3½ up, 25; others, 23; geese, 25; turkeys, live, young tom, 45; dr., 50; old, live, 40; dr., 41; hens, live, 45; dr., 50; squabs, 45@47.

Belgian hares, live, 16@21; old, 9.

LIVESTOCK

Los Angeles, Dec. 28.—Weighed and delivered off cars without food or water:

Hogs, (hard grain): 125 to 175 lbs., 11.00; 175 to 225 lbs., 11.50.

Cattle (on foot, gross weight): Steers, good, 8.50@9.00; medium, 8.00@8.50; cows, good, 7.50@8.00; medium, 7.00@7.50; bulls and stags, 6.00; calves, 125 to 150 lbs., 11.00; 175 to 225 lbs., 10.50.

Sheep: Ewes, 7.50@8.00; lambs, 12.50@13.00.

POTATOES AND ONIONS

These are the acutal prices obtained between 7 and 8 o'clock, December 28, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market steady, quality generally poor. Stocktons: Burbanks, 1.75@2.25 according to quality. Idahos: Russets mostly 1.85@2.00. Local: mostly 90@1.00 per lug. Sweets, best, mostly 1.40@1.60.

Onions: Supplies heavy, market weak. Stockton: Whites, 1.35@1.60; Browns mostly 1.00@1.25 per 100 lbs. sacked; Yellows, 90@1.10 cwt.

Garlic, lb., 15@17.

VEGETABLES

These are the actual prices obtained December 28, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Beans: Ky. Wonder, Refugee mostly 18@20.

Beets: Doz., 35@45; sk., 1.50@1.75.

Cabbage: Supplies heavy, market slow, wide range in quality. Best mostly 1@1½ per lb.; per field crate, mostly 85@1.25.

Carrots: Doz., 30@35; sacks, 1.00@1.25.

Cauliflower: Supply liberal, field cr., 1.50@2.00.

Celery: Cr., 1.50@2.00.

Cucumber: Market firm; local, best, lug, 3.25@3.75 lug.

Egg Plant: Lb., 9@11.

Lettuce: Field crate, best, 65@90.

Peas: Local lb., 14@15; low as 8.

Peppers: Bells and Chilis, lb., 6@8.

Rhubarb: Crimson Winter, best bx., 75@1.00.

Squash: Local Hubbard, lb., 1½.

Tomatoes: Local lugs, mostly 75@1.25 lug; best high as 1.75.

Turnips: Per doz., 30@40.

DECIDUOUS FRUITS

These are the actual prices obtained December 28, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Apples: Supplies liberal, movement slow, market steady. Californias: Bushel boxes Bellefleurs, fancy, 4 tier mostly 1.90@2.00; 4½ tier 1.65@1.75; Jonathans fancy, 3.00@3.25; Delicious fancy 3.25@3.50. Idahos and Utahs: Loose Jonathans and Winesaps mostly 5½@6½ per lb.; Ganos and Ben Davis mostly 4½@5½ per lb; Oregons and Washingtons: Bushel boxes, extra fancy Jonathans and Spitzenburgs mostly 3.00@3.25.

Bananas: Lb., 10½@11.

Cranberries: Bbl., Late Howe, 21.00@22.00; Oregon, bx., 6.00.

Grapes: Emperor, Cornichon, 9@11; poorer low as 7, best high as 16.

Pears: Bartletts, northern, lb., 9@12.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 2.25@2.75; special packed brands, 3.00@3.75.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.25@2.00, few high as 2.75; loose, 1.00@1.25; lug mostly 40@50.

Oranges: Supplies heavy, market weak. Navels, new crop, local packed, mostly 3.00@3.75; small sizes low as 2.50, special brands mostly 3.50@4.50. Grove run 1.25@2.00 loose.

HONEY

Movement slow: Carloads f. o. b. usual terms: Per lb. 5-gallon cans White Orange and White Sage, 16½@20; extra Light Amber Orange, and Sage, 19; Light Amber Orange, 18½; Light Amber Sage, 12@18½; Light Amber Alfalfa, 11@17. Beeswax: Sacked, in less than car lots 40@42 per lb. Prices given represent quotations; practically no sales being made. Wide range due to extremely unsettled market conditions; low prices are considered possible in near future.

NUTS

California Walnut Growers' Association announces prices on 1920 walnuts: No. 1, soft shell, 12½; No. 2, 18½; Budded, 25½; standard budded, 22½ per lb.

GRAIN AND FEEDS

Grain Exch. prices bid December 28:
Milo: Carlots, 1.82½@1.85; Eastern, 1.52½.
Corn: Bulk, Yellow, 1.83¾@1.95.
Wheat: Mixed feed, 33.00.
Barley: 1.52½@1.55.

HAY

Alfalfa Growers of California, report under date of December 29:

The market in Los Angeles is nothing to brag about. We naturally expect a falling off of sales during the holiday season. Last year at this time there were 60 or 70 cars of hay being received in Los Angeles and about the same amount this year, that means about 500 tons of alfalfa a day or 12,000 tons a month. Our average feeding in Southern California is about 5,000 tons per month, so you can see it is difficult for the hay dealer to stand the strain. We have about enough alfalfa in California to feed California dairies and beef producers and my suggestion to the dairymen and beef raisers is buy California alfalfa! Most of the alfalfa in California this winter is in the hands of the farmers who are learning to distribute their product evenly throughout the year and by so doing stabilize prices which means much to the consumer.

There were 750 tons received on the tracks in Los Angeles the week ending December 25, with 200 tons left over as against 870 tons the week before.

Rabbit 41.00
No. 1 dairy.....28.00
Standard alfalfa.....24.00
Stock 20.00

Quotations by Nichols - Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats .....22.00@26.00
Barley .....18.00@25.00
Alfalfa .....22.00@30.00
Barley straw ..... 6.00@10.00

San Francisco Markets

San Francisco, December 28, 1920.

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras 50½

Dairy Exchange prices extras this week and year ago:

Dec.	21	22	23	24	25	27
'20 ...	51½	51	51½	50½	..	50½
'19 ...	..	..	70	..	67	..	66

Rcts. 4 days ending Dec. 27, 2,294 centals.

CHEESE

Dairy Exchange quotations:
Jack, full cream .....22@26
Jack, half skimmed.....17@20
Ore. Y. A. 34
Oregon Trips 29½
Cal. Y. A. 33
Cal. Flats 28½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 75
Extra Pullets 72
Undersized 68

Dairy Exchange prices, extras this week and year ago:

Dec.	21	22	23	24	25	27
'20 ...	70½	71	73	71½	..	75
'19 ...	..	..	76	..	67½	..	67

Rcts. 4 days ending Dec. 27, 187,495 doz.

POULTRY

Wholesale prices are:
Broilers, 15 pounds per dozen, 45@55.
Colored fryers—2 to 3 lbs., 37@38.
Colored young roosters (smooth), 3 to 4 lbs., 32@33.
Old roosters (colored), 20@23.
Leghorns, young, 15 lbs. to 24 lbs. per dozen, 32@33.
Leghorn hens, 3 lbs., 32@33; under, 25; Eastern, 31@35.
Large colored hens, 33@35.
Young Pekin ducks, 30; old ducks, 23@25; young geese, 32@35; market easy.
Live Belgian hare, 23@25; dressed, 28@30.
Turkeys: Dr., nominal.
Squabs: Large,.65@70 per lb.
Pigeons: 3.00@4.00 per dozen.

LIVESTOCK

Western Meat Company prices are: Cattle: Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 9½@10½; second quality, 8½@9; thin, 6@6½.

Cows and heifers: No. 1, 7½@8; second quality, 6@7; thin, 3@4.

Calves: Light weight, 9½@10; medium, 8@9; heavy, 7@8.

Lambs: Milk, 9½@10½; yearling, 8@8½.

Sheep: Wethers, 7½@8; ewes, 4@5.

Hogs: Hard, fat, grain-fed weighing 100 to 150 lbs., 9½; 150 to 225 lbs., 10½; 225 to 300 lbs., 10; 300 to 400 lbs., 9.

California Farm Bureau Markekting Association reports sales:

No.	Hogs	Av. Wt.	Dock	Price
Tulare, December 21				
84	200		...	$11.35
84	201		...	11.35
19	187		...	10.60
60	161		...	10.40
2	310		...	10.40
15	338		450	8.40
Three cars, 39 consignors.				
Visalia, December 22				
83	220		...	11.70
54	197		...	11.60
65	205		20	11.55
84	208		...	11.55
1	330		...	10.60
25	147		...	10.60
5	370		90	9.55
Four cars, 20 consignors.				
Hanford, December 23				
78	199		...	11.60
91	194		30	11.55
85	200		...	11.50
86	148		...	9.35
15	337		...	8.00
19	393		290	7.00

Five cars, 27 consignors.
Total for the week, 12 cars, 86 consignors, $21,248.17.

POTATOES AND ONIONS

Wholesale prices on street:
River, 1.60@1.75 for No. 1; do, Oregon Burbanks, 2.60@2.75; Salinas, 3.50; Idaho Gems, 2.60@2.75. Sweet potatoes, 3@3½ lb.

Onions: Yellow, 65@85 per cental; Australian brown, 90@1.25; do, white 1.50@1.75.

Garlic: New, 8@9.

VEGETABLES

Wholesale selling price:
Beans: Lb., garden, 10@12; Italian, 8@10; Limas, 12@13.
Brussel Sprouts: 5@7 lb.
Beets: Sk., 75@1.00.
Carrots: 75@1.00 sk.
Cauliflower: Doz., 1.00.
Cucumbers: Cr., 2.00@2.50; hothouse, 3.25.
Cabbage: Lb., 1.
Celery: Cr., 2.00@3.00; doz., 15@25.
Corn: Sk., 2.00@2.50; fy., 3.00@3.50.
Egg Plant: Southern, 8@10 lb.
Lettuce: Cr., 1.75@2.25.
Onions: Green, per bx., 75@1.00.
Peas: Lb., 12½@15; fy., 15@20.
Peppers: Bells, lb., 12½@15; Chili, lb., 5@6.
Rhubarb: 1.75@2.00 lug.
Spinach: Lb., 6.
Squash: Hubbard, 75@1.00 sk.; Marrowfat, sk., 75@1.00.
Tomatoes: Bx. fy., 1.50@1.75.
Turnips: Sk., 75@1.00.

FRESH FRUITS

Apples: Bellflowers, 1.50@2.00 for cold storage; Newtons, 3½ and 4 tier, 2.00@2.35; 4½ tier, 1.85@2.00; Hood River Spitzenberg, extra fancy, 3.00@3.25; fancy 2.50@2.75; choice, 2.00@2.25; Lady apples, 3.00@3.50 box; Roman Beauties, 1.50@2.50; Delicious, 2.50@3.50.

Avocado: Fla., 5.00@6.00; Tahiti, 4.00@5.00 doz.; Cal., 1.25@1.75.

Bananas: Lb., 9@11.

Cranberries: Per bbl., 24.00@25.00, Oregon, 6.00 box.

Dates: Lb., 19@22.

Mangoes: Doz., 6.00@10.00.

Olives: Lb., 3@6.

Pears: Winter Nelis, 3.50@4.00; other varieties, 3.00@3.75.

Persimmons: Bx., 1.00@1.75.

Pineapple: Doz., 4.00@6.00.

Pomegranates: 1.50@2.25 per half orange box.

Strawberries: Dr., 1.25@1.50; cr., 3.50.

CITRUS

Navel oranges, 3.50@4.15. Lemons, 2.50@3.75 per box; lemonettes, 1.50@2.00. Grapefruit, new crop, 2.50@3.00; do, Arizona, 3.50@4.50. Limes, 1.50@2.25 per half orange box; Tangerines, bx., 2.50@3.25.

DRIED FRUITS

California Associated Raisin Co. prices:
Muscats: Package seeded, Sun Maid, 25 pound boxes, 20½ cents a pound.
Loose, 25 pound boxes, one crown, recleaned and floated, 20½ cents a pound; two crown, recleaned and floated, 23¼ cents a pound; three crown, recleaned and floated, 24 cents a pound.
Layers, three crown flat pack, 20 pound boxes, $4.40 box; ten bound boxes, 2.40; five pound boxes, $1.40 box.
Cluster, four crown pack, 20 pound boxes, $4.70; ten pound boxes, $2.55 box; five pound boxes, $1.40 box.
Six crown flat pack, 20 pound boxes, $5.50 box; ten pound boxes, $2.95 box; five pound boxes, $1.60.
Sun Maid, 20 15-ounce net cartons to box, $5.20 box.
Sun Maid, 12 2-pound cartons to box, $6 box.
Sun Maid, Imperial, four 5-pound cartons to box, $6 box.
Vineyard run, Sun Maid, 100 pound boxes, $21 box (strapping extra, 19 cents per box).
Thompson Seedless, Sun Maid, recleaned, 25 pound boxes, 21 cents pound; 48 16-ounce packages, 21½ cents package.
Sultanas, Sun Maid, recleaned, 25 pound boxes, 20¾ cents pound.
Figs: Fancy black, 25-lb. boxes, 12 lb.; extra choice black, 25-lb. boxes, 10 lb.; choice black, 25-lb. boxes, 9 lb.; fancy white, 25-lb. boxes, 18 lb.; extra choice white, 25-lb. boxes, 1 lb.
Prunes: 30-40s, 25-lb. boxes, 19 lb.; 40-50s, do, 17 lb.; 50-60s, do, 15 lb.; 60-70s, do, 13½ lb.; 70-80s, do, 11½ lb.; 80-90s, do, 10 lb.; 90-100s, do, 9½ lb.
Apples: Fancy, 50-lb. boxes, 14 lb.; extra choice, do, 10½ lb.; choice, do, 10 lb.
Peaches: Blue ribbon brand, 48 11-oz. to case, 10.00 per case; do, 24 2-lb. boxes to case, 11.00 case; extra fancy peaches, 25-lb. boxes, 22 lb.; fancy, do, 20 lb.; extra choice, do, 18 lb.; choice, do, 17 lb.
Apricots: Fancy, 25-lb. boxes, 30 lb.; extra choice, do, 26 lb.; choice, do, 25 lb.; standard, do, 22 lb.
Pears: Fancy, 25-lb. boxes, 20 lb.; extra choice, do, 17 lb.; choice, do, 14 lb.

BEANS

Jobbers' prices:
Small white, 4¾ per lb.; large white, 5; pinks, 6¼; Limas, 6¾; cranberry, 6¾; Mexican Garvanzas, 7; Lentils, 12½; Blackeye, 6½; Mexican Reds, 6¾; Popcorn, 6½; California Bayo, 11½; Kidney, 11¾; split peas, 7; green peas, 4.

RICE

Fancy California Japan rice offered f. o. b. San Francisco, immediate, $4.40; prompt, $4.25; first half January, $4.10; January, $4; February, $3.90; March, $3.80.

GRAIN

Sales grain exchange December 28:
Wheat: Mill run, 2.75@3.00; feed, 2.75@3.00.
Oats: Red feed, new crop, 1.50@1.65.
Barley: New feed, 1.35@1.40; shipping
Shorts, 33@44.
1.60@1.70.
Middlings, 52@54.

HAY

Alfalfa Growers of California under date of December 29:

The threatened importation of Nevada hay has started and as a consequence our San Francisco qquotations have been knocked sky high. Three weeks ago California alfalfa was selling for $25.00, in San Francisco; today this same hay will only bring $20.00 a ton.

No. 1 dairy 23.00
Standard alfalfa 20.00
Stock alfalfa 17.00

Under date of Dec. 24, A. W. Scott Co. says:

Receipts past week 809 tons. The expected and feared has happened in the hay market. It is apparently now threatened with the flood of shrinkage that is overwhelming all markets of the country. During the past week local receipts have been light and business comparatively normal although dull with the usual holiday dullness. A wave of sentiment, however, has developed all over the surrounding country to let go and turn hay into money at the best price obtainable. As a result several large sales have been reported through the country at prices from $3 to $4 lower than heretofore and hay is offered in the San Francisco and surrounding markets at $4 per ton under our previous quotations.

General belief is that this does not indicate a stampede and a dropping of the bottom out of the market, but nevertheless the downward movement has seriously commenced and its future is only a question of conjecture. In this, the markets of the West are more fortunate so far than through the Eastern states where hay has been recently following the downward rush of all grains and mill feeds.

Alfalfa is extremely dull with a gloomy outlook for the next season as it is reported that hundreds of thousands of acres of land that for the last few seasons have been in use for cotton and other now unprofitable crops is being put into alfalfa. The demand for alfalfa seed this season is simply abnormal and the acreage and tonnage of alfalfa that will come in next year producers fear will be far in excess of any normal demand. Mill feeds and high protein dairy feeds of all kinds continue their downward course and are selling at lower levels.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charge of cartage, commission and handling expenses must be added according to conditions).

Wheat hay, fancy .....21.00@22.00
Wheat hay, light 5 wire bales..19.00@21.00
Tame Oat hay, fair to choice..18.00@21.00
Wild Oat hay.....12.00@15.00
Barley hay .....12.00@15.00
Alfalfa hay .....18.00@21.00

Citrus Markets

Los Angeles, December 29, 1920.

Orange growers are confronted by one serious problem. Box shook and paper are costing enormously and prices do not manifest a disposition to consider those costs. It is now declared that it costs to lay a box in New York at around $2.85 for shook, labor and transportation. Some of the auction markets have shown sales at nearly half this cost. Of course in other markets better returns have been secured especially for regular sizes of high quality stock. Whenever f. o. b. sales have been made it has been around $2.50.

There are not very heavy receipts of foreign lemons but the market is lifeless and there is no money whatever in shipping at the present time.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 1,084 cars; lemons, 637; total, 1,721. To same date last season: Oranges, 3,006; lemons, 537; total, 3,543. From Central California to date this season: Oranges, 3,373; lemons, 28; total, 3,401. To same date last season: Oranges, 2,818; lemons, 107; total, 2,925. From Northern California to date this season: Oranges, 274; lemons, 2; total, 276. To same date last season: Oranges, 237; lemons, 19; total, 256.

AT THE AUCTIONS

December 22

St. Louis: 4 Nav. 1 mixed car. Nav. 2.35-3.20, lem. 3.55-3.70.
Cincinnati: 5 Nav. 2.15-3.20.
New York: 24 Nav. 2 lem. Nav. 2.25-5.15, lem. 3.25-3.80.
Boston: 6 Nav. 1 lem. Nav. 2.65-4.30, lem. 2.20-3.50.
Cleveland: 9 Nav. 1.75-4.55.
Pittsburg: 5 Nav., 1 lem. Nav. 2.15-3.75, lem. 3.60-4.35.
Philadelphia: 3 Nav. 1.40-3.65.

December 27

New York: 40 Nav. 3 lem. Nav. 2.10-5.45, lem. 3.85-4.10.
Boston: 5 Nav., 2 lem. Nav. 3.35-4.40, lem. 1.80-2.40.
Philadelphia: 5 or., 1 lem. Nav. 2.40-3.50, lem. 2.85-3.30.
Pittsburg: 4 Nav., 1 lem. Nav. 2.70-4.20, lem. 3.65.
Cleveland: 7 Nav., 1 lem. Nav. 1.70-4.55, lem. 2.45.
Cincinnati: 2 Nav., 2 lem. Nav. 2.25-2.75, lem. 3.40-3.95.

December 28

New York: 25 Nav., 5 lem. Nav. 2.45-5.00, lem. 3.45-3.85.
Boston: 4 Nav., 2 lem. Nav. 2.80-4.20, lem. 1.45-3.65.
Pittsburg: 4 Nav., 2 lem. Nav. 2.15-3.60, lem. 2.30-3.60.
Philadelphia: 3 Nav., 1 lem. Nav. 2.50-4.00, lem. 2.40-2.60.
Baltimore: 1 Nav., 1 lem. Nav. 3.20, lem. 3.60.

BUY POTATO SEED NOW

Time was when potatoes were potatoes and the man who wanted a potato crop simply planted potatoes. But today the California planter is not so easily satisfied. He has come to realize that the potatoes he digs can be no better than the seed he sows. He wants to know what he's planting before it goes into the ground. He now demands a pedigree when he goes out to buy seed. He insists that the seed potatoes he uses must be free from disease and absolutely true to type and variety. He refuses to gamble with unknowns at planting time. He has too much at stake to risk planting anything but the best seed potatoes obtainable.

This changed attitude on the part of potato growers has come largely as a result of the educational work of the state college of agriculture and the missionary work of the state and federal farming experts. The gospel of "Better Seed—Better Potatoes" has been preached and demonstrated far and wide. It is now bearing fruit in an awakened interest in the seed potato industry.

This new interest has naturally brought an unprecedented demand for certified seed potatoes—which demand has never until now been satisfactorily supplied. The organization of the California Seed Potato Growers is the potato man's answer to this question. This new association is composed of the leading potato growers in the state, organized for the purpose of pooling the certified seed potato supply so that the insistent demand for "inspected and passed" seed can be equitably and economically met. No section of the state and no group of planters will now have any monopoly on certified seed potatoes. As long as the supply lasts it is available in any quantity, large or small, to any planter wherever he lives.

Unfortunately the supply of "certified" and "certified, approved grade" seed potatoes is limited. The rigid tests that a seed potato must pass before it is given the state inspector's endorsement are so severe that most potatoes do not survive the inspection. California uses 750,000 bags of seed potatoes a year, only a fraction of which can be certified because of the limited supply. The association has collected them at conveniently located distributing points throughout the state. Many dealers are already stocked. But the word has gone out that owing to the great demand and the limited supply, the man who decides to plant these super-selected seed potatoes must file his order early to avoid disappointment.

The California Seed Potato Growers has the official endorsement and the active cooperation of the state agricultural college and the directors of the state and federal departments of agriculture. The organization is working very closely with Geo. H. Hecke, director of agriculture, and W. V. Shear, state seed potato certification expert. The list of directors includes such names as Hecke, Shear, Gilmore, Rogers, Peters, Lambert, Olsen, McSweeney, Craig, Neilsen and Cohn. J. L. Olsen of Van Nuys is executive secretary-treasurer. The association has just issued an attractive potato growers handbook which answers briefly and accurately every potato question that arises during the year from planting to digging.

LEGAL QUERIES

(Continued from Page 27.)

pect to have any. My neighbor's business is stock raising.—Subscriber, Santa Cruz.

No one can be required to build a fence, but if they do fence in their property they may be required to pay an equal share of the line fence between their property and the neighbor. The rule with respect to trespassing stock is in somewhat inchoate condition, in case of parties who hold land uninclosed. Under the provisions of the estray act, in order to maintain an action for damages for trespass on land it is necessary to show that the land has been adequately enclosed by a substantial fence, but it seems that this rule has been somewhat weakened by a recent court decision.

DUTY OF WATER

The amount of water applied per acre is called the duty of water and is best expressed by stating the number of acre feet of water per acre per year. In many localities, however, the duty is stated as the number of acres per miner's inch or per second foot, or the number of miner's inches per quarter section of land.

Alfalfa requires more water than most other common crops, and alfalfa is the best basis for study and for comparison between different practices inasmuch as it is grown extensively on all varieties of soil and in all altitudes and climates.

The most elaborate duty of water investigations have been made in Idaho and California. In Idaho, Don H. Bark, after investigations covering four seasons and costing $60,000, published many definite conclusions, one of the most interesting of which is that the economic irrigation of alfalfa, in Idaho, on good loam soil, in an irrigation season of a hundred days, requires three acre feet of water per acre. The investigators of the California agricultural experiment station have concluded that in the Sacramento Valley alfalfa should receive from 30 to 36 inches depth of irrigation, the first cutting and sometimes the first two cuttings being obtained before any water is applied. In Arizona the irrigation season is over 200 days in length, and investigations show that there is about as much increase in crop in the application of the seventh or eighth acre foot per acre as in the third or fourth, and the rate of increase is a little over a ton of hay per acre foot applied. One record in the Casa Grande Valley in 1918 showed 22 irrigations of about 5½ inches depth each. The owner claimed that he cut 13 tons per acre, and the county agricultural agent maintained that the record was correct. There seems to be almost no limit to the amount that can be beneficially applied to alfalfa, but excessive amounts cannot be recommended or tolerated because of the rising ground water plane that inevitably results.

With other field crops, however, there is an optimum amount that should be applied, and if a larger amount is used the crop yield is actually reduced. Cotton requires from two acre feet on medium loam soil to three acre feet on light sandy soil and on red desert soil, and milo maize requires even less. Rice, in the Sacramento Valley, requires from four to five acre feet per acre.

In comparing records of the water used in different localities it is found that the duty of water is much higher when the water is delivered and charged for on a measurement basis than when the irrigator pays a fixed price per acre per season. In places where the basis of payment for water has been changed from the flat rate to a definite sum per acre foot, the quantity of water used by farmers has decreased at once. Rotation of water also results in a marked saving over the older practice of continuous flow to each water user, a practice that still obtains in the more northerly irrigated states.

GOOD-WILL

The recent decision of the courts is that good-will is not only a valuable, but a very tangible asset in conducting any business, and that when a manufacturer or dealer creates good-will by a long and expensive campaign of advertising and a competitor endeavors to get the advantage of that good-will by entering the field with an imitation or by using similarity of methods the courts will protect the original dealer in the good-will he has created. This has been made especially clear in the case of the Champion Spark Plug Company. That company sued another manufacturer to restrain it from manufacturing an imitation of the Champion X spark plug and insulator core. It was in restraining the defendant from further manufacturing of those imitation articles that Judge Woodruff gave the ruling that is destined to safeguard business and protect the good-will interests in every line of commercial endeavor.

In his decision, the judge said: "A manufacturer of a useful article is not entitled to have a monopoly of that product and the good-will produced, but neither has a competing manufacturer a right to resort to practices which will result in palming off his goods for those of the original manufacturer or practice any deception which would tend to build a business on the plaintiff's reputation, for this would result in the theft of the good-will established by the plaintiff. The defendant had a right to make a spark plug and sell it as an imitation, but if by means of that imitated product he injures the plaintiff's good-will and profits it becomes unfair competition."

TWENTY-EIGHTH CATALOG

The Aggeler and Musser Seed Company is issuing its catalog for 1921, filled not only with prices and illustrations of seeds and plants they have for sale, but lists of valuable books and magazines on farming, planting calendars, distance tables, hot beds and cold frames, even to "Some reasons why you should be a successful agriculturist." In other words, it's an 112 page book of horticultural information.

Early oranges in Southern California are running to small sizes, owing to a long dry hot spell during summer. Larger or normal sizes will begin to show about January 15.

WEATHER REPORT

San Francisco, Cal., Dec. 25, 1920.

Stations.	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	1.78	20.23	15.37	56	44
Red Bluff	2.64	13.91	9.18	52	32
Sacramento	1.78	8.77	6.45	54	40
San Francisco	3.91	10.36	7.42	58	44
San Jose	1.72	7.14	5.58	58	34
Fresno	.28	2.96	3.15	56	34
San Luis Obispo	1.30	6.48	5.17	64	34
Los Angeles	.60	2.91	4.51	62	42
San Diego	.42	.98	2.72	64	41

DON'T LET YOUR TREES DIE

Protect pruning cuts and wounds against infection with Pabco Pruning Paste. Ask your dealer. Manufactured by The Paraffine Companies, Inc., San Francisco, Calif.—Adv.

Holt Gear Steel

Flawless steel of proper strength and hardness, of composition to comply with the exacting Holt specifications, is used in making the gears of the "Caterpillar" Tractor. Holt metallurgists pass upon the quality of the steel and inspectors carefully check each of the 15 operations in the making of the gear.

The Holt Manufacturing Company
Stockton, Calif. Peoria, Ill.
Los Angeles, Calif. Spokane, Wash.
San Francisco, Calif.

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It describes and prices the most complete stock of Deciduous Fruits, Small Fruits, Vines, Citrus Trees, Olives, Ornamental Plants and Roses on the Coast.

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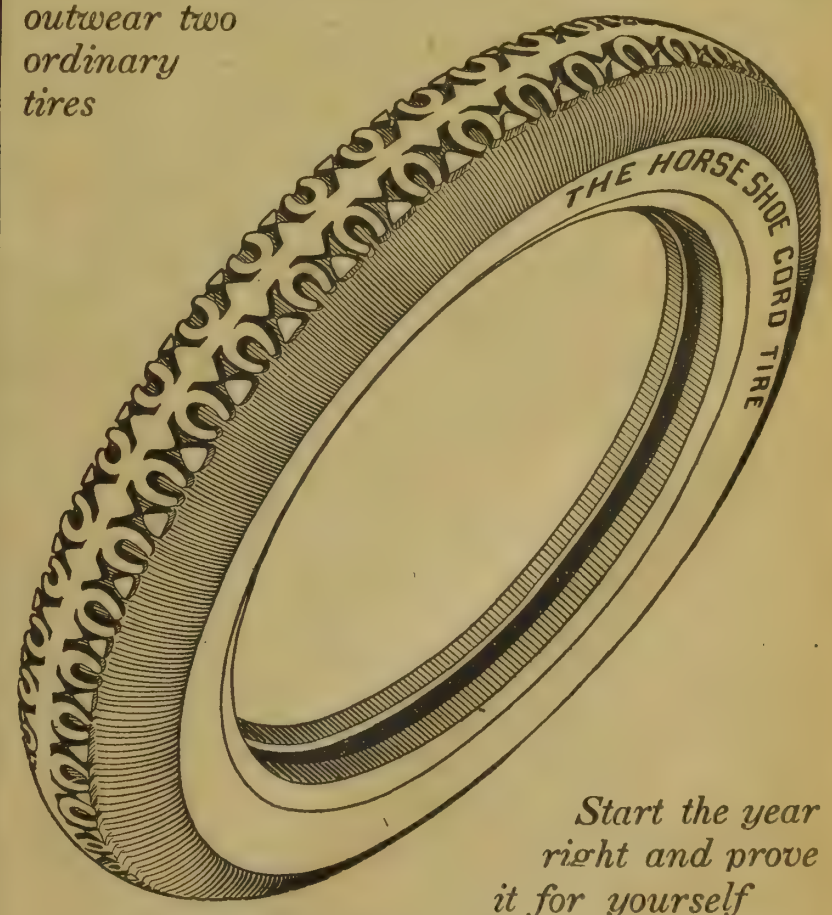
but if you do---you will have a tire that will outwear two ordinary tires



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HAND POWER

K Stump Puller

Frank Hance, a *one-armed* farmer of Bowie, Md., pulling double silver maple 3 ft. 8 in. in diameter at the ground, with deep tap roots. This is an easy pull for the "K" as the cable can be hitched high and the leverage is consequently greater.

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The "K" works on the leverage principle of the ordinary lifting jack, except that the power is applied on a cog-wheel instead of a standard. 100 lbs. push on the truck wheels. Has two speeds-60 feet per minute for hauling in cable for small stumps—slow speed for heavy pulls. *Works equally well on hillsides and marshes where horses cannot work.*

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Made of finest steel—guaranteed against breakage. Weighs only 171 lbs.—easily carried or hauled about on its own lever develops a 48-ton pull on the stump—per feet per inch steel cable will hold. One or all an man operates it alone—no teams to pay for—no walking.

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H. Sinclair of the Dept. of the Interior, a U. S. Gov. official, writes: "The stump puller is a wonder."

Ernest Thompson Seton, author and naturalist, declares the "K" "a great success."

Hundreds of owners write in, telling of pulling six- and seven-foot stumps, of pulling faster and pulling bigger stumps than by any other machine.

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H. G. Hunzicker of Foster, Wash., pulling a 24-inch fir stump with deep tap roots out of hard ground, without using powder or cutting any roots.

Tear Out and Mail Today

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Send me full particulars on your special offer and your free booklet on Land Clearing.

Name_____

Address_____

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — January 8, 1921 — No. 2

California Produces over Six Million Bushels

THE United States produces about 27 million barrels of apples. Of that ten and a half million are produced on the Pacific Coast. By far the largest apple producing state is Washington with a nearly seven million barrel production. The second state is New York, with California not a very far away third. The six other states producing more than a million barrels are Virginia, Michigan, Missouri, Arkansas, Idaho and Oregon.

It is only a few years since California was producing more than all other Coast states, but the apple planting campaign of a decade ago in the state of Washington carried that state to the top. In fact, almost one-fourth of all apple production is in that state.

California statistics are not clear nor dependable as to apples planted, but a crude guess is that there are "about" 2,316,792 bearing trees, with nearly as many more non-bearing. The value of the crop will vary from five million to ten million dollars.

The principal producing counties of this state in their order are Santa Cruz, Sonoma, Monterey, Los Angeles, Napa, Santa Clara and Humboldt.

One of California's favorite apples for the lower near coast sections is the Pearmain, shown above.

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
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The Sacramento office is Room 210 Ochsner Building. All mail pertaining to livestock should be addressed to our Sacramento office.

The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

Member Associated Agricultural Papers

Eastern Offices:
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Member Audit Bureau of Circulations.

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Saturday, Jan. 8, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

EDITORIALETTES

The War Finance Corporation is to be restored. The Gronna bill was passed by both houses and sent to the president, who immediately vetoed it. The senate, equally as quickly, passed it over his veto, the vote standing 53 to five. Then the house followed suit, practically duplicating the majority given in the senate: "It would exert no beneficial influence on the situation beneficial influence on the situation and would raise false hopes and be hurtful to the natural and orderly processes of business and finance." Senators Gronna and Underwood have been especially active in securing the passage of this bill. It is expected that the activities of the War Finance Corporation will be directed so as to give relief to agricultural centers.

* * *

The emergency tariff measure before congress seems doomed to defeat. Representatives of large manufacturing districts have a fear that if the emergency bill be passed that large trading possibilities will be lost when it comes to the final tariff revision struggle. None deny that the agricultural situation demands relief, but "it is not opportune nor is it wise to create a preferred class" seems to be winning. Senator Penrose is directing the fight against the tariff measure, the partisan Democrats are filibustering and President Wilson has signified his intention of vetoing the measure even if it does pass both houses. The only ray of hope for the farmers seems to be in "Senator Curtis, the Republican whip in the senate, has been in close conference with President-elect Harding." It may be that he will succeed in getting the next president to take a hand in the proceedings in behalf of the farmers.

* * *

The state legislature is now getting down to work. The agricultural legislative committee has been in action for some months and has some very definite concrete suggestions. We sincerely hope the present session will end with a series of better agricultural enactments than have resulted from the labors of any preceding state legislature.

* * *

A bill which has much of agricultural interest is one which would impose a tax of one cent a gallon on gasoline and distillate for "all purposes." It is proposed to collect the tax at the original source of distribution.

* * *

Senator Scott will introduce a bill calling upon the people to decide as to the issuance of an $18,000,000 bond to provide funds for bonuses to be paid to ex-service men, not more than $250 to be paid to any one man.

* * *

Senator Inman's bill provides that dealing in futures in foodstuffs be a misdemeanor. He believes this will reduce the high cost of living.

* * *

Senator Harris will introduce his bill passed by the last legislature and under referendum defeated by the people at the polls November 2. This is the bill providing for funds to be used in the enforcement of Amendment XVIII, National Prohibition.

* * *

It is said that the increased teachers salaries measure will require a total school appropriation of between 85 and 100 million dollars.

* * *

The greatest problem before the state legislature has to do with revising the tax system so as to secure funds to satisfy the enormous appetites of the tax eaters. It will be no child's job.

* * *

At Washington the principal amusement has become cabinet making. A few days ago the very definite announcement was made that Henry Wallace of Des Moines is to be secretary of agriculture. It is rumored that Wallace aided in writing some of President-elect Harding's speeches which were delivered in agricultural sections. Wallace knows American agriculture as but few others. If he is appointed we believe he will maintain the pep and punch which has been put into department activities by Secretary Meredith.

* * *

In the daily press appears: "Governor Stephens today announced the appointment of J. L. Mathews of Covina, Los Angeles County, as a member of the state water commission to succeed W. A. Johnstone of San Dimas, Los Angeles County, resigned." Mr. Johnstone has been a member of the state water commission since its formation and has rendered most loyal service. We regret to see the state lose his abilities. Mr. Mathews is a lifelong newspaper man who is thoroughly in touch with the irrigation needs of the state.

BY PANAMA

Water shipment of oranges to Eastern points has been contemplated almost since the Nicaragua and Panama Canals have been under consideration. Since the recent advance in freight rates new impetus has been given to the movement. The Fruit Growers Exchange announces its first shipment of 2,000 boxes from the port of Los Angeles by S. S. Charles H. Cramp, a 9,000 ton steel liner of the Atlantic Gulf and Pacific Steamship Co. Loading is now in progress and the steamship company guarantees 15 day service to Philadelphia. A department of agriculture refrigeration expert will accompany the shipment.

RAISIN SLATE CLEAN

Los Angeles papers of January 4 state: "Another stipulation covering the future operations of the California Associated Raisin Company, which makes it probable, according to John H. Atwood, special assistant to Attorney General Palmer, that the amended bill of the government charging the concern with violation of the interstate commerce law will never be filed, was signed here yesterday by U. S. District Judge Bledsoe and representatives of the Fresno concern."

This action follows motion interposed by the raisin company regarding the abrogation of the stipulation entered into several months ago. "The defendant company will be permitted to seek new contracts from the raisin growers without being deemed to have violated the terms of said stipulation." The company is to publish in the Fresno Republican not later than January 15 notice stating "Old grower contracts, etc.", and "that a new contract shall be entered into in no wise a renewal of the old contract." "The court shall retain jurisdiction," but it is generally considered that this leaves a clean slate for the raisin growers to proceed and continue cooperation.

HOGS AND DIAMONDS

Sirs: I am writing you a few lines to let you know my disappointment in the Cultivator. You quote J. P. Morgan and you quote the bankers association that if the people would dig up the $20 apiece they (the bankers) would make good times. What a fine thing you are for the bankers! You quote the secretary of California Rice Association: "Buy a bag of rice." Now when I ask for prices on rice I am told 10 or 11 cents, and find the rice grower gets 3 cents. Now, Mr. Editor, who do I help when I buy rice? It's the middleman, the wholesale grocery thieves, the railroad hogs. More than 300 per cent goes to the wolves! And what are you doing? Nothing! It is so on almost everything the farmer produces, big profits for the hogs. You quote some dub: "What's the matter with America?"—"Less diamonds and more alarm clocks. Too little regard for the result of hard work and too little desire to emulate it." Who ever got rich off their own labor? You can't name ten men in the United States that got rich on their own labor. I challenge you to name three. And what are you doing to help the farmer? Next to nothing! Anyone that insinuates that the farmer or laboring man buys any considerable amount of diamonds is either a fool or a liar. Your Cultivator is reactionary.—J. J. F.

First, about the rice: We must call attention to the fact that rice ready for table use bears about the same relation to the rice sold by the grower as does fine wheat flour to the grain sold by the wheat grower, that is, the rice is milled, the hull is removed and usually the bran, it is polished and graded, the brewers rice, which is a product of very slight value, is separated out, as is also the broken rice, and some two or three grades of whole rice. It is then sacked, or often placed in cartons and transported to market, with some two or possibly three profits added. If our subscriber will take into account the shrinkage in weight in the hulls, which are of no value, together with the low priced broken or brewers rice, he will perhaps see that the difference is not so great between what he pays and the grower receives. If our correspondent had taken becon as an example of a terrific spread between consumers and producers prices he would have a more emphatic example and the Cultivator would in no way minimize the lesson which these examples give us.

We note the writer has no royal road to correction of the evil to which he calls attention, and we are all one in this particular, though some of us imagined for a time that there were methods of giving to the producer justice. We believe the nearest we have ever come has been through such organizations as one of which he is a member, known as the Associated Raisin Company. It has succeeded in getting a fair percentage of the consumer's price to the producer. There are other examples. May they continue to increase. They succeed because they become great strong organizations able to command rather than to ask favors of bankers or others.

Our critic says the Cultivator is doing nothing for the farmer. Maybe not, but we are trying "our durndest." As to any insinuation for which we may have been responsible that the farmer is overloading himself with diamonds, we retract unequivocally.

While we are writing this comes another letter from a Turlock subscriber who signs himself D. M. L. and suggests exactly the same procedure we have outlined above, excepting that he names the farm bureau as the organization to accomplish the results, and we hasten to respond to him "Aye, aye, Sir, we are with you!"

Yes, the high cost of living is coming down. As usual the farmer is the goat. A few days ago I went to a grocery to get some provisions. A piece of bacon was listed at 60 cents per pound. At the same time fat hogs are bringing around ten cents and most other articles and necessaries are about the same. I would like to see you boost the farm bureau and the farmers marketing association.

We wish we were able to give the entire address of President Howard which he gave at the Indianapolis meeting of the National Federation of Farm Bureaus. President Howard wielded some sledge hammer blows, but came back to the final conclusion that only through cooperation of the individual members of the organization could protection be given to our producers. This address of President Howard's we have copied from as liberally as possible and if D. M. L. and every hog producer will continue to support the farm bureau marketing organization he will be doing more efficient service to his neighbor and to himself than can the Cultivator through the most efficient preaching it may know how to command.

We grant that real cooperation sometimes calls for sacrifice, and the short sighted may become impatient and cease using that effective weapon and devote his energies to shouting: "Down with the profiteers and transportation hogs!" If there is no avail in crying "Peace, peace when there is no peace," there is none in shouting "War" unless we get in and do some of the fighting on our own sector.

California Cultivator

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Bud Selection in the Citrus

By A. D. Shamel

THE season for planting citrus trees in California will soon be here. The indications at this time, January, 1921, are that there will be considerable new plantings as well as replanting some established orchards. Inquiries received by the writer indicate that some lemon orchards are likely to be budded over to orange varieties. All of this work involves the relation of selected buds to improved production. In this paper the writer hopes to present some of the reasons why prospective planters should use only reliable trees grown from carefully selected buds and the importance of using selected buds for top-working established trees. There is no single factor of greater importance to the welfare of the orchard than the kind of buds used for propagation. No matter how favorable the location or how rich the soil may be, nor how great the care used in planting and handling the orchard, the best of results to the individual or the industry as a whole cannot be secured without the use of properly selected buds in propagation.

Proof of Quality Is Shown in Fruit
Showing fruit bearing bud wood used for propagation, which is secured from parent trees bearing heavy and regular crops of uniformly good fruits.

It is a well established fact, beyond dispute, that the citrus varieties are made up of a number of strains which have arisen for the most part through the unintentional propagation of bud sports. By means of individual tree performance records the comparative value of these strains has been ascertained under different conditions of culture and environment. It is simply a matter of common sense that only the best strains should be propagated for commercial planting. This purpose can be achieved by securing bud wood from the typical and best individual trees of the valuable strains. Usually, the best trees are the most productive ones and those which bear the most uniform crops of fruits. These facts explain, in part at least, the importance of individual tree performance records as a basis for the selection of the superior parent trees of the best strains as sources of bud wood for propagation.

In the commercial selection of bud wood for propagation only those trees which have produced a high average annual yield are considered. These high yielding trees are then carefully inspected as to type of fruit and uniformity of fruits before any bud wood is cut from them. A sporting branch or any decidedly off-type fruit automatically disqualifies the tree producing such variations from further consideration as to source of bud wood for propagation. The uniformity of fruits and foliage is an indication to the writer of the stability of the inherent characteristics of the individual tree. The occurrence of strikingly variable fruit or foliage is an indication to the writer of the lack of stability of inherent characteristics and the undesirability of the individual tree possessing such sports as a source of bud wood for propagation. A large number of progeny tests have continually confirmed this idea in the mind of the writer. The desirable parent tree is one possessing the characteristics, as shown by its performance record, of heavy and regular production of uniformly good fruits.

Uses of Selected Buds

The propagation of citrus trees in the nursery has been the chief use of selected buds. The top-working of individually undesirable trees in established orchards and the top-working of trees in the orchard as a whole from one variety to another is also an important use of selected buds. The importance of using carefully selected buds is as great in the one case as in the other.

The citrus nursery business is usually conducted by men of experience in growing nursery trees and who specialize in this work. All progressive nurserymen are now agreed as to the necessity for using scientifically selected buds in their business. There is an adequate supply of such buds of all important citrus varieties grown in California available for use and a nurseryman who does not utilize such buds is open to the criticism of propagating inferior stock, and is a serious reflection on the part of any nurseryman neglecting to use up-to-date methods. Ordinary citrus trees grown from guesswork buds are very dear at any price. No intelligent planter or propagator will buy such trees or buds, no matter how cheap their price may be when it becomes generally understood that reliable trees grown from carefully selected buds and reliable bud wood are available. The slight difference in price of ordinary trees or buds and the best trees and buds is usually made up, or more than made up, in the improved production of the reliable trees or buds in their first crop. There are other economic advantages of planting reliable trees and using reliable buds for top-working which will be touched upon in this paper.

Results

The early fruiting of trees grown from buds selected from superior parent trees is now a matter of common knowledge and experience. The writer has many records of the early production of desirable and uniformly good fruits by trees of good parentage, superior in every way to the production of trees grown from ordinary and oftentimes undesirable parentage. In the first place the productive and desirable strains are characteristically early fruiting in their behavior. In the second place the progenies of the superior parent trees produce not only early fruit but fruits of fine commercial characteristics as well. This fact alone is of sufficient importance to the mind of the writer to justify the purchase of trees grown from carefully selected buds and of selected buds for top-working.

The short sturdy growth from carefully selected buds of the desirable strains needs considerably less pruning and care than that from ordinary buds of the undesirable strains. This difference, as demonstrated commercially many times in the recent experience and observation of the writer, is sufficient to oftentimes more than make up the difference in cost of reliable trees and buds as compared with ordinary trees and buds in one season's expense. When it is considered that the pruning expense is a frequent one, usually an annual or semi-annual cost, the importance of this item can easily be brought home to the grower.

The production of uniformly good fruits of first class commercial grade is the foundation of the commercial success of the citrus industry, or any other industry as a matter of fact. The writer maintains and can prove that reliable trees grown from carefully selected buds of the best strains produce more uniformly good fruits of the best commercial grades than do ordinary trees grown without this care. This improved production is important, not only to the individual but also to the industry as a whole. It is the foundation upon which the reputation of the industry is builded. It is the patriotic duty of the grower, as well as the consideration of his own individual interest to plant only reliable trees or use only carefully selected buds for top-working. Nursery trees grown from buds secured from superior parent trees, as well as established trees top-worked with such buds, may not make the rank growth of buds secured from the trees of the Australian navel orange strain or the Shade-tree lemon strain. However, experience has shown that the growth of the selected buds is satisfactory from every standpoint of the growers and is much more desirable than the growth of the buds secured from the undesirable parent trees.

Boxes and Equipment are Arranged for Making Complete Records
Securing individual tree records of production in a Washington Navel orange orchard.

Poor Trees and Buds Result in Wasted Effort

The orchards where the grower has been inflicted with trees, many of them worthless strain trees, examples of which can usually be found in every citrus community, are living monuments to the wasted efforts due to neglect in the proper care in the prop-

(Continued on Page 43.)

Agricultural News Notes of the Pacific Coast

Northern California

Yuba County orchardists are holding pruning demonstrations.

Paradise, Butte County, has just dedicated a new $27,000 grammar school.

Business men of Sacramento recently made tour over Sutter Basin district.

Farm centers in Placer County have voted to make local dues $5 per year per member.

The chamber of commerce of Sacramento plans early erection of its own building.

The California Almond Growers Association recently completed a nut shelling plant at Sacramento.

Carlot shipments of celery are being made from Delta sections. Yield and quality declared never better.

The annual meeting of the California Grape Growers Exchange will take place in San Francisco, Tuesday, January 11.

Sacramento County farm bureau centers are holding cheese making demonstrations and teaching method of home manufacture.

The dairy department of Sonoma County farm bureau is closing its first year's work with two cow testing associations in full operation.

Sutter County farm bureaus are memorializing congress to give attention to tariff revision which will afford protection to producers.

Nevada County farmers are hoping for the creation of an irrigation district which will supply water to 30,000 acres of the county's richest lands.

Dr. J. P. Iverson, chief of the state division of animal industry, has recently been in Chicago attending a number of annual national livestock meetings.

The Tehama County farm bureau has just organized a market exchange. Membership fees are set at $25 and it is expected to have at least 200 members.

An effort is being made to reclaim 25,000 acres of Lassen County land by using the waters of Honey Lake. The situation is complicated, however, by dissenters.

Potato growers of Marin and Sonoma Counties met in San Francisco recently and formed a potato growers association under the prefix of "Northern California."

Rice growers of the Sacramento Valley are watching congressional action in the matter of two cent tariff on rice. Congressman Curry is pushing for the measure.

The acreage in rice will be greatly reduced another year, but many growers are already making preparation for next season's planting. Last season about 125,000 acres was planted.

The agricultural authorities of the state university declare that while Southern California now produces 90 per cent of the walnut crop, the center of the industry is moving rapidly northward.

The Glenn County Rice Growers Association has made an agreement with a milling firm to have rice dried, milled, sacked and marketed for $12.30 a ton; $1.60 a ton to be paid to grower on delivery.

Central California

Oakdale, Stanislaus County, reports eight inches of rain, "enough to insure good crops."

Ceres district, Stanislaus County, produced more than 1,000 cars of tree and vine fruits in 1920.

Several wells are being drilled on the 2,500 acre Hoover-Merritt ranch near Wasco, Kern County.

A power company reports recent extension lines to 306 new pumping plants in the San Joaquin Valley.

Olive growers of the Fresno district will not ship any olives eastward under prices prevailing at present.

Merced has just completed a new half million dollar pottery plant which will turn out its first stock in March.

The Yolo County farm bureau has asked Governor Stephens to appoint a farmer on the railroad commission.

The last farm bureau sale of hogs in Tulare County averaged $11.70 a hundred, quite a jump in price over recent sales.

The work of measuring the water supply of Kings River and canal systems, begun in 1918, is expected to be completed during 1921.

Stanislaus County farmers believe they saved $93,760 during 1920 by reason of the activities of the agricultural extension service.

Less than 2,000 tons of dried figs yet remain unsold in California and it is anticipated there will be a very light holdover, perhaps none.

A San Joaquin County ranch of 780 acres, of which 440 acres is in grapes, recently rented for $85,000 a year, or $425,000 for a five year lease.

W. H. Taylor, near Ceres, Stanislaus County, markets Everbearing strawberries right up to Christmas. "Use plenty of water" he says.

San Joaquin Valley farmers are urging the building of a 220 mile highway from Coalinga to Ventura by way of all the important oil districts.

Government engineers are investigating a project for bringing 140,000 acre feet of water per year from Mono Lake to Owens Valley, Inyo County.

An important county committee meeting of the Kern County farm bureau, postponed from December 25, will be held at Bakersfield January 8.

A meeting of vineyardists in Sacramento, December 22, adopted measures to restrict the spread of phylloxera, through dipping of infested vines.

Monterey County's beet sugar factory at Spreckels has had to close down temporarily as constant rains have seriously interfered with hauling of beets.

The Northern Tulare Citrus Association held its annual banquet for employes at Sultana on December 28; visitors being present from Sanger, Woodlake and Tipton.

January farm bureau meetings in Kern County will be at: Delano, 10; Old River, 11; Wasco, 12; Rio Bravo, 13; Edison-Fairfax, 14; Mountain View, 17; Pond, 19; Inyokern, 20; Rosedale, 21.

Farm bureau representatives from Fresno, Kings, Tulare, Kern and Madera Counties met at Fresno in December and agreed to vigorously fight against any attempted raise in rates by the utility companies of the state.

Southern California

The eleventh National Orange Show will be held in San Bernardino, February 18-28.

Imperial Valley hog raisers are refusing to market their animals at present low prices.

The orange crop of Riverside is heavier than last year, more small sizes, but promise of prices good.

Southern Pacific railroad officials estimate the 1921 cantaloupe crop of Imperial County at 21,000 car loads.

The third annual Walnut Growers Institute will be held in the walnut association's packing house, Whittier, January 14.

The board of supervisors of San Diego County appropriated $1,500 for the county's exhibit at the National Orange Show, February 18-28.

At a Fullerton, Orange County, farm center meeting 150 citrus growers urged that water transportation for citrus fruits and walnuts be encouraged.

On January 14 an all day walnut growers institute will be held at the walnut packing house, in Whittier, near the state school, on Santa Ana Boulevard.

Ranchers in the Magnolia school district of Orange County, near Garden Grove, recently held a meeting to arrange a pool for leasing 1,000 acres for drilling for oil.

Under the direction of Horticultural Inspector Pickering the La Habra Valley ranchers of Orange County are waging a war of poison against the Argentine ant.

Victorville, San Bernardino County, announces that a million dollar cement plant, with a 12 mile tram line connecting with the railroad, will be built there in the near future.

After ten cars of spinach out of a crop of 250 carloads in Imperial Valley had been shipped the growers stopped harvesting and will plow the remainder under. Poor prices.

Membership dues in the Orange County farm bureau have been raised to $5 a year, to provide a local fund for sending delegates to Sacramento to work for needed legislation, etc.

The total number of shipments of nursery stock coming into or moved from one part of Los Angeles County to another, during November, was 460, containing 48,064 trees and plants.

Application has been made by the Southern California Edison Company for a permit to develop 2,000.000 horse power of electric energy from the Colorado River above Boulder Canyon.

At a recent joint meeting of dairy committees from the farm bureaus of San Bernardino and Riverside Counties a new set of rules was adopted governing cow testing as to milk qualities.

Recent rainfalls in rice fields of Glenn and Colusa Counties have been so heavy that some growers have abandoned harvesting by machinery but may later harvest by hand or wait until spring.

A "Carob Corporation," for the purpose of "buying, selling, owning, growing and otherwise dealing in carob trees and their products," filed articles of incorporation at the Orange County court house, December 18.

The Coast and General

The Washington state horticultural association has elected F. F. Wiggens, Toppenish, president.

Northwest horse selling markets report: "Horse markets still in rut; dullness accentuated by holiday season."

The Farmers Union for the state of Washington recently met at Spokane and elected A. A. Elmore of Spokane president.

Almost every manufacturing center of the East reports great reduction in wage scales and often reduction in number employed.

Department of agriculture reports the value of farm crops this year as around $9,000,000,000, as against $14,000,000,000 last year.

The federal horticultural board is now admitting fruits from Cuba, the Bahamas, Jamaica and the canal zone only after vacuum fumigation.

Washington reports great reduction in number of cattle tick infested sections. California, formerly reporting 79,000 square miles infested, is now released.

Washington declares wholesale prices of commodities now lower than at any time since the war. The wholesale scale dropped eight per cent during November.

The salmon pack for 1920 in the total Alaska district aggregated 4,224,815 cases (four dozen to case), while Puget Sound and Columbia River sections produced 5,009,815 cases.

It is now thought that some of Nevada's "ghost cities" may be restored to life because of the present movement to take waters from the abandoned gold and silver mines and use in irrigation districts.

Trappers are urging all in their business to go on strike in order to check the radically declining prices of raw pelts. Several near Reno have been unable to sell raw furs at even 50 per cent discount on former prices.

Salmon canneries of the extreme northern Pacific Coast report products of three seasons still on hand. A $150,000,000 business is facing complete collapse while the retail price of a single can remains almost prohibitive.

Henry Scott of the Salt River Valley of Arizona has hauled what is probably the largest load of cotton ever delivered to an Arizona gin. The weight of this load was 17,270 pounds. This would gin out more than nine bales of cotton.

A series of farmers institutes under the direction of the local farm bureau have been held in various places in the Salt River Valley of Arizona. A poultry institute was held at Glendale under the direction of the Glendale Egg Producers Association.

The Wheat Growers Association of America was organized at Wichita, Kansas, last week. The first step taken was to advise Middle Western growers to hold till more satisfactory prices may be had. Membership of 100,000 has been announced.

The seed companies and grain companies of the Salt River Valley of Arizona have announced that they will finance farmers who will plant grain and other crops, to the extent of furnishing them seed and will wait until the harvest for reimbursement.

American Farm Bureau

THE address of President J. R. Howard, delivered before the second annual convention of the American Farm Bureau Federation, is filled with pungent sentences and touches upon much of interest to the farmers of the country. We give a number of detached sentences.

"The organization has grown in strength and power manyfold faster than it has grown in members, and the growth in membership has been more than we expected or hoped for. Those of you who attended the meeting in Chicago in March will remember, perhaps, that at its close I made a special request that we might in one year's time have a paid up membership of one million. Only nine months have passed since that organization meeting and we are already above the million."

"A thing is worth that at which it will sell, and had we had the money we could have bought every railroad for about 12 or 13 billion dollars and they asked an earning on 20 billion. Mr. Thorne was the only person to oppose this large figure. He succeeded in having this asked for valuation reduced and saved the farmers of America more than 100 million dollars. If we saved the farmers 100 million dollars in cash as the result of our first year's work, we have at least done something."

"The committee which we had at Washington for several weeks in conference with the treasury department with regard to income taxes and income tax reports succeeded in getting some new and more favorable rulings regarding the farmer's income taxes. It also succeeded in gaining the approval of the treasury department of a farmer's account book which was worked out by the committee in cooperation with the department of agriculture. That farmer's account book is, we think, better than any other that has ever been gotten together, and arrangements are made, or should be made, by every state farm bureau federation to get a copy of that book in the hands of every farmer by the first of January. By following the simple directions of the book the farmer can carry his accounts from page to page and transfer the footings at the end of the year to his income tax blank already printed in the back of the book. All he has to do then is to tear the perforated blank out of the book and his troubles are over for that year. That is, unless he is an unusual farmer and has something to pay."

"I think you will agree with me that there is entirely too much spread between the price to consumer and producer. It has been discussed at every farmer's meeting and I will not discuss it now. The farmer's business is primarily to produce. We constitute one-third of the people of the country. It has been the business of the other two-thirds to take care of the transportation, the marketing and the distribution. If they fail to do it with that degree of economy which will enable agriculture to fairly prosper, then perhaps the farmer himself will be compelled to venture farther into the field of production and take active interest in problems of marketing. That seems to be the case before us at this time."

"I sometimes wonder where we are going as a nation, anyhow. I have watched the growth of the cities and reflected uopn the country as it was when I was a boy, which was only a short time ago, and noted the remarkable rapid changes. Then I think of the stories that my mother has told—how she spun and wove the cloth, and I remember how she used to make all the clothing for the family. My grandmother has left us heirlooms of those things which she not only spun and wove but for which she prepared and carded the wool as well. If we cannot so arrange our national processes of marketing and distribution that the farmer can prosper, we are going to be forced as a nation to recede from the complexities of our present day life and revert toward the more simple life of the past. I certainly would not advocate the lowering of the standard of living or the standards of American life, but I sometimes wonder most seriously whether a movement back toward the more simple life would not mean a raising of the standard of living rather than a lowering."

"The serious problems which now confront us are not going to disappear at once. The farmer is going to have breakers ahead for the next five or six years. I don't look for any permanent readjustment very much earlier."

"We have produced a crop of more than three billion bushels of corn. Last June I bought corn to feed my pigs at the market price, which was $1.85 a bushel. I have the pigs yet, and I have a crop of corn, and if I could get any price offered at all for that corn at this time it would be less than 35 cents a bushel. If you will subtract 35 cents from $1.85 and multiply that by 3,200,000,000 bushels, which is the corn crop of this year, you will have a sum in excess of four and one-half billion dollars, which represents the slump on corn alone."

"The wheat farmer is in the best shape today of any farmer in the Union. His slump has been slow, and yet from the wheat growing districts every day reports to our office show that farmers are compelled, because of pressure brought uopn them, to sell not only their crops but their machinery and everything they have, and then they cannot pay their debts. That done, they are borrowing of their friends enough money to get into the cities where they can get work to support their families. Now that is the condition on the wheat farms, even though they are in the best shape today of any of the farmers. Men are being forced from the farms by dire need to obtain work to keep them from starving. That is the condition that is confronting us as a nation today. That is the condition, the situation, from which we must have relief."

"But I was telling you about the slump in prices. The wheat farmer's losses in this slump are practically a billion and a half dollars, the oats men, over a billion, and I don't know how much the other grain crop men have lost, but I do know that on our major crop alone the present slump in prices is more than the seven billion dollars which is the total, according to the press, of the entire slump. But cotton farmers have had losses, tremendous losses. The size of these is deplorable. Cotton is not selling at enough in many parts of the country to pay the price of picking. I couldn't picture it as bad as it is. Nobody can. The cotton loss alone is billions, and the Southern farmer must have our support and any relief we can give him. If we cannot give him relief, by all means let us extend him a hand of human sympathy."

"What about wool? Last year we got for our fleece wool, 3/8 staple, around 63 to 65 cents a pound. Last week 3/8 wool was actually sold at 12 cents a pound. Last week fat sheep sold in the market of South St. Louis at $1.29 a head and a band of 2,000 sheep at Chicago, after the costs of transportation and marketing were paid, netted a return to the grower of 34 cents a head and it cost the owner of those sheep to bring them through last winter $10 a head for feed."

"I read once somewhere where he that soweth to the winds will reap of the whirlwind, and as a nation—not as farmers, understand, but as a nation we have sowed to the wind and sometime we have sowed to the whirlwind. The result was inevitable. American business will not be upon a sound basis ever again until the purchasing power of the farmers of America is brought back to normal."

At Washington

CONGRESS seems to be trying to consider the needs of the food producer. At least, the producer is causing a whole lot of discussion in congress and in various committees. Agriculture never held such prominent place in the foreground. The packers control bill and the Baronna resolution to revive the war finance corporation both went through the house early in the session. The idea as to the war finance corporation is that its activities, if revived, will be largely to secure relief from present stringency in rural credits. The National Grange is maintaining offices in Washington and keeping track of the situation, and from that organization we have the following few notes regarding other activities of interest to agriculture:

Senators and members of the house, who had returned to Washington the week before the opening of congress, united in a conference committee on the state of agriculture, with Senator Norris of Nebraska presiding, and had examined Secretary of the Treasury Houston, Governor Harding of the federal reserve board, and a number of other witnesses, prior to the opening of congress. The facts as to the slump in farm prices and the credits stringency were put before this committee. The result was the preparation of several of the bills which were introduced early in the first week's session.

These relief measures fall into three general classes. The one most seriously considered is to do something to stimulate foreign trade. Another is to do something to increase the money available to loan to farmers. The third is to protect the agricultural products of the United States by embargoes against cheaper commodities imported from other countries. A fourth proposal has been made, but as yet without serious consideration, for the government to revitalize the grain administration and buy on government account the farm products now without a market, at some price which will pay cost of production.

Senators Calder and Gronna each introduced concurrent resolutions to provide for the rehabilitation of the war finance corporation. Similar resolutions are pending in the house. The Gronna resolution secured privileged consideration in the senate. Before it was passed it was changed materially by the addition of the words "and other products" to the list of agricultural products for which export finance help is to be provided. This resolution also originally contained a paragraph directing the federal reserve board to "take such action as may be necessary to permit the member banks of the federal reserve system in accordance with law and consistent with sound banking, to grant liberal concessions of credit to farmers of the country upon the security of agricultural products now held by them, by permitting the rediscounting of such notes of extension at the lowest possible rate of interest." This was practically stricken out and a declaration saying that "in the opinion of congress" such credit extensions should be made, was substituted.

Proposals to make more money available to farmers have taken two forms, one by Senator Hitchcock of Nebraska, to provide 100 million dollars from the United States treasury, to be handed to the federal land banks, to be loaned to farmers; the other, a direct advance to the federal reserve banking system to be loaned in the same way. Neither proposal has had definite consideration as yet.

The embargo as a remedy is proposed in a bill offered for the relief of the sheep and wool industry by Senator Smoot. Some other bills propose embargoes against any and all agricultural imports which come in competition with American farm products. The wool embargo has been considered by the agricultural and the finance committees in the senate and by the ways and means committee in the house, and is being given much approval.

The packers control bill was "unfinished business" in the senate when work was resumed. Debate is continuing and bids fair to keep on continuing. The Gronna bill, which is a modified form of the Kenyon bill, following closely the proposed bill submitted a year ago by the Grange representative, is the measure reported by the senate agricultural committee. It provides for a national food commission with broad powers. Senator Kenyon has proposed amendments giving this commission power to fix "fair" commission rates for handling livestock. The house bill has not been reported from committee yet.

Members of farm bureaus of Sutter, Eldorado and other northern counties are planning slaughter of beef, pork and mutton animals and marketing at prices below those now prevailing in butcher shops.

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To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

The Almond: Cultural Methods

BEGINNING with the issue of December 4, the Cultivator presents a series of letters written by Manager T. C. Tucker of the California Almond Growers Exchange. The first touches on history and the beginnings of cultural methods. Hints and suggestions as to orchard practice are continued below at greater length. Another issue will continue Mr. Tucker's discussion of growing methods which produce Blue Diamond quality.

Growing a Perfect Almond

Beginning with the second year the almond tree is shaped for future usefulness. The following instructions should be carefully observed in cultivating the almond of commerce:

In pruning start it low down as a matter of protection to the tree itself, also to shade the ground, to prevent evaporation and for convenience in harvesting the crop at the time of maturity of the tree. Carefully train the main branches so that the nuts may be produced on all quarters of the tree. Do this carefully and later pruning will consist of an occasional thinning out only.

Remove all water shoots, or suckers. They rob the tree of much of its substance that should go to the crop. The wood of the almond is very hard and strong, enabling the tree to bear the weight of heavy crops where pruning has been given proper attention during the formative period of the young tree.

Almonds are of two general classes, sweet and bitter. The former is primarily the almond of commerce, the latter is used largely in the manufacture of almond oil and almond flavoring, as well as in the manufacture of prussic acid. The bitter almond is also used largely in nurseries as a root stock upon which to bud the almond and some other fruits.

The greatest proportion of almonds grown in California are on almond roots. Where the most desirable soil, moisture and drainage conditions exist, it is best to select the almond root. Orchard almond trees are never grown from seed, as they do not reproduce true to type, but are propagated by budding desirable varieties on seedling roots in the manner commonly employed in nursery practices for other stone fruits, like the peach. Every grower must decide, however, on what root stocks he will plant his trees.

The bitter almond is often recommended as being superior to the sweet almond as a stock. This claim has never been proved. Experiments indicate that there is fully as much variation between the bitter almond seedlings grown from seed from different trees as there is between seedlings from bitter and sweet almonds. Both are equally subject to attack by gophers. The grower's chief object, therefore, should be to secure as healthy, vigorous trees as possible, whether they be on sweet or bitter almond roots.

Often through injudicious selection of varieties for original plantings, or for some other reason, it becomes desirable to work over old trees to more desirable varieties. This may be done by budding or grafting.

There are two kinds of mites that do much damage in almond orchards, the brown or almond mite and the yellow or two spotted mite. Both are common in all parts of the state and are the worst pests the almond grower must regularly face. These insect pests attack the tree but do not attack the almond proper, for when the tree is defoliated this causes the premature ripening of nuts and results in quite a loss.

The brown mite is the larger of the two, is dark red or brown in adult stage, has very long front legs and a flattened back. It does not spin any web and works on the green bark of the small twigs as well as on the leaves, sucking the plant juices from beneath the bark. It causes a mottling of the leaves, which eventually fall, although not as readily or in such large numbers as when attacked by the yellow mite. The injury to the tree is equally as great because of the serious drain on the vitality as a whole and because it commences work earlier in the season. This mite may spend its entire life on the tree, the very small, round, red eggs being laid largely on the under side of the branches and in cracks and crevices in the bark and twigs. These remain on the tree throughout the winter and hatch early in the spring soon after the trees have their leaves half developed, leaving the white egshells in place. Most of their work is done in the spring and early summer.

The brown mite may be controlled satisfactorily by means of a dormant spray of lime-sulphur solution. Crude oil emulsion as a dormant spray is also effective, if thoroughly applied over the entire tree under high pressure. This also applies to applications of the lime-sulphur spray.

During the growing season a milder material must be used. Dry dust sulphur, using only the very finest grade of "flowers of sulphur," is often very effective, provided weather conditions are satisfactory, but generally this must be applied a number of times if best results are to be obtained. The work is done by blowing the sulphur dust into the tree with blowers in the early morning when there is little or no wind.

The yellow mite is much smaller than the brown mite and is of a pale yellow color with occasionally a reddish tinge and sometimes with two darker spots on either side of the body. Unlike the brown mite, the winter is spent in concealment somewhere, presumably off the tree. During the warm days of early summer, generally in June, the mite makes its appearance on the trees, spinning a fine web on the leaves, generally on the upper surface, and then works under this web. The mite sucks the plant juices from the leaves, giving them a yellowish mottled appearance. These leaves soon die and drop to the ground. In serious infestations the trees are often almost completely defoliated by the end of August.

The mites are much more easily controlled where a comparatively high percentage of moisture is kept in the soil by frequent cultivations. The Exchange constantly calls the growers' attention to the proper cultivation needed during the different seasons.

There are other pests, such as the gopher, squirrel, birds and morning glory.

Gophers often do great damage to the trees by girdling them just below the surface of the ground. The only safe means of control is the constant use of traps supplemented by poisoned bait.

Squirrels are very troublesome, as they harvest a large amount of almonds before they are sufficiently ripe to be harvested by the grower. The use of poisoned grain or "gas," if used over a large area of surrounding territory, will prevent serious depredations.

Birds also carry off large amounts of almonds if the orchards are near open country or hills, especially if wooded.

The morning glory is probably the worst of the weeds in the almond orchards, and is the hardest to control. Sheep and chickens may be used with excellent results.

Our object in telling you who are interested commercially in the almond about these costs and troubles is so that you may realize that the return to the almond grower is not all velvet. Fortunately, the pest with which we must contend affects the tree only and not the quality of the nut. Production, however, is materially decreased.

TREES ON WHICH PRUNES GROW

The Leonard Coates Nursery of Morganhill is now mailing its 1921 catalog. It makes one of the best showings of French prunes of any catalog we have seen. A hint of this is given on the cover with its magnificent cluster of prunes in natural color. At first one remarks, "It is too highly colored," but a big type of prune grown on a healthy, vigorous tree takes on high colors, and we conclude that the Coates cover is true to life. In any case, it's a magnificent piece of work. The back cover is given over to a cluster of oleanders, and the two covers give an idea of the range in the catalogue, for nearly everything which grows is included.

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MORE and more farmers constantly are reporting, as above, marked benefits obtained from motorization and particularly from motor trucks on Goodyear Cord Tires.

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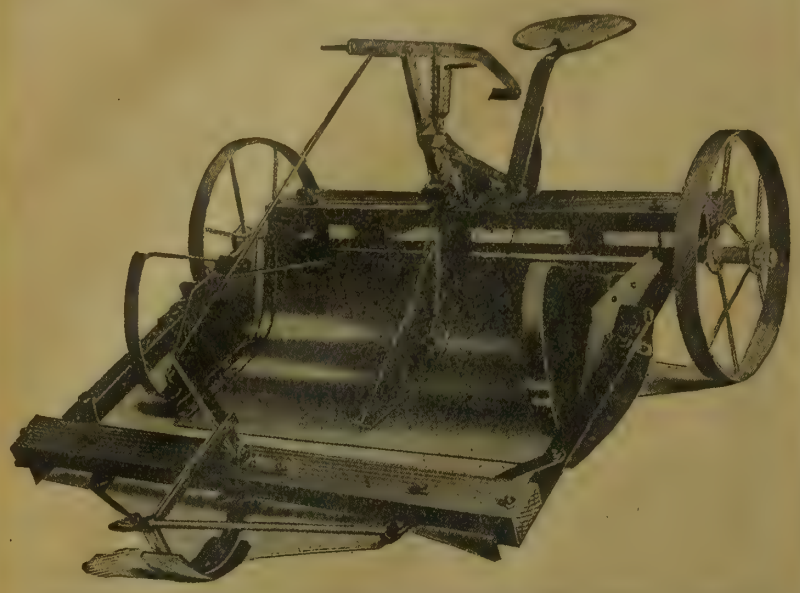

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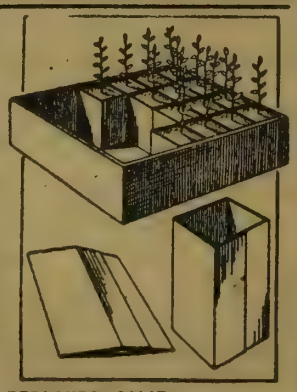

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When Writing Advertisers Mention California Cultivator

Water Made Hog Wallows

By D. J. Whitney

ABOUT a year ago Prof. Gordon Surr had a very instructive article in the Cultivator on the formation of hog wallows. It was illustrated by a photo taken within a short distance of my ranch. As I had heard a great deal of conjecture upon the probable origin of these little "hills and hollows," and Prof. Surr's explanation was the first explanation within reason, I was glad to get it.

His idea in brief, as I remember it, was that the hillocks were probably wind formed, a dense bush catching wind moved material and continuing to do so until they had reached their present size. The explanation, as I remember, was not positive, but put forward as a theory, since in some parts of the world land is now taking this hill and hollow form where conditions favor.

Although the theory was interesting I questioned it for several reasons in the case of the red, sandy clay hog wallows so common in parts of the San Joaquin and Sacramento Valleys.

In the first place the texture of this soil is such that it seemed impossible that it could have been gathered together by wind. Wind gathered material, one would think, would be of a loose, or easily moved nature. These hog wallows are of a clay sand formation and hold their shape like a brick. Run a furrow through a hog wallow and it will be there ten years later unless tramped in by cattle in spots when wet. The wind will not move it away, wet or dry. Naturally it would appear improbable that the wind ever carried it there.

For another thing it would seem that wind formed material, unless mostly sand, which this is not, would be of a general character, if that expresses the idea intended. This soil, however, is of such a definite type that it evidently must have had some definite, unusual source. It is, for example, far more red than most surrounding soils. It is very high in clay and very high in sand with a very limited amount of intermediate material, as compared with the average soil.

Lastly, small water washed pebbles can be found abundantly in it and these are as often found toward the top of the bumps as below the general land level. This fact would make a wind formed origin almost impossible

The preceding indicates the improbability of wind having caused them. Now for a positive suggestion as to their source.

I discussed this with Dr. P. A. Boncquet of Lindsay recently and he gave me the first likely theory of their origin, which follows.

The interior valley of California seems clearly to have been a lake bed once. As the water receded the land where the hog wallows are was barely covered; in dry periods it would be exposed to the air and in wet periods it would again be covered with water. Tules and other water plants would grow there. The water working down toward the lower parts of the valley would wash the dirt away from between the clumps of tules, but the tules would catch the clay suspended in the water and in times of flood it would even catch sand and the little water washed pebbles so commonly found in them now. Consequently where the tule clumps were are now the hillocks, and between them, where the water flowed on its way to lower levels, are the hollows. After the water receded for good and hundreds of years of hot, dry summers followed, all trace of tules was destroyed and very little of the soil, except the earthy or mineral matter was left.

It can be seen that there is a very close parallel between the wind and water methods of origin. Clumps of vegetable matter in each case hold earthy material carried along, in one case by the wind, in the other case by water.

If this soil had been laid down in water it would seem very probable that it must be rich in plant food, like all sediment soils. As a matter of fact it is rich, as proved by chemical analysis in theory, and by plant growth in practice, once it is leveled, irrigated and subdued to a state of good cultivation, even though in a state of nature its peculiar characteristics make it extremely barren and forbidding of aspect.

When the correct origin of this land is finally admitted it will stop a great amount of conjecture and give rest to puzzled brains, for every person who sees such land wonders how it ever got that way.

Cover Crops

California orchardists have often referred to the old time methods where back in the New England, or possibly the Middle Western states, the hillside orchards were allowed to to be covered for years, perhaps generations, by the growth of timothy or natural grasses. The only implement ever admitted to the orchard was the mowing machine which sometimes removed the surplus or, perhaps, mowed the grass and allowed it to rest upon the sward as an additional mulch.

Reference to this old time method often called forth comparison with California's up-to-date cultural methods. But are our clean cultural methods as generally declared the best as they were ten years ago? They are not. We recently had an interview with A. B. Humphrey of Escalon, San Joaquin County, Mr. Humphrey formerly gave clean culture to all his orchards. He continued this until the soil bore closer resemblance to brick clay than to productive soil. This was especially true of the pear orchard. Mr. Humphrey believes in asking; "How do others do it," and he recalled that near Buffalo, New York, there were apple orchards which, for more than 150 years, had borne heavy crop without a cultivator ever being under the trees. In case of windfalls the sod growth of many years afforded softest of cushions for the falling fruit, and while such fruit is of lesser value it still has some value when left clean and unbruised by its dropping. On the sharp clods of a fairly heavy soil under clean culture a windfall becomes worthless unless immediately used in cider mill or other means of saving waste products.

Mr. Humphrey has been regarded as one of our larger and more enthusiastic producers of pure bred livestock, but he confided to us that originally his entire business was in the growing of grapes, pears and a few other fruits. In fact, his fruit growing interests are still vastly greater than his livestock interests which were taken up purely that his orchards and vineyards might be restored to fertility and made profitable. Now, with the wastes of the barns and stables brought to the land, it is being greatly increased in productivity and yet Mr. Humphrey is becoming confirmed in his belief that in addition the soil requires the continuous covering which he is now allowing in most of his orchards.

He has consistently followed the plan for 15 years, he never plows, though sometimes in late fall to prepare the land for receiving the winter rains he uses the disk. In addition, through the winter season, hogs, and even cattle, are allowed to graze through the orchards. The damage to the tree is more than overcome by the benefit to the soil. Besides, there are summer cuttings of alfalfa made, sometimes as many as four. Without question this method of handling an orchard calls for greater supply of water. He has small stream running continuously and this is diverted from section to section until he knows that the trees have sufficient with the required surplus to keep the cover crop going.—C. B. M.

Arrangements have been made whereby every citrus grower in the Santa Ana-Tustin-Orange district having a telephone may be warned of probable frosts by the United States weather bureau.

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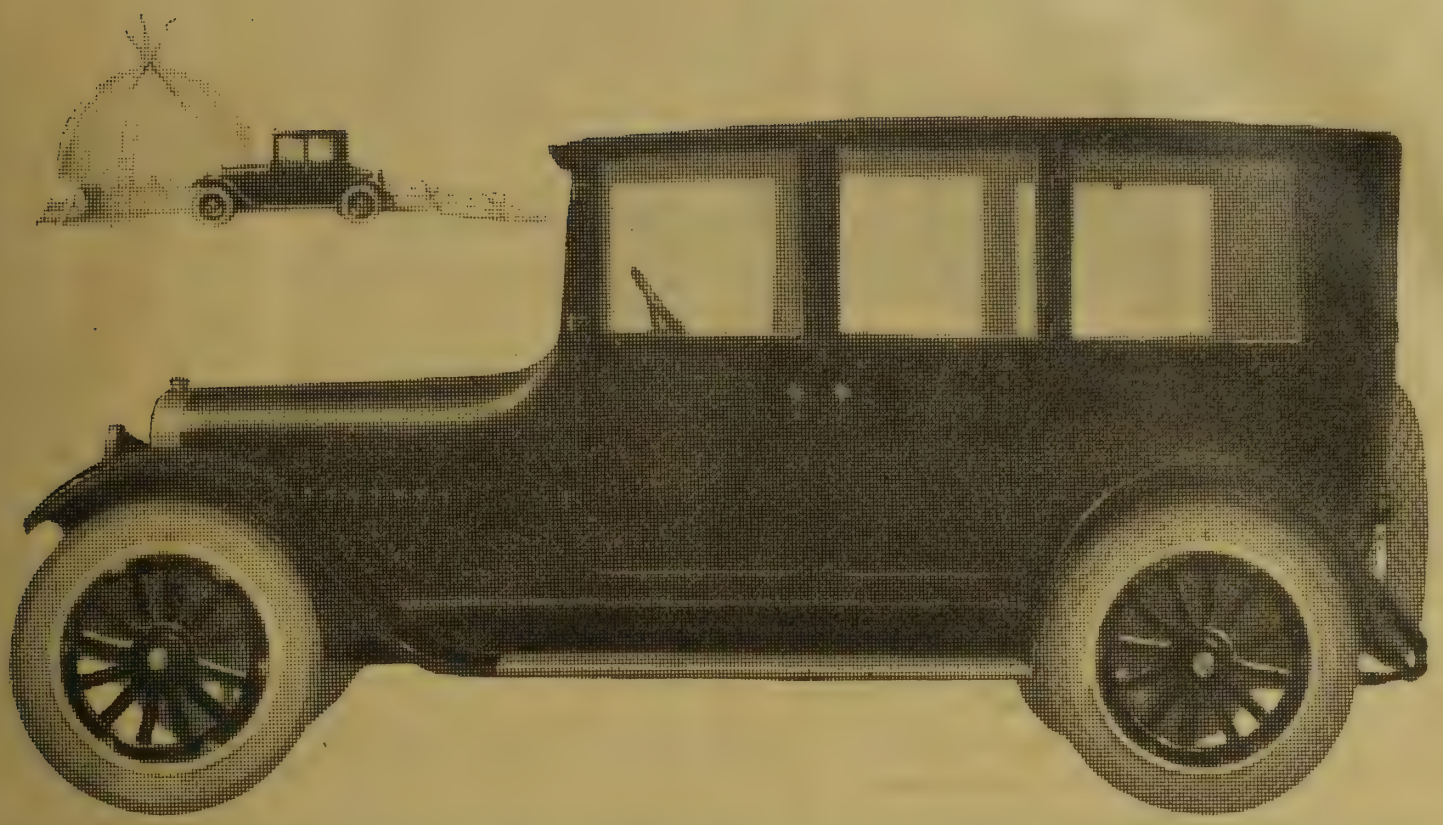

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When Writing Advertisers Mention California Cultivator

Slitting Trees

ROLAND C. CASAD of Covina is a believer in bark slitting for increasing the vigor and growth of citrus and other trees. Especially does he think it beneficial in the case of scaly bark. So strong is his belief that he has issued a booklet on tree surgery in which the slitting and its advantages are described at some length. In part he says:

"If a pruner's knife or the like is used, and parallel slits with the limbs or trunk are made in the bark, it permits the bark to expand and the sap to flow more freely, and as it is sap that nourishes the tree, fruit and foliage, you will note a decided improvement.

"One can increase the size of the limbs and trunk very much by this method. The time to slit the tree's bark will depend upon the location and kind of a tree, but it should be done just as the tree is commencing to grow in the springtime, when it is blossoming or just as the fruit is setting.

"This should not be done in the fall of the year, especially where the winters are cold, as the wound would not have time to heal and form the scar tissue necessary to the protection of the tree before cold weather."

As to young trees, he suggests:

"Many young trees, especially orange trees, die before they get started well. This oftentimes comes as a result of the shock they get in cutting their roots and digging them out of the nursery.

"If, after the young tree is transplanted, you take a knife and cut one or two perpendicular slits in the bark of the trunk of the tree you will find that it will start growing much sooner and grow much faster. This is because, owing to the shock the young tree had, it is liable to become bark bound. This process will loosen the bark and the tree will take on a new lease of life."

The method was very thoroughly tried out some years ago, especially in the summer of 1912. The extreme cold of that January 1913 following seemed to have a more injurious effect on these slitted trees, and many growers resolved never to repeat the experiment. We believe Dr. Webber and others still condemn the practice.

Wealth in Onions

By James P. Britt

A great many of the growers and distributors of California are very much interested in the development of the sweet Spanish onion crop, which as an industry has now reached such proportions as to attract nation wide attention. Southern California enjoys the very unique distinction of being the only place in the United States where the sweet Spanish onion is produced in commercial quantities.

Gilbert B. Daniels, state market director, has conducted qiute an extensive survey of this product and states that there will be approximately 300 acres of these onions produced next year in the counties of San Bernardino and Riverside, which, he says, are the only places in the United States where this particular onion is produced to any commercial extent or value. It is estimated that there will be marketed this year from these two counties in the neighborhood of 100 carloads of these onions. There will be about 75 acres just west of Chino and about 50 acres in and about Riverside. The balance of the acreage will be in the vicinity of San Jacinto, Riverside County.

The sweet Spanish onion is large and sound, the onions averaging almost a pound in weight. The original onions were procured in Spain, and since then the seed has been produced in the two Southern California counties mentioned. The seed is planted between the fifteenth of December and first of January, and the crop is harvested in September, which makes it a nine months' crop. Thus far the growers have been able to secure a price of six to eight cents per pound at shipping point, and they feel hopeful that they will be able to do as well the coming year.

After a great deal of experiment it has been demonstrated that the peculiar soil and climatic conditions of these two counties of Southern California are similar to that of the southern part of Spain where large quantities of sweet Spanish onions are grown.

The difficulties that the producers of the sweet Spanish onions are attempting to solve now are those of marketing the product. Mr. Daniels, who is assisting the growers in the distribution of the onions, is endeavoring to work out a plan for an auction market in New York City, and possibly Chicago, similar to that which is now conducted by the Fruit Growers Exchange.

Storage Apples and Grade Requirements

It is the opinion of the office of inspection of the state department of agriculture that it is not the intent of the apple standardization law to hold the packer responsible in cases where the fruit has deteriorated in storage to such an extent that when placed on sale it does not meet the requirements of the grade as stamped on the box, provided that upon reinspection it is determined beyond reasonable doubt that the stock was up to grade when packed.

There are certain inherent characteristics of apples made a part of the California grade requirements which will not change even under extended periods of storage, such as size, variety, pack, etc. It is true that an apple may shrink somewhat in storage, but for general purposes of inspection we may say that the size factor is fairly constant. Deterioration and decay, on the other hand, are factors which must be expected with apples which are kept in storage for any length of time.

It would be our opinion, therefore, that packers should not be held responsible for the sale of storage stock owned by a second or third party at time of sale, which we have every reason to believe was packed in accordance with the law, but which when offered for sale does not meet the requirements of the grade as stamped on the container.

Such a ruling does not mean that the owner of storage stock, usually a wholesaler or jobber, but in some cases the original packer, can offer for sale apples which have deteriorated to such an extent that grade requirements are not met. It is the privilege of the inspector to ask that such stock be reconditioned. At the same time such cases should be considered on their merits and if the storage stock ran slightly over the total tolerance of defects provided in the law, and it was determined that the requirements were met at time of packing, inspectors are always permitted to use their judgment as to whether they will ask such reconditioning. If the owner of apples not meeting grade requirements refuses to recondition the stock, such procedure on his part cannot be required under the present law, but inspectors may bring suit and the court may impose such conditions as the evidence warrants.

There is no question involved in the reinspection of storage stock concerning payment for such examination. The apple law does not give us the authority to require payment for any inspection work. It merely provides for the earning of funds with which to maintain the law by the sale of apple stamps, the purchase of which is in no way compulsory. Police powers such as reinspection of storage apples for grade should be financed by the state or county in the regulation manner.—F. W. R.

AVOCADOS FROM COLOMBIA

In commenting on the avocado industry of the Santa Marta district of Colombia, Consul Sawyer expresses the opinion that its further development depends largely upon improved shipping facilities. "At present refrigeration space on the steamers which transport the fruit is reported to be limited in amount as well as expensive. Once this problem is met there should be considerable profit in the industry, since the fruit which can be purchased in Santa Marta at from three to five cents retails on the New York market at from 50 to 75 cents each.

"Avocado culture is not carried on systematically in the Santa Marta district; the trees occur for the most part as shade trees on cocoa plantations or around the homes of the planters and field hands. It is estimated that in the rather limited cultivated area adjacent to Santa Marta there are between 3,000 and 5,000 large avocado trees, the greater number of which are over 25 years old. It is largely these trees that supply the New York market. Because of climatic conditions, the avocado of Santa Marta ripens earlier than those of certain other parts of the American tropics and much earlier than those of subtropical regions such as Florida. Accordingly, it has been found profitable to ship the Colombian fruit to American markets during the months of April and May and part of June. During the season of 1920 there were shipped from Santa Marta 1,648 crates of avocados, valued at $4,974."

PROGRAM FOR WALNUT INSTITUTE

The third annual walnut growers institute will be held at Whittier, Friday, January 14, in the Whittier Walnut Association packing house. A basket lunch will be served at noon, with coffee furnished by the Whittier farm bureau center.

10 a. m.: The Agricultural Extension Service, the Farm Bureau and the Walnut Grower, Farm Adviser Hodgson. Importance of Maintaining High Standard of Quality in California Walnut Shipments, H. C. Sharp. Economic Losses Due to Non-productive Trees, Dr. L. D. Batchelor. New Developments in Dust Spraying, R. E. Smith. Basket luncheon.

1:30 p. m.: The Codling Moth Situation, Prof. H. J. Quayle. Foot Rot of the Walnut, Dr. H. S. Fawcett. Top Grafting Poor Yielding Walnut Trees, Dr. L. D. Batchelor. Selecting the Orchard Tractor, Prof. L. J. Fletcher.

NATIONAL ORANGE SHOW

The National Orange Show management has been keeping quiet; at the same time sawing wood and growing oranges. It now proposes to make a whirlwind finish in its campaign of staging "the greatest ever." The show will take the entire week of February 20-26. It will be in charge of Manager Renfro as heretofore, and practically the entire board and committee membership is made up of experienced workers. California oranges were never nicer. It will be a great show.

On Friday and Saturday, February 25 and 26, the citrus institute, now a regularly organized body of citrus growers, under direction of Dr. J. T. Barrett of the experiment station will hold its mid-winter annual. There will be discussion of fumigation, spraying, marketing, transportation, tractive power for citrus orchards and other live questions.

WATSONVILLE APPLE CROP

According to present advices, there will be a total of 2,200 000 boxes of apples shipped from the Watsonville section this season, or approximately 300,000 boxes less than was shipped last year. There are about 200,000 boxes, loose and packed, in cold storage in Watsonville and about 400,000 boxes in other cities throughout the state, mostly in San Francisco and Los Angeles. In addition there is some stock in common storage.—F. W. R.

Contra Costa County farmers have formed an association for cooperative marketing and cooperative purchasing. The farm bureau headquarters is at Concord.

CONTROL MEASURES FOR "BROWN ROT"

The best authorities on plant diseases still differ somewhat in their opinions as to the complete control of brown rot. It is, however, apparent that certain definite practices in orchard sanitation are of value in checking its ravages and that spraying practices are necessary for its practical control. Even with the best of methods this fungus disease is difficult to control under unfavorable weather conditions.

Control methods should unquestionably begin in the fall or even in the summer. The infected branches should be carefully pruned away and burned. All decayed fruit should likewise be destroyed and every precaution taken to remove the mummified fruit remaining on the tree during the winter. This should either be burned or thoroughly covered by plowing.

With the best possible cleanup in an orchard it would be practically impossible to remove all sources from which the brown rot spores originate. It then becomes necessary to destroy such spores as may adhere to the bark or bud scales by the application of an effective fungicide. This may necessitate one, two, or more sprayings, depending upon the effectiveness of the materials used and the thoroughness with which the work is done. Either the Bordeaux mixture (6-6-50) or the lime-sulphur, winter strength, should destroy all spores actually saturated with the fungicide in early spring before the breaking of the buds. Fall spraying is unquestionably of value but should not be completely relied upon because many additional spores of the brown rot disease may again become lodged on the bud scales between the time of fall spraying and the blossoming period.

The value of spraying after the blossoming period is unquestionably reduced because it is practically impossible to reach the diseased tissue within the fruit spurs and twigs by the external application of a fungicide. A lime-sulphur spray (1-15) at the time the blossoms are opening and another application (1-25) after blossoming is sometimes recommended. Additional sprayings with wetable sulphurs are also sometimes applied to protect the growing fruit.

The most successful results to date have been secured by Dr. W. L. Howard of the deciduous fruit experiment station of the University of California at Mountain View. Until these results are published detailed information can undoubtedly be obtained by writing direct to the station. In the meantime the experiments will be continued next spring.—T. D. Urbahns.

BUD SELECTION IN THE CITRUS

(Continued from Page 35.)

agation of the trees. The writer perhaps comes into more frequent contact with such examples than is usually the case, on account of his work. Every time that such an orchard is visited, where the question of top-working the undesirable trees or replanting them must be considered, the importance of using selected buds for propagation becomes particularly impressive. Some of these cases are brought to the courts for adjustment but the compensation awarded hardly, if ever, makes up for the wasted effort in the cultivation of the worthless and undesirable trees. It emphasizes as nothing else can the importance of the growers investigating the methods of propagation used in the growing of their trees and the source of buds used for top-working.

Sources of Reliable Trees and Buds

The Fruit Growers Supply Company of the California Fruit Growers Exchange maintains a bud department, as a public service, which furnishes to growers and nurserymen reliable buds for propagation. This organization has complete records of nurserymen using reliable buds and who have reliable trees for sale, and this information is available to all prospective planters who desire to avail themselves of it. This information is of great importance to prospective planters and every one who is concerned in the planting of citrus orchards or the top-working of established but undesirable trees.

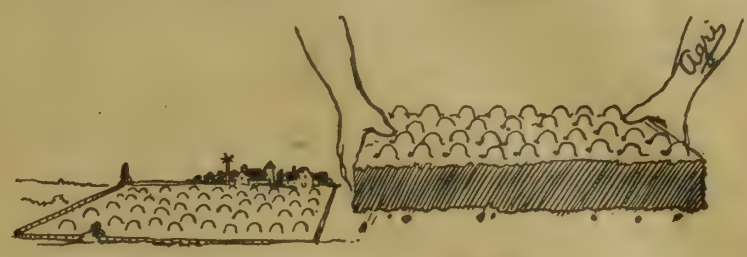
In the case of top-working established trees and orchards this organization has on file a list of men who make a business of top-working citrus trees. This work is usually most economically and successfully done by men who have had experience along this line. It requires patience, experience, and the ability to do this particular kind of work, sometimes called the "growing hand." Unless it can be given the necessary care and attention, it is a question as to whether it is worth while or desirable.

The importance of using carefully selected buds for propagation secured from superior performance record trees is not questioned by any experienced person.

TEHAMA COUNTY FARM BUREAU DATES

The Tehama County farm bureau centers will meet in January, 1921, at: Dairyville, 12; Antelope, 13; Oak Park, 14; Richfield, 17; Corning, 20; Bend, 21; Los Molinos, 24; Proberta, 26; Liberal, 27; Manton, 28; Bowman, 29; directors meeting, Red Bluff, January 22 at 10:30 a. m.

A plant for the manufacture from kelp of wallboard, cardboard and roofing is to be erected at Summerland, Santa Barbara County.



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Growing Sugar Beets and Utilizing the By-Products

SANDY loams and clay loams are generally regarded as the best soils for the production of sugar beets though the physical condition of the soil is greatly influenced by its preparation and the cultural methods used. In general, if a soil has produced good crops of corn or potatoes it may be assumed that it will be satisfactory for the production of sugar bets, say specialists of the United States department of agriculture, in Farmers Bulletin 568, "Sugar Beet Growing Under Humid Conditions," recently issued. Hardpan subsoils should be avoided by the sugar beet planter, especially if they are so near the surface as to interfere with the development of the roots, while soils that permit rapid leaching are not satisfactory to beet culture, as the moisture passes out too rapidly and carries away the soluble plant food so essential to proper growth.

Fertility is essential. It can be maintained by the use of stable manure, green crops plowed under, or by the application of chemical fertilizers. Few farms produce enough stable manure to keep the land alive by this means alone, and the proper treatment of a sugar beet soil will combine all three sources of plant food. No rotation should be planned that does not include one green crop to be plowed under. Stable manure and green crops furnish the humus (vegetable material) which serves as plant food and also is essential to the growth of soil organisms that improve the fertility in a manner that can not be secured through the use of chemical mixtures alone. Moreover, the presence of organic matter in the soil enables it to retain its humidity and better to resist a drouth. Deep fall plowing of sugar beet land is one way to insure a supply of moisture for the next year's crop and to improve the physical condition of the soil through the action of the rains and frosts of winter.

The primary aim in fitting seed beds for the sugar beet is to secure a plot that is deep, fine and firm. The disking harrow, the spike toothed harrow and a roller are the tools required to develop fully the advantages gained by deep plowing.

Effect of Temperature

An average temperature of about 70 degrees Fahrenheit during the growing season, usually from May to September, together with cool nights and moderately warm days toward the latter part of the season, appear to be most favorable to the growth of the plant and the storage of sugar in the root. If the average temperature is much above this apparently sugar is not formed so readily or it may be that it is used in the growth of the plant as fast as it is formed.

In addition to an equable, moderate temperature the crop requires plenty of moisture. Rainfall cannot be regulated by the farmer, but water in the soil can be conserved by proper cultivation and under draining.

By-Products

The sugar beet industry is the source of several by-products which may be used to advantage by the grower. The tops which are removed when the roots are harvested and the pulp remaining after the extraction of the sugar from the roots at the mill are of particular value for feeding animals, especially cattle and sheep; they are fed fresh, dry, or as silage.

The tops may be pastured in the fields where they have been thrown down after cutting. This will save cost of hauling and result in direct application of manure to the soil. However, it may result in waste of this valuable feeding material and the soil may lose its condition to a certain extent through excessive trampling. It is advantageous to feed the tops, either fresh, cured, or as silage, in feeding racks. Farmers sometimes sell the tops at a rate ranging from $2.50 to $5 per acre, but this is a poor practice, both from the standpoint of the value of the tops as feed and from the fact that the removal of the tops means a removal of fertilizer material.

Pulp also constitutes a valuable feeding material and its use results in returning to the soil a part of the material that has been removed. One dealer in dry beet pulp guarantees the product to contain not less than eight per cent of protein, not less than one-half of one per cent of fat, not less than four per cent of sugar and starch, not less than 58 per cent of carbohydrates, not over 20 per cent of fiber, and 2½ per cent ash.

Certain beet sugar factories produce molasses as a by-product. This constitutes a valuable carbohydrate feeding material and is usually fed by mixing with hay, pulp, etc.

Utilizing these by-products in feeding livestock, the grower may obtain a considerable profit other than that obtained by selling the roots and, of very great importance, he may retain on his field a large part of the fertilizer materials removed by the crop.

Waste lime is still another by-product of the sugar factory which is extremely useful for neutralizing acid soils.

Methods of preparing the soil, planting sugar beet seed, cultivating, spacing and thinning young plants, methods of harvesting the beets, use of by-products, etc., are described in the bulletin. Copies of this bulletin may be obtained by addressing a request to Department of Agriculture, Washington, D. C.

TITAN 10-20

THIS practical favorite among tractors has long aided industriously in the cause of good American farming and it has gained as great a popularity across boundaries and oceans as well. Since the first Titan went out to the fields five years ago, the farming world has invested over seventy million dollars in Titan 10-20 Tractors. No other 3-plow tractor has approached such a record as this.

Titans at this writing are delivering reliable horse power at drawbar and belt for many thousands of owners who are done with uncertainties and who know that quality is but another name for economy.

Entering into 1921, this Company has effected arrangements which include provision for time payment and price reduction guarantees in the sale of its tractors. Prospective Titan owners will be glad to have the assurance of this benefit and safeguard during the present period of uncertainty. Details may be had by application to any International dealer or by letter from the address below.

Farmers who believe in the money value of high standards in agriculture, as this Company believes in manufacturing standards based on quality, will be helping to build higher the achievement of Titan in 1921.

With every Titan 10-20 Tractor purchased from us—cash or liberal terms—between now and May 1, 1921, we will give our written guarantee that if this Company reduces its price on Titan 10-20 Tractors on or before May 1, 1921, we will refund the purchaser the amount of such reduction.

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San Francisco, Cal. Spokane, Wash.

MOSAIC POTATO DISEASE

In experiments carried on cooperatively between the bureau of plant industry, United States department of agriculture, and the Maine experiment station on the mosaic disease of potatoes, transmission of the potato mosaic was found to take place by means of tubers, grafting, the transfer of plant juice, and aphids under various conditions. Infection was also obtained with intervarietal transfer of juice. Transmission was attempted, but without success so far as could be ascertained in the same season, by means of flea beetles, Colorado potato beetles, the seed cutting knife, and contact of seed pieces, of roots, and of vines.

Preliminary observations are believed to indicate that infection does not result from growth in soil that produced mosaic plants the previous season. It seems impossible either for infected plants to recover, or if diseased stock is not far away and insect carriers exist to assure the maintenance of health of susceptible varieties by roguing plats or by selection of hills, tubers, or seed pieces. Isolation of plants by means of insect cages, as well as growing potatoes in greenhouses in which insects were excluded, maintained stocks free of disease. This is believed to indicate that the control of aphids and possibly some other kinds of insects is the most important means of checking the spread of potato mosaic among susceptible varieties.

Later the Maine station issued a bulletin from which we quote the following:

"Do not expect to control or reduce potato mosaic by means of sprays, seed treatment or soil treatment, except by spraying methods which control plant lice. Use as healthy stock as can be obtained. Plant at least part of it in a seed plot of sufficient size to furnish seed for the next year's planting. Select land for this purpose as remote from all other potato fields as possible and land which has not grown potatoes for one or more years. Give the seed plot special care. Rogue all mosaic plants from the seed plot as soon as they show the disease. In case aphids are unusually abundant the spreading of mosaic by them possibly would be reduced by controlling them with suitable spraying methods, which are advised for the seed plot every year, inasmuch as even a small and inconspicuous number of aphids may spread mosaic.

"Such spraying methods, according to recent publications upon this question, require adding ¾ pint of nicotine preparation to each 50 gallons of

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These trees are grown on new soil never before in nursery stock, are well rooted, clean, healthy and hardy.

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Bordeaux mixture. In localities where it is feasible to make a separate spray for aphids the ¾ pint of nicotine solution is more effective if added to 50 gallons of water containing 2 pounds of laundry soap first dissolved in hot water. Moreover, if preferred, kerosene emulsion may be used instead of the nicotine spray. Regardless of whatever spray is used for plant lice it is essential that it be applied in such a manner that it reaches the insects themselves, since the effectiveness of the spray depends upon contact. Hence it is necessary to have the nozzles arranged on the spray boom so as to cover the under sides of the leaves and the stalks of the plants, as well as the upper leaf surfaces, with spray materials. Finally, avoid any chance of mixing the seed plot stock with the rest by harvesting and storing it separately from the general stock. Repeat this each year."

FARMERS MARKETING COMMITTEE ON THE GRAIN SITUATION

The Farmers Marketing Committee of Seventeen recommends that the system of handling the grain crop of our country to the best interests of the producers and the public include the following:

Farmer owned elevator companies and sales agencies to operate on the local and terminal markets of the United States.

Farmers export companies and sales agencies to operate on foreign markets for the purpose of handling the exportable surplus.

The grain growers of the United States should as soon as possible, by mutual contract or otherwise, arrange for the sale of all grain on the basis of cooperative bargaining.

That the foregoing shall be carried into effect with the ultimate view of the protection of the just rights of the producer and the orderly marketing of farm products.

The committee wishes to assure the grain producers of the country that it keenly appreciates the necessity of prompt action, and that as quickly as the necessary data can be gathered by its experts it will perfect and present a plan to carry the foregoing principles into effect with the cooperation of the various existing farmers organizations interested in grain marketing.

Resolution

Resolved, That we deem it morally wrong and highly detrimental to the interests of agriculture and the consumers to permit the practice now in vogue of selling grain, cotton and other farm products which the seller or his principal do not own at time of sale. This practice is commonly known as "short selling." Further, that we do petition congress to enact such legislation as will stop this practice at the earliest possible date.

RUST IS COSTLY

Farm implements either wear out, rust out or break. A break, as a rule, does not permanently disable the machine—a new part repairs the damage. A machine does not wear out for a long time unless rust is permitted to get in its deadly work. And rust is so easily prevented. A little good metal paint having rust inhibitive properties will do it. A small supply kept on every farm and used to touch up bare spots as fast as they appear would double the life of most farm machinery. It doesn't matter if the job isn't neatly done. Farm machinery isn't supposed to look pretty. It's the utility, the saving that should be considered.

THE KUDZU VINE

M. Calvino, near Havana, Cuba, has for several years been experimenting with growing this leguminous vine for fodder and recommends it for the warmer parts of the United States. It is easily propagated by seeds or by root cuttings and seems to agree with all manner of livestock, not alone in Cuba but in California and elsewhere. With us it makes almost a prodigious growth and thrives in all parts of the state.

HYATT
ROLLER BEARINGS

In 1921 Farm Work

IN 1921 on American farms, more than ever before, must it be made possible for one man to accomplish more work—for an acre to produce more crops.

High priced land and high priced labor are but two of the things that are making this necessary.

Labor-saving and time-saving farm machinery is going to help in a very large degree to solve this problem.

The use of Hyatt Roller Bearings in farm machinery makes for more dependable, more economical operation and longer life.

The manufacturer who builds Hyatt Bearings into his machines is one that can be looked upon as a quality builder, whose machines merit the full confidence of the American farmer.

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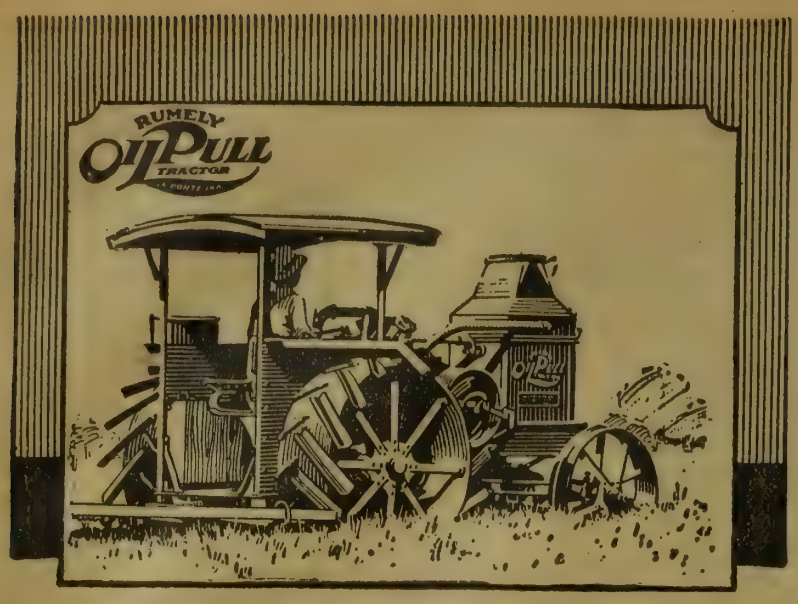

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For over eighty years power farming machinery bearing the Advance-Rumely mark has set a standard for honest construction and dependable operation.

This is demonstrated in the Rumely OilPull tractors. First made in 1909, OilPull tractors have back of them the accumulated manufacturing experience of these 80 years—experience that enabled the designers to start with a design of dependable, practical features.

And this design has not been fundamentally changed. You will find the same dependable features in the new product, oil burning, oil cooled, two cylinder heavy duty motor, spur gear transmission, straight membered frame—all features that have stood the test of over 12 years' field service. True, improvements have been made. Parts have been strengthened, the design has been refined, and season after season, the performance has steadily improved.

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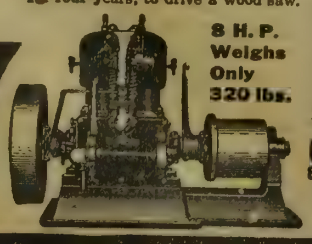
W. J. Kelley, McMinnville, Oreg., wrote: "I have operated an 8 H. P. Cushman for four years, to drive a wood saw. My saw is 32 inch 13-gauge Simonds saw. I have probably cut 8000 or 10000 cords of wood and I never got a stick that was too big or or too hard for the Cushman. It was only a matter of how much weight the feeding table would hold. It is a marvel of strength, with very little consumption of gas—from four to six gallons of distillate every ten hours."



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When Writing Advertisers Mention California Cultivator

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Pruning Avocados

I have noticed from time to time in your paper notes on the avocado, but so far I have not found anything on the training or framing of the tree. As I have some trees under my care which are growing out of balance and very woody, I would like to hear something about pruning them.—Unsigned.

Commercial growers prune only to keep trees in proper shape and balance. The aim is to keep them low and spreading rather than tall and columnar. As the fruits are heavy and on long stems, winds thresh them about and cause serious loss, therefore keep trees low. The avocado takes kindly to severe pruning so be unafraid of judicious heading and thinning.

Black Currant

Do you know of a variety of black currant that will fruit in the vicinity of Redlands?—Subscriber, Redlands.

We know of no such currant and believe there is none, either black or red, which fruits satisfactorily in the southern end of the state, especially in the warmer interior sections. If any subscriber has any information as to currant which will fruit well we will be glad indeed to pass on the word.

Sprays

May I ask a few questions about the care of a small family orchard? I have a few old peach trees that look as if they need some kind of winter spray. Would like to know what to use and how. Also have some apple trees and would like to know when and what to use to keep the worms out this coming season.—Subscriber, Redondo.

Without any knowledge as to what insects or fungus are infesting the trees, it is impossible to recommend any definite treatment. On the presumption that there might be San Jose scale we would recommend spray with strong solution of commercial lime-sulphur. A little later, just before blooming, they might be sprayed with Bordeaux mixture for the sake of preventing curl leaf. Sprays for apple trees would be later and will be more particularly given with formulas prior to spraying time. In a word, however, to keep the apples clear of codling moth they are sprayed about the time the petals are dropping and some three or four times later at intervals of two or three weeks.

Para-dichlorobenzine

We published early in December a short article touching upon a remedy for borers, known as "Para-dichlorobenzine." We soon began to receive requests for information as to where to get the material and phone messages to the larger drug houses met blankest ignorance as to what the stuff is. We wrote to the department of agriculture at Washington and from A. O. Quaintance, entomologist in charge of deciduous fruit investigations, have the information that there are three eastern concerns handling it, but apparently the material has not yet been distributed west of the Mississippi River. We may say, however, that the treatment consists in taking away the dirt to a depth of several inches and out a couple of feet from the trunk of the tree, spreading the dichlorobenzine in thin layer and covering with dirt. This destroys the larvae which may be in the soil. Where borers have already secured entrance to the trunk of the tree the same old treatment with wire or cutting out is the only successful one.

Olives Not Bearing

I have several olive trees about 14 or 15 years old that bloom very nicely every year but never fruit more than a few dozen per tree. What fruit could I bud them to that would give me something worth while?—Subscriber, Holtville.

Either the Mission or the Manzanillo bear well in most of the olive growing sections of California, but it is possible that the non-bearing of these trees is due to the weather conditions prevailing at time of blooming, that is, strong winds, especially the winds often called Northers, and charged with electricity, at blooming time mean practically no crop for olive trees that season.

Budding Mesquite Trees

Can any fruit be successfully budded on mesquite trees?—Subscriber, Holtville.

We fear there is nothing which can be successfully grafted on mesquite. However, some stockmen have utilized them as they are by gathering the beans and grinding. They make fairly good feed.

Pollinator for Kieffer

What is the best pear to interset with Kieffer as pollinator? It blossoms so exceptionally early that I do not know what to set with it, nearly all other varieties coming from one to three weeks later. — Subscriber, Banning.

We have from A. L. Wisker of Grass Valley the following answer:

"Forelle, by all means. Not only is Forelle our earliest bloomer among the European pears but it has the added advantage of bringing remarkably high prices at auction, half boxes this season selling for $8.37½ in New York. Kieffer blooms early on account of its Chinese blood."

E. A. Gammon of Sacramento writes in answer to the same question:

"No Kieffers have been grown commercially in this district. I have only one tree with Buerre Hardy and Bartlett surrounding it. It bears regularly."

Alfalfa Nurse Crop

What is the best way to sow alfalfa? How would it be to sow barley or oats and about a month later sow alfalfa?—Subscriber.

We take it the subscriber wishes to know as to the advisability of using barley or oats as a nurse crop with the alfalfa. Formerly, especially in sections subject to heavy frosts, the fall sowing of alfalfa was often made with barley as the nurse crop. This prevented some of the more serious frost injury in a severe winter but it was generally found that the first season's cutting was much less and the plants lacking in vigor. As a rule now the alfalfa is sown independent of any other crop.

Potato Dip

Regarding scab on potatoes and method of dipping would like to know what per cent of formaldehyde and how long should they be left in dip. Does just wetting do any good? We have good potato land but on our fall crops we have a big percentage of scab, even among those who dip. Our land is medium black loam. How does the future look on a spring crop for next year? Am going to plant 50 acres.—Subscriber, Strathmore.

Answering this and a similar question from a Montebello subscriber:

Dip in corrosive sublimate one ounce, water six gallons. Leave the potatoes in this solution one and one-half hours and use care in planting in disease free soil. If, however, you prefer the formaldehyde solution use at the rate of 16 ounces of 40 per cent formaldehyde to 30 gallons of water. As with the other dip one and one-half hours, but it has been found that if rhizoctonia are present it requires longer dipping and so potato growers have formed the habit of dipping a full two hours, which will catch both diseases. Four full dippings should be followed by dumping the solution and beginning with new again.

Spray for Peaches

Please give information as to spraying peach and apricot trees. — Subscriber, Montebello.

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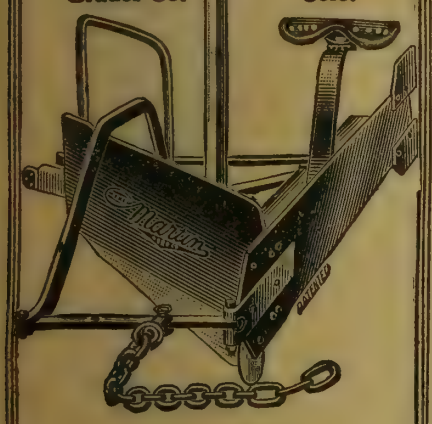

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As the inquiry comes at the time of the year when it is proper to spray for blight we refer the inquirer to article on page 787 of the issue of December 18. As it is already rather late for the peach blight, if that is the trouble, he should get busy very quickly with lime-sulphur or Bordeaux spray. The same spray should be used again a little later or just before blooming out time.

Fuller's Rose Beetle

Will you please tell me in the Cultivator what attacks these rose leaves; also some fruit tree leaves were the same way last fall but not quite so bad. Nearly all my rose leaves were eaten like sample last fall, but I could not see anything on them except a few green lice. The rose bushes are planted in the lawn and some in the flower garden. What is it that eats the leaves so nice and round and what should I spray with? — Subscriber, Lincoln.

This appears to be the work of Fuller's rose beetle, nearly half an inch in length, which eats these peculiarly shaped forms out of the edges of leaves. But worse than the leaf eating, its greatest destruction is in its underground form. It not only attacks roses but citrus and other trees. It is a poor flyer so it may be prevented from ascending the trunk by using Tanglefoot or other sticky substance around the trunk and keeping all branches pruned up and off the ground. A poison spray made of 4 pounds neutral lead arsenate to 50 gallons water will lessen the number of the pest.

Holes in Tree Trunks

My young almond trees have shot holes around the trunk of the tree where the limbs start to spread and on some a few rounds of the little holes up the limbs. Some are small and some look to be made bigger by something, and juice seems to leak out from the stem. The smaller trees are not affected but the large healthy trees are. Now is this caused from the outside of the tree by borers or birds or is it caused from the inside of the bark? I have used for a spray the formula from the Cultivator of chlorinated lime, one-fourth strength and later one-third strength. Now if I whitewash the trunks of the trees will that kill the borers or stop the birds from making the holes, if latter is the cause. On the young orange trees we have the bark tree protectors and above that a few trees have newly made holes which look to me as if made by birds, because there are no holes around as far as the tree protector was. The birds carried acorns to the trees and dropped some down the tree protector. How large is the borer? Is it a worm or a bug? —Subscriber, Lincoln.

It does not appear from the drawing and the description which the subscriber sends to be a case of borers, but of birds. In that case the damage will be but slight. If, however, the injury is from borers, a pocket knife will soon determine, or some prefer, instead of the pocket knife, a light wire which will follow the burrow and destroy the pest. In either case we do not think a spray would help in controlling the pest. If the injury is from birds it will be so slight that the good they will do the trees will amply compensate. The larva (worm like form) of the borer is half an inch to an inch in length and very sluggish.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Renewal of Lease

My lease on a piece of property expired November 1, 1920. I was not notified to vacate, in fact those interested in the property, which is an estate, told me that they would like to have me remain, but owing to a division of the property under the final distribution of the estate, the executor did not wish to make out another lease for another year. I have prepared for next year's grain crop and have bought seed. Will the last year's lease hold good and can they put me off the place or compel me to take a different lease from last year's?—Subscriber, Los Angeles.

If a lessee of real property remains in possession thereof after the expiration of the hiring and the lessor accepts rent from him, the parties are presumed to have renewed the hiring on the same terms and for the same time, not exceeding one month when the rent is payable monthly, and not in any case for more than one year. This provision of the law is a mere presumption of a renewal of the contract and it is possible that such presumption might successfully be rebutted. Especially, it would seem to be possible in the case of an executor who, by reason of a partition of the estate among other owners, did not wish to make a renewal of the lease. Your lease would, therefore, be subject to decision of a court as to whether or not there was a renewal. It will be noted that the provision requires, in order to establish a presumption, that the lessor should accept rent. If rent is accepted, the presumption would very probably be so strong as to be something upon which you can rely.

Alkali Land

I purchased an equity in land on representation that it is good farming land and that it would grow anything. I find that the alkali content is so high that it cannot be used for intensive farming, such as berries. What steps can I take to recover my money? Would the state real estate commissioner take cognizance of the case?—Subscriber, Los Angeles.

It might be well for you to communicate with the commissioner, who has an office in Los Angeles. Your action would either be for a rescission of the contract wherein you should tender to the vendor the land mentioned and demand the return of the purchase price thereof or you can retain the land and take action to recover the amount of damage which you have suffered. If you take the first option, your action would be one of equity before a judge; under the second action, it would be at law either before a judge or a jury, as you may desire. In either case, however, it would probably be necessary for you to consult an attorney.

Olographic Will

I have several brothers and sisters but desire to leave all my property to one sister. Will the following will be sufficient? "My last will and testament: I hereby give all my property which I own at the time of my death to my sister, ..., and wish her to act as administratrix of my estate. (Signed) ....." Would it be necessary to have a witness?—Subscriber, San Diego.

If the foregoing will is entirely written and signed in the handwriting of the testator it would probably be sufficient providing that the testator also places the full date of the will in his own handwriting. Such will is known as an olographic will and does not require to be witnessed.

Leasing to Japanese

Does the recent initiative measure regarding anti-alien ownership of land affect my leasing land to Japanese gardener?—Subscriber, Los Angeles.

The anti-alien act has no effect as between the private parties making the contract which can be enforced by either of those parties. The effect which it does have is that the state of California may bring action to cause the escheat of the interest of the alien in land. Upon judgment in such action, such interest possesed by the alien in the land may be sold and the proceeds given over unto the state.

SAME SENSATION

Al Klein: "Have you ever taken a tail spin in an aeroplane?"

Thompson: "No, but I've been called upon unexpectedly to make a speech, and I guess the sensation is about the same."

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Household Department

FARMER JOHN

Home from his journey, Farmer John
  Arrived this morning safe and sound;
His black coat off, and his old clothes on,
"Now I'm myself," said Farmer John;
Up leaps the dog: "Get down, you pup!
Are you so glad you would eat me up?"
The old cow lows at the gate to greet
  him;
The horses prick up their ears to meet
  him.
"Well, well, old Bay!
  Ha, ha, old Gray!
Do you get good feed when I'm away?"

"You haven't a rib," says Farmer John;
  "The cattle are looking round and
  sleek;
The colt is going to be a roan,
And a beauty, too; how he has grown!
  We'll wean the calf in a week,"
Says Farmer John, "When I've been off,
To call you again about the trough,
And water you and pet you while you
  drink,
Is a greater comfort than you can think!"
  And he pats old Bay,
  And he slaps old Gray;
"Ah! this is the comfort of going away."

"For after all," says Farmer John,
  "The best of a journey is getting home;
I've seen great sights, but I would not
  give
This spot, and the peaceful life I live,
  For all their Paris and Rome;
These hills for the city's stifled air,
And big hotels and bustle and glare;
Land all houses and roads all stones,
That deafen your ears and batter your
  bones!
  Would you old Bay?
  Would you, old Gray?
That's what one gets by going away."

"I've found out this," says Farmer John,
  "That happiness is not bought and
  sold,
And clutched in a life of waste and hurry,
In nights of pleasure and days of worry,
  And wealth isn't all in gold,
Mortgage and stocks, and ten per cent,
But in simple ways and sweet content,
Few wants, pure hopes, and noble ends,
Some land to till, and a few good friends,
  Like you, old Bay,
  And you, old Gray,—
That's what I've learned by going away."

And a happy man is Farmer John—
  Oh, a rich and happy man is he.
He sees the peas and pumpkins growing,
The corn in tassel, the buckwheat
  blowing,
  And fruit on vine and tree;
The large kind oxen look their thanks,
As he rubs their foreheads and strokes
  their flanks;
The doves light round him, and strut and
  coo;
Says Farmer John, "I'll take you, too' "
  And you, old Bay,
  And you, old Gray,
Next time I travel so far away."
  —John Townsend Trowbridge.

HOW DICK SHOOK DOWN THE JAIL

By Samuel C. Appleby in Youth's Companion

"I'LL tell you what, Steve, if I had the money I would buy one share at least in the new factory," said Dick Rodman to his chum, Stephen Harris, as they walked home from school.

"Oh, I'm sick of hearing about that factory!" Steve answered. "The town is full of it. I have it for breakfast, dinner and supper. The teachers discussed it at recess today, and I really believe that that is what made the principal talk the way he did this morning—when he said that everyone ought to take an interest in things that were good for all. He took five shares himself in the factory at ten dollars a share. That's fifty of the schoolmaster's dollars."

"Did he? Well, that is what my father took, and you know he hasn't got any money to spare. It doesn't seem to me such a bad idea for a schoolboy to do the same if he could scrape up the money."

The progressive men of Silverthorn, the pretty waterside town, had determined to start a factory for making overalls and work shirts. They believed that it would be a good thing for the town, that it would cause money to circulate and give much employment—particularly to women and girls. Two years before they had put up a fruit crate shop, to utilize a convenient supply of gumwood. It was paying well; the workers spent their wages in the village stores or put them into the bank. It all helped to increase business.

Of the ten thousand dollars of capital stock that had been issued for the new factory, nearly all had been taken up. Everyone in town had a chance to buy the stock at ten dollars a share, and nearly everyone had availed himself of the opportunity. Col. Willard Smiley, the wealthiest man in the community, had bought one-half of the whole.

The great question was, Where was the factory to be situated?

One building in town would have suited entirely had it been deemed safe, but it leaned so far from the perpendicular that for years everyone had been expecting it to fall. It was nearly a hundred years old, but it had been strongly built, with immense beams of hewn oak supporting its two floors and its roof; and although the ancient brick walls had a decided tilt toward the south, they showed no sign of cracking.

This building, known as the old jail, had been used as a jail 75 years before; then the county had removed its seat of government from Silverthorn to Bellville, ten miles away, and had sold the structure. It had finally come into the hands of Col. Smiley, who had used it as a cannery when he started to make his fortune in packing vegetables. Later he had built a larger factory on the river front, and for five years the old building had been empty and deserted.

In spite of Steve's lack of interest in the factory project, Dick persuaded him, before he turned in at his gate, to accompany him that evening to the public meeting of the new factory directors.

The boys were at the hall promptly at eight o'clock, and a few minutes later Col. Smiley rose to address the meeting. After a few introductory remarks, he said:

"Gentlemen, if the old jail were as upright as everyone here is, it would be ideal for our purposes; but I should not be upright myself if I permitted machinery and heavy cases of goods to go into that building with the precious lives of the people who will work for us. In every other way the building admirably suits our purposes; moreover, the rent is low; three hundred dollars a year would give me a fair return on its value; but after conferring with contractors in the city I find that it would not pay me to tear it down and rebuild; and it would be too expensive to have it set level.

"This puts us into a rather awkward situation, for there is not another building in town suitable for the factory. To build a wooden structure would cost us, at the very lowest estimate, five thousand dollars, and we ought probably to figure on seven thousand. Though we could borrow most of that money from the bank, it would eat into our capital a little. Moreover, the yearly cost of such a building, in interest charges and taxes, would be five hundred dollars—two hundred dollars more than the rent of the old jail."

As Col. Smiley finished, Dick Rodman grasped Steve's knee so hard that it made his chum wince. "Steve," he whispered, "I want to tell you something as soon as we get out. I—I've got an idea."

The meeting was short, and the question of building a new structure was postponed so that all could think about it.

"What was it that came over you?" Steve asked when the two boys reached the sidewalk.

"Don't laugh at me, Steve," said Dick, "but I think I know just where that factory is to be situated."

"What do you mean?" asked Steve. "You're getting me interested in your old factory."

"Glad to see that," Dick replied, laughing. "You'll become still more interested when I put one hundred real dollars into your hands for helping me out—if—if—I can get them to give me the chance."

"What's your scheme?" asked Steve, curiously. "What are you going to do?"

"Nothing tonight," Dick answered. "Meet me tomorrow morning at seven o'clock at my gate. I want to show you the possibilities."

"Who in the world is that, snooping round the old jail this early in the morning? Come here, mother; see if you can make 'em out."

Col. Smiley was standing in the bay window of his dining room. The house stood on a slight rise, and from it across wide lawns he had a good view

The Cultivator Patterns

BE SURE TO SEND SIZE

3405. A Stylish Gown.—Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 5½ yards of 36 inch material. The width of the skirt at lower edge with plaits extended is about two yards. Price 10 cents.

3409. Girl's Dress.—Cut in four sizes: 8, 10, 12 and 14 years. A 10 year size will require 4¾ yards of 36 inch material. Price 10 cents.

3426. Work or Morning Dress.—Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 5⅝ yards of 36 inch material. The width of the skirt at the foot is about 1¾ yard. Price 10 cents.

3075. Child's Dress.—Cut in five sizes: 1, 2, 3, 4, and 5 years. Size 4 requires 2⅝ yards of 36 inch material. Price 10 cents.

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3431. Girl's Dress.—Cut in four sizes: 8, 10, 12 and 14 years. A 10 year size will require 4¾ yards of 27 inch material. Price 10 cents.

3406. Ladies' Night Dress.—Cut in four sizes: Small, 32-34; medium, 36-38; large, 40-42; and extra large, 44-46 inches bust measure. A medium size will require 3½ yards of 36 inch material. Price 10 cents.

3103. Boy's Suit.—Cut in four sizes: 2, 3, 4 and 5 years. Size four will require 2⅝ yards of 40 inch material. Price 10 cents.

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Los Angeles

of the old jail, an eighth of a mile away.

Mrs. Smiley ran to the window and peered out. "I do believe it's Dick Rodman," she said. "And there's another boy with him—Steve Harris, I guess. Those boys are inseparable. I wonder what they are doing?"

When the colonel sat down to his breakfast, his wife got a pair of field glasses from the library and returned to the window.

"What do you think, pa?" she exclaimed. "One of them is hammering something into the ground, and the other is up on the roof and sceems to be letting something down."

"Here, I've got to see that," said the colonel, going to the window. His wife handed him the glasses. "Humph! They've laid a lot of packages in a row on the ground. Now the boys are on their knees in front of the house, looking at something on the ground. What can they be doing?"

"You may be bound, pa, that Dick has some engineering idea in that head of his—and it's a good head, too. They say he's going to fit himself to be a civil engineer. You remember how he got Blade's schooner off the bar?"

"Indeed, I do remember. That day cost me money. The boat was out in the stream half a day, loaded with my goods, and all the canning house hands idle in consequence."

Meanwhile down at the old jail Steve, following Dick's directions, had been boring holes in the ground and in the hard packed earth floor of the basement, which was on a level with the ground itside along the walls. He put into separate packages samples of the earth that the auger brought up.

"What I want to find out," said Dick, "is exactly what kinds of earth the walls are resting upon. I think we'll find it a chalky white earth mixed with a little clay."

Steve's sneers at the new factory still rankled a little in Dick's mind, and he had determined to pay back his chum by keeping him somewhat in the dark about his scheme. As for Steve, he was now too much interested in Dick's mysterious plan to think of refusing to help unless Dick took him into his confidence.

While Steve was at work, Dick and gone to the roof. There he took out a thin fishing line at the end of which was a tiny plumb bob and lowered it over the edge of the roof on the front side, which had sunk the most. When the plumb bob touched the ground he made the line fast.

Returning to the ground, he planted under the plumb bob a heavy, flat plank about fifteen inches long, and on this he tacked a ruler in such a way that one end touched the wall of the building.

"Now, Steve," he said to his chum, who had come out to see what he was doing, "you can tell how far out of plumb the old jail is. One end of the ruler touches the house and the needle of our plumb line points to ten inches exactly."

"Ten inches out? No wonder people have been expecting it to fall."

"It isn't quite so bad as that, for the cornice juts out four inches. No, the outward hang of the wall is just six inches. The cornice makes it look more. Now let's get to school; this noon we'll go to see Col. Smiley."

(Continued next week.)

CARE OF CLOTHING

Sponging, cleaning and pressing make wearable many shabby garments.

Sponge garments with ammonia water to remove shine.

Steam velvets.

Use clothes hangers and cotton covers.

Wear shoes in turn; keep repaired; use shoe trees.

Reinforce new garments where wear will be the hardest.

Wear aprons when at work.

Have play clothes for children.

Secure buttons, fastenings, etc., on ready made garments.

Mend or darn all textiles before badly worn.

SIGNS

Gothamite: The East is more civilized than the West. You don't see New Yorkers wearing guns with notches.

Visitor: No, they run around with dents in their mud guards.—Life.

HINTS FROM HOUSEKEEPERS

My Favorite Cake and Pudding

These are the two recipes that I use more than any others.

Two Layer White Cake: One cup sugar creamed with one-third cup butter or lard, three-fourths cup sweet milk, one and one-half cups flour, one heaping teaspoon baking powder and whites of two eggs. Cream butter and sugar well, add the milk, then the flour that has been sifted with the baking powder, and beat until smooth, then add the stiffly beaten eggs and divide equally in two layers.

The yellows of the eggs may be used in

Velvet Pudding: One pint (two cups) sweet milk, two-thirds cup sugar, one tablespoon flour and the beaten yellows of the two eggs. Use a part of the milk and make a smooth paste of the flour, then mix all together and boil, stirring constantly until it thickens. This is a good pudding when flavored to suit the taste, or when used with coconut, chocolate or bananas.—Elizabeth A. Boswell, Clarksdale, Arizona.

Sweet Potato Custard Pie

In a recent number of your paper someone asked for recipe for sweet potato pie, made with a custard. Here is mine, called good: One pint sweet potato (put through sieve), one pint sweet milk heated to boiling point, one cup sugar, one level teaspoon flour, one egg, salt, nutmeg. Mix last five ingredients and stir into boiling milk and pulp. Pour into rich crust and bake until custard is set. Serve with spoonful of whipped cream on each portion.—Jay Esep.

HOUSEHOLD QUERIES

Birthday Candles

Could some kind reader of the Cultivator send me a recipe for a birthday cake which would take 27 candles; also tell me the saying as to the candles left burning after the three tries at blowing out. — Subscriber, Lompoc.

The very tiny candles we would suggest as giving the prettiest effect on a birthday cake and 27 could be crowded easily on a medium sized cake. If the subscriber wants to cut the cake in 27 good sized pieces, a candle to a piece, that's different. Can our readers help us out as to proper size and sayings? Dainty little rosebud candle holders for fastening to the cake can be purchased very cheaply at almost any general store. The recipe for two layer white cake given by Elizabeth Boswell in "Hints from Housekeepers" above we would recommend as a very nice birthday cake. If the recipe were doubled and the batter baked in large square pans it would make a large cake of good size for decorating with candles. A pretty idea is to have an extra candle in the center of the cake—a larger one—the "one to grow on."

Hulled Corn or Hominy

Please give formula for hulled corn or hominy.—Subscriber, Redlands.

Here are two recipes, one for lye and the other for soda hominy:

Lye Hominy: Select sound, white corn. To every gallon of corn use one tablespoon of concentrated lye. Cover the corn with water. Boil slowly until the skin comes off easily and the dark tips on the grains begin to come out. Wash thoroughly. Let soak (preferably over night) in cold water; drain; return to the kettle and boil in plenty of water until tender; put in a stone jar and set in a cool place and it will keep for several days. It may be canned and kept as long as desired.

Soda Hominy: Cover the corn with water. Add one tablespoon of baking soda for each cup of corn. Boil till hulls are softened and may be removed easily. Drain off the soda water and wash in cold water. Rub between the hands to remove any hulls. Wash repeatedly till all hulls are gone. Add boiling water to the corn and boil until thoroughly cooked.

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No pumping or patching or roadside repairs.

Ford, Maxwell and Chevrolet owners are getting 10,000, 15,000 and 20,000 miles of wear, in all kinds of service—on passenger cars and trucks—under all kinds of driving conditions.

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—the warm steady glow of a good oil heater filled with Pearl Oil. Whatever the day or the time, Pearl Oil is ready to give you cheerful warmth at the touch of a match. No smoke, no odor. Economical and ever-obtainable. Sold in bulk by dealers everywhere Order by name—Pearl Oil.

STANDARD OIL COMPANY
(California)

BEAN RECIPES THAT ARE DIFFERENT

Here are some interesting bean recipes taken from the December number of the California Bean Growers Journal:

Bean Polenta

One pint small or large White beans, 1 teaspoon molasses, ¼ teaspoon mustard, 1 tablespoon vinegar, 1 tablespoon salt, ⅛ teaspoon pepper, 2 tablespoons drippings.

Cook the beans until the skins break. Press through a colander or mash. Return to the kettle. Add other ingredients in the order given. Cook ten minutes. Serve hot or when cold cut into squares, dip in flour or egg and crumbs. Saute in drippings. Serve with tomato sauce.

Kidney Bean Scallop

Pick over, wash and soak two cups Kidney beans over night. Cook until tender and drain. Then add 2 tablespoons fat, 1 tablespoon finely chopped onion. ¼ cup tomato pulp, 1 teaspoon salt and ⅛ teaspoon pepper. Mix well, turn into a greased baking dish and cover with 1½ cups bread crumbs mixed with 2 tablespoons melted butter. Bake ½ hour in moderate oven.

Stuffed Peppers with Beans

One pint cooked small or large White beans, ½ cup tomatoes, 1 small onion minced, ½ cup bread crumbs, 4 tablespoons finely minced bacon or fat meat, 2 hard cooked eggs chopped, green peppers.

Cut green peppers lengthwise, remove all the seeds. Mix the remaining ingredients well. Fill pepper cups with the mixture, sprinkle with buttered crumbs over tops, place in a shallow pan. Add sufficient boiling water to half cover the peppers, and bake in a moderate oven until they are tender.

Beans and Spaghetti

Fry six thin slices of bacon until crisp; remove from the fire and keep hot. Into the fat put six large tomatoes, peeled and cut in small pieces; 1½ teaspoons salt, 1 teaspoon sugar, ¼ teaspoon black pepper, a minced green pepper, a small onion shredded, and 2 cloves. Simmer, stirring until cooked and thick like a sauce. Then add a pint of cooked Lima beans and 3 cups of cooked spaghetti, both of which have been cooked in salted water. Let all get very hot, pour on a deep platter, garnish with the bacon and parsley and serve.

Baked Baby Lima Beans

Put to soak in warm water over night, 1 pint of Baby Lima beans. In morning drain off water and add fresh boiling water, 2 tablespoons salt and teaspoon soda. Let simmer slowly until beans are somewhat soft.

Drain and put into bean crock and season with one-third cup molasses and 1 teaspoon salt and ¾ teaspoon mustard.

Score a piece of fat salt pork (one-fourth pound) and bury it in the beans. Add boiling water to cover and bake slowly four or five hours, uncovering the last hour of baking to brown beans.

REMOVE FRUIT STAINS PROMPTLY

Fruit stains should always be removed as soon after they are made as is possible. If still moist, an application of boiling water will be sufficient in most cases.

Stretch the stained material over a bowl or pan and pour the boiling water on the stain, holding the teakettle two or three feet above the material so the water will strike the stain with considerable force. It may be necessary to rub the stained spot and to make several applications of the boiling water, especially if stain has been allowed to dry.

Peach stains and fruit stains whose coloring matter is red or purple are often set by soap, so they should always be removed before the article is washed.

For persistent stains use lemon juice and sunlight, a three per cent solution of salts of lemon or a ten per cent solution of acetic acid alternated with the boiling water. If acid is used the article must be very thoroughly rinsed to remove all traces of the acid or the material may be weakened.

Acid should never be applied to colored materials, as it will remove the color.

SERBS LEARN TO CAN

American Red Cross workers, while in Serbia, taught the housewives to preserve fruit and vegetables. The scope of this work was limited by the lack of cans and jars, but in spite of the scarcity of containers many Serbian menus will boast green peas, beans, tomatoes, asparagus and canned fruits with their bread and meat next winter. And once having tasted such delicacies out of season, there will in the future be a ready market for them.

The only fruit which the Serbs have made any attempt to preserve heretofore have been the plums, great quantities of which are grown and exported. These are known as Bosnian prunes and are noted for their excellence. A very good syrup called "pekmez" is made from these prunes, and before the war great quantities of it were shipped all over the world, especially to Austria and Germany.

QUIETNESS

The individuals and the organizations that accomplish most function smoothly and quietly.

A noisy, boisterous employe usually is a disturber. His loud and incessant talk interferes with the concentration and, therefore, the efficiency of others.

The right kind of quietness often betokens capability.

Gabbers frequently are shallow.

Have you ever reflected that many of the most powerful forces of nature operate silently?

Thunder booms with the noise of a thousand cannons, but it is the silent lightning which possesses power.

The sun, on which all life on this planet depends, operates without suggestion of noise.

Frost tightens its titanic grip or splits mountainous rocks without heralding its approach by suggestion of noise.

That mysterious thing which we call time keeps on the even tenor of its way as quietly as the motionless air.

The electric current, the modern miracle worker of miracle workers, indulges in no screeching.

It is only the surface of the sea that ever becomes tumultuous; the depths are as silent as the grave.

The idea that in order to win popularity it was necessary to be a jolly, rollicking "good fellow" is out of date.

The business world today does not want blusterers but workers.

LIKE HEAVEN—NO PARTING THERE

About the only advantage a bald headed man has is that he knows, when he brushes his hair in the morning, it will stay that way all day.—Galveston News.

FRIENDLY BILL

The man I like
Is Bill McGuire;
He stops and helps
Me change a tire.

THEIR USE

Polly—I can't walk across the street in such a flood of water, can I?

Tommy—Why not? Aren't you wearing pumps?

IN THE CROWD

"Ye're in a pickle in this jam," shrilled the first old lady.

"Heaven preserve us," moaned the other.

A HOLSTEIN KING IN A KINGLY POSE.

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Sell *Your* Livestock.

You know cattle and horses and sheep and hogs. You know the pose that will bring out their strong points. The rest is easy. Kodak has so simplified photography that anybody can make good pictures—and it's less expensive than you think.

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World Beater

By Alfred M. Ghormley

ONCE more a seemingly unbeatable record has fallen, this time the world's yearly milk record, held so many years by Tilly Alcartra with a production of 33,425.3 pounds milk and 1,323.02 pounds butter in 365 days. This honor goes to Segis Pietertje Prospect, a Washington Holstein cow, owned and developed by the Carnation Stock Farms, Seattle, Washington, in whose hands she made her marvelous record of 37,380.1 pounds milk, 1,445.9 pounds butter in 365 days, having passed the record of Tilly Alcartra by approximately 4,000 pounds milk and 122 pounds butter.

Segis Pietertje Prospect, the new champion, is the highest exponent of those three great characteristics that all Holstein breeders are striving for, viz., good constructive breeding backed by individuality and production. "Prospect," as she is commonly known to her friends, was born April 10, 1913, on the farm of Geo. V. Leighton at Boise, Idaho. Mr. Leighton had acquired a very fine bunch of cattle in New York state, among which were King Segis 10th and Beauty Pietertje Clothilde, "Prospect's" sire and dam.

Details of Her Remarkable Test

She freshened on December 15, 1919, dropping a very fine bull calf sired by Dutchland Governor Sir Colantha, a son of Colantha Johanna Lad out of a daughter of Hengerveld De Kol. After freshening she came down with milk fever, but rallied quickly. She started on semi test December 18 and on official test on December 21, and made in her first seven days 686.4 pounds milk and 33.23 pounds butter, milking her high day 109.6 with an average test of 3.87 per cent. In January she was tested twice, making in her first two days, January 18-19, 212.3 pounds milk and 6.365 pounds fat. On retest she milked 226.2 pounds milk and 6.689 pounds fat. Her production for the month was 3,609.1 pounds milk testing 2.91 per cent and making 134.44 pounds butter.

During February she was again tested twice, making 234.4 pounds milk and 6.589 pounds fat the first time and 237.2 pounds milk and 7.076 pounds fat on retest. Her production for the 29 days was 3,360.1 pounds milk and 121.804 pounds butter. On her first test in March she made 235.3 pounds milk and 7.62 pounds fat. It was then decided to run her seven days again. This time she made her largest seven day milk record with a production of 858.9 pounds milk and 30.92 pounds butter in seven days, milking her high day 126.3 pounds. Her production for the month of March was 3,716 pounds milk and 137 pounds butter. This is her largest single month's work for milk.

In April she was again run for seven days, this time making the remarkable record of 808.6 pounds milk and 33.18 pounds butter, only .05 of butter behind her record made when fresh, and with an increased flow of 122.2 pounds in seven days. We believe this one of the most remarkable records she made, considering that it was done 120 days after calving. Her monthly production for April was 3,459.6 pounds milk and 140.97 pounds butter, her highest single month's fat production.

In May she was run on semi test, only making 214.1 pounds milk and 7.089 pounds fat in her two day period. Her monthly production was 3,367.1 pounds milk and 139.31 pounds butter.

She was run for seven days a fourth time in June, six months after calving, and made 743.1 pounds milk and 30.906 pounds butter, milking her highest day 111 pounds. As you check up these records you will note how consistent her production has been—never milking a startling amount for one day, but milking a remarkable flow at all times. This was the last time she was tested for seven days. Her production for June was 3,188.7 pounds milk and 131.135 pounds butter.

In September she was run two days, making 178.5 pounds milk and 5.49 pounds fat.

During October she was tested twice, once by Fred S. Martin, superintendent of official testing for the state, and her monthly production was 2,711.6 pounds milk and 104.725 pounds butter.

It was then decided to run the cow on official test her last 30 days in order that we might have one out of every four days of her test official work. Accordingly she was started officially on November 16 and continued until the end of her test. During November she produced 2,616.5 pounds milk and 98.12 pounds butter.

In December she was continued officially and at the end was tested under constant watch for 72 hours by Prof. F. I. Martin of Pullman and Prof. R. N. Coleman of Oregon Agricultural College. She completed her year at midnight, December 18, with the remarkable production of 37,380.1 pounds milk and 1,445.9 pounds butter. This gives her an average of daily production of 102.42 pounds milk, or 11.64 gallons, or 46.56 quarts, and a lead of 3,858.8 pounds of milk in one year over her nearest competitor.

ANOTHER BIG ONE IN THE MORRIS HERD

Miss Aaggie Acme Burke owned by A. W. Morris & Son has over 31 pounds butter first seven days on test. She is dam of the Baldwin $41,000 bull.

The World's Greatest
Segis Pietertje Prospect, producer of 37,380.1 pounds milk in one year.

GLENN COUNTY DUROC-JERSEY SALE

The Glenn County Duroc-Jersey Swine Breeders Association has made a change of date of its sale from January 25 to Monday, January 24.

For more gas engine power and economy this spring
–install the best piston rings now!

When a farm engine has wasted oil or gasoline, lost some of its power, or has had too many fouled spark plugs, carbon troubles, or repairs of this kind—the chances are that its piston rings are leaking. They are probably worn out—or imperfectly designed or made. Such an engine needs better piston rings if it is to give you complete satisfaction during your busy season.

Install the best piston rings now—while you have the time. Put a Supercyl Ring in the top groove of each piston to keep oil out of the combustion chamber. That will decrease carbon troubles and save lubricating oil. Put the real Leak-Proof Rings in all lower grooves. Their *equal radial pressure* keeps fuel from wasting past them. It is all compressed into power. Your dealer can sell you a size or over-size for every make and model of engine.

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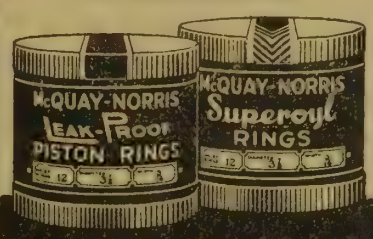

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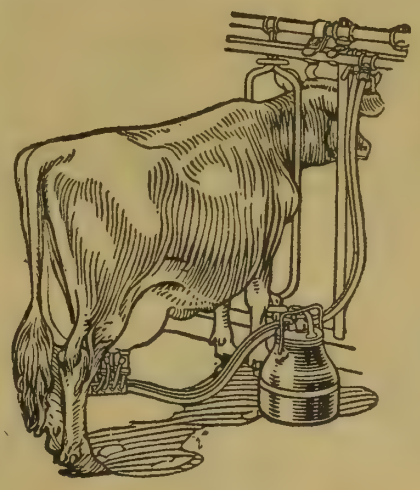

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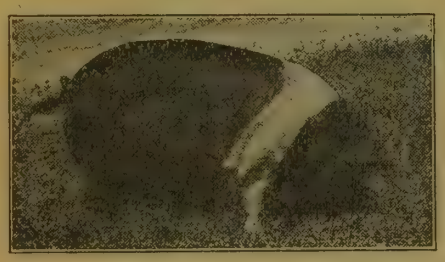

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Both Hampshires and Shorthorns in finest thrift. Call at ranch or address

F. A. Langdon, Mgr.
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Castleview Ranch Berkshires

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A few choice boar pigs for sale sired by the above boars. A few choice bred sows for sale at reasonable prices.

Castleview Ranch — Santa Rosa, Cal.

Cheap Protein

Cotton seed meal is proving much more attractive to the livestock feeder than it was with the prices which prevailed a year ago. One may now have a high quality product delivered in his home town for considerably under $50. In fact, it is now being used by some orchardists for fertilizer, but because of the oil content it is not as quickly assimilated by the soil as is the case after feeding. The requirements of the animal are for the fat as well as the protein so that if fed to the soil in the form of manure it is much more quickly available and double use is thus secured. For the livestock man there may be much of interest in the following quotation from "The Value of Cotton Seed Products in Feeding Animals," which treats of its value in supplying protein:

"Protein (or nitrogenous materials) is the name of a group of materials containing nitrogen. All other constituents of feeding stuffs, the ash, fat, and carbohydrates, are non-nitrogenous, or free from nitrogen. Protein materials are often designated as flesh formers, because they furnish the materials for the lean flesh; but they also enter largely into the composition of blood, skin, muscles, tendons, nerves, hair, horns, wool, and the casein and albumen of milk, etc. For the formation of these materials protein is absolutely indispensable. No substances free from nitrogen can be worked over into protein or fill the place of protein. It is then absolutely necessary for an animal to be provided with a certain amount of protein in order to grow or maintain existence. Under certain conditions it is believed protein may be a source of fat in the body; and finally it may be burned, like the carbohydrates and fat, yielding heat and energy.

"The sources of heat and energy in the animal, then, are the protein, fat and carbohydrates of the food and the fat and protein of the body, for the fat and protein of the body may be burned like that in the food. The value of the fat for producing heat is nearly two and a half times that of carbohydrates or protein. The sources of fat in the body are the fat, carbohydrates and, probably, the protein of the food; and the exclusive source of protein in the body is the protein in the food."

Henry's "Feeds and Feeding" says: "The cotton seed carires about 19 per cent fat, or oil, and nearly 20 per cent crude protein. Formerly much seed was fed in the South, especially to steers and dairy cattle. Now little is fed before the oil is extracted, both on account of the value of the oil and because cotton seed oil usually gives better results. At the oil mills the leathery hulls of the cotton seed, which are covered with short lint, are cut by machinery and the oily kernels set free. These kernels are crushed, heated, placed between cloths and subjected to hydraulic pressure to remove the oil. The residue is a hard, yellowish, board-like cake about one inch thick, one foot wide and two feet long. For the trade in the eastern and central states the cake is usually ground to a fine meal, for the western trade it is often broken into pieces of pea or nut size for cattle and coarsely ground for sheep, while the export cake is commonly left whole. Cotton seed is one of the richest of all feeds in protein and carries over eight per cent fat. The protein and fiber content vary considerably, depending chiefly on how thoroughly the hulls are removed from the meal.

Raising Standard by Selective Breeding

Raising the standard of farm animals and poultry and bringing out certain desirable characteristics by selective breeding is receiving more attention as methods of farming for profit become intensified.

The breeding of domestic animals dates back to remote antiquity, when the most advanced races of the Old World were still on the border line between savagery and barbarism. It far antedates any but the simplest mechanical arts. Yet while our knowledge of the laws of nature as they apply to machines has reached very great magnitude and complexity it is comparatively only a few years since the principles of breeding have been more than a collection of unrelated traditional beliefs.

Old Superstitions Still Current

The same superstitions on which the shepherds of Asia based their practices at least 30 centuries ago are still widely current, while the one sound principle known to the ancients, selection of the best for breeding stock, is still widely neglected.

The principles of successful animal breeding, as they have been learned by practical experience in the United States and older countries and by careful scientific study along definite lines, are outlined in Department Bulletin 905, recently issued by the United States department of agriculture.

This bulletin goes into the first principles of reproduction and follows the means by which certain characteristics of one or the other parent are transmitted to the offspring, the methods of selection best suited to intensify the desirable characteristics and weed out the undesirable, the characteristics which can with certainty be expected to continue from one generation to another, those which are uncertain, those which will blend and those which can not be inherited.

Aside from mere increase in numbers the purposes which the breeder is likely to have in mind fall under two more or less distinct heads, namely, production of a uniform product, and improvement. A uniform product depends on such control over the heredity of the stock that matings can be made with the assurance that the offspring will be of a certain definite type for which there is a demand. Improvement is, of course, closely related to control over heredity, but the methods which give the greatest control are not necessarily those which lead to the most rapid improvement.

A Basis for Selection

In a broad sense the whole subject of practical breeding comes under the head of selection. The most obvious basis for such selection is the performance of the animals themselves. Unfortunately, the merits of most kinds of livestock cannot be measured directly. The study of conformation as an index of useful qualities has accordingly held a high place as a basis for selection of breeding stock. Livestock judging has this for its purpose. An animal of good breeding is a better one to breed than one of equal individual merit but of mixed or common breeding. Pedigree, though often misused, is a valuable aid to selection, apart from following a general policy of mating. The soundest basis of all for selection of breeding stock is the record of past performance as a breeder, provided the record is sufficiently extensive to give a fair test.

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The bulletin gives many valuable pointers on the selection of cattle for milk and butterfat production and for beef; the breeding of sheep for wool and mutton; of hogs for pork; and of poultry for eggs and meat.

It falls in line with the "Better Sires —Better Stock" movement of the department of agriculture, by which farmers are being encouraged to build up their flocks and herds rapidly through the selection of pure bred sires. The new bulletin, which contains 67 pages and numerous charts and illustrations, is entitled "Principles of Livestock Breeding." It may be obtained at the nominal cost of 15 cents from Superintendent of Documents, Government Printing Office, Washington, D. C.

BUFFALO HERDS INCREASE RAPIDLY

The American Bison Society reports that in January, 1920, there were 3,393 wild and tame buffalo in the United States. This encouraging report sets at rest the very real fear that existed not long ago lest the native buffalo, which once roamed the western plains, would soon become extinct.

Of the nine government owned herds, two of the largest under the care of the United States department of agriculture are located in the Wichita national game preserve, Oklahoma, and on the national bison range at Dixon, Montana. The herd on the Wichita preserve now numbers 154, including 28 calves of this year. In this herd four bulls and 12 cows are ten years of age or over and one cow is 29 years old. The 15 animals that constituted the original Wichita herd came from the New York Zoological Park.

In accordance with the provisions made by the 1919 appropriation bill for their care, it is planned this year to dispose of some of the surplus buffalo in the government herds. Public parks and municipalities are the largest patrons. By distributing the animals over the country, if disease or misfortune overtakes the main herds, there still will be stock left with which groups could be built up again.

The buffalo in the United States have increased about 300 per cent in 12 years. In 1908 there were 1,116 wild and tame buffalo in this country; at the beginning of 1920 there were 3,393. Canada has a large number—5,080. This is due to the fact that several years ago, when the Pablo herd in Montana, belonging to Michel Pablo, a half-breed Indian, was for sale, the Canadian government bought the animals, sufficient interest not being exhibited by Americans at that time to make it possible to retain them in this country. The total number of wild and tame buffalo on the North American continent at present is probably more than 9,000 head.

NOTABLE GATHERING OF HORSE AND ALLIED INTERESTS

Delegates from the four quarters of the United States and Canada gathered at the convention just closed at Chicago and listened to the reports of the annual budgets, elected officers and discussed ways and means for the improvement of the horse and allied interests. This annual meeting of the Horse Association of America was marked by an enthusiasm and attendance which has never before been equaled.

Aside from dry statistics, Mr. Dinsmore reported the thorough and searching investigations carried on all over the United States by the representatives of the Association. The keynote of his talk was that the Horse Association is not dealing with theories but facts, hard, irrefragible facts, sought out, checked and verified, and the association is today prepared to furnish accurate data to all who are interested in costs of teaming, riding and driving.

The California Producers and Shippers Transportation Association has been organized. Its first act will be to petition the shipping board to investigate conditions and take action toward readjustment of overland rates. Market Director Daniels is aiding in the work.

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CREATORS ORIONS
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J. P. WALKER, Visalia, Calif.

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PROFITABLE FEEDERS

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Geo. W. Bell, Auctioneer
SPADRA, L. A. Co., Cal.
R. K. Walker, Hog Dept.

Thursday, February 17th
MAMMOTH DISPERSAL SALE
Falfadale Farm Durocs
Everything Goes, Including

Great Orion Sensation Junior

Grand Champion at Tulare, Los Angeles and Riverside
40 Fine Sows Bred to the Champion
A Lot of His Fall and Spring Pigs

B. H. Wilkinson, Mgr. PERRIS, CAL.
Col. G. W. Bell, Auctioneer Write for Catalog

Duroc-Jersey Public Auction

We are holding a consignment sale of Registered bred sows and gilts of the best blood on the Coast. Glenn Co. has always brought home her share of the coveted state fair prizes. The following are consignors: H. P. Slocum & Son, W. T. Hollingshead & Sons, C. D. Bright, D. F. Small, S. F. Sihorn, C. C. Fritz, A. Mudd, and others. Write for catalogue to

Glenn County Duroc-Jersey Swine Breeders Association
C. D. Bright, Secretary Glenn, Cal.

Watch La Tierra de Uva Durocs Pathfinders, Orions, Sensations
Three Top Boars

Fannie's Orion King assisted by Uneeda Orion B, 2nd prize aged boar at State Fair, 1920, and grand champion at Glenn County Fair, 1919, and Valley View's Sensation, 3rd prize junior boar pig and litter mate to 1st prize and reserve champion at State Fair, 1920, and a wonderful string of prize winning sows and gilts, including Miss Sensation, 1st sow pig and reserve champion at State Fair

C. C. ELLIS Exeter, Cal.

The Greatest Duroc Boar of His Age!
Choice Wonder 3d

Senior and grand champion boar of California. A consistent winner in the show ring, having been a winner as a junior pig at the Iowa state fair in 1919. He is siring a high class of young stuff and is being mated to a class of sows that will breed on.

Write for Prices. Satisfaction assured.

JUNE ACRES STOCK FARM V. F. Dolcini, Davis, Cal.

State Dairy Cow Competition

IN ACCORDANCE with announcement made, the California State Dairy Cow Competition, conducted by the college of agriculture, University of California, under the direction of Prof. F. W. Woll, opened September 1, this year, and will be continued for 17 months, closing January 31, 1922. The competition is a part of the campaign of the college for better cows and for better returns from the dairies of the state than are now realized by most farmers.

Cows producing over 50 pounds of butter fat during November are:

Johanna Heng. Cap., 65.74; Naomi NaD DeK, 57.06; Jean NaD DeK, 56.71; Holsteins belonging to Dean Beeman, Woodland.

Financial C's LorD, 82.23; Figge's Loretta, 58.59; Bonnie's Financial LorD, 66.80; Jerseys belonging to Bonnikson Bros., Ferndale.

Beauty, 51.97; Miriam, 60.83; grade Holsteins belonging to Albert Burger, El Centro.

Yama Princess, 69.07, Holstein belonging to Burr Farm, Los Angeles.

Olga Smith Fern, 61.03; Noble's Saida Polo, 67.80; Jerseys belonging to J. W. Coppini, Ferndale.

Ciruela Mecht. Pont., 56.27; Venetta Mecht. DeK P., 64.85; Ciruela Mecht. Col., 52.47; Holsteins belonging to R. H. Davis, Modesto.

Squaw Queen DeK., 71.75; Sarcastic Dora, 58.65; Holsteins belonging to M. J. and B. A. Edwards, Ripon.

Minnesota, 55.57; grade Jersey belonging to C. E. Fisher, Hughson

Maud, 61.24; Rose, 81; Spencer, 50.69; Tom, 74.4; Mousie, 73.19; Spot, 66.14; Jersey, 63.04; Peg, 51.53; mixed grades belonging to Earl Graham, Compton.

Cynthia's Ral., 52.07; Raleigh Echo G., 61.21; Marion Fancy, 55.19; Cynthia of D. V., 76.03; Jerseys belonging to H. G. Gross, Eureka.

Blue Bell, 70.09; Beauty Homestead, 57.63; Domino, 84.34; Princess, 83.06; Solano, 57.01; Madera, 53.96; Sunland P. T. Korn., 72.88; Whittier Segis P. M., 64.14; Betty Lincoln S. P., 54.04; grade Holsteins belonging to L. A. County Farm, Hondo.

No. 65, 64.0; No. 2064, 51.7; No. 2065, 60.6; No. 1010, 59.1; No. 1492, 57.9; No. 1946, 67.8; No. 2150, 51.6 No. 2616, 50.3; grade Holsteins belonging to F. F. Pellissier, Whittier.

All told there were 77 cows which during one of the three months of September, October and November produced over 50 pounds of fat. The list above includes, however, only those which produced above the 50 pounds during the month of November.

The highest production was that of the grade Shorthorn Rose, owned by Earl Graham of Compton, viz., 2,099 pounds of milk and 113.3 pounds of butter fat (test, 5.4 per cent). A pure bred Holstein and another grade also produced over 100 pounds fat. Other records came as follows: Between 70 and 80 pounds, 20; between 80 and 90 pounds, 9; and between 90 and 100 pounds, 3.

The records made by competition cows during the past three months are most creditable and show the high quality of the cows in many California dairy herds. Summaries for the three months given are as follows:

	No. of Cows	Avg. Production, Lbs. Milk	Butterfat
September, 1920..	43	1340	56.63
October, 1920.....	92	1290	54.06
November, 1920..	100	1293	50.03

The following dairy farmers have entered cows in the competition, most of them during the past month: Adamson Corporation, Van Nuys; Arden Dairy, El Monte; R. E. Babcock, Arlington; N. L. Browning, Hemet; J. M. Christen, Pacheco; W. R. Elliott, Riverside; John J. Kelly, Santa Ana; Guy H. Miller, Modesto; Napa State Hospital, Imola; Santa Anita Rancho, Santa Anita; J. E. Thorp, Lockeford; and Winsor Ranch, San Diego.

COUNTESS PRUE, NEW GUERNSEY CHAMPION

A new world's champion record of production for the Guernsey breed has been completed by Countess Prue, owned by F. L. Howes of Massachusetts. On November 29 she completed her year's work of 18,626.9 pounds of milk and 1,103.28 pounds of butter fat. Five other Guernsey cows have produced more than 1,000 pounds of butter fat, but Countess Prue is the first Guernsey cow to exceed 1,100 pounds of butter fat. The previous world's champion Guernsey cow was Murne Cowan 19597, whose record was 24,008.0 pounds of milk and 1,098.18 pounds of butter fat.

Countess Prue merits the fame which is hers for she is a great cow in type, individuality and breeding. It is not often that we have such a combination in one individual, although one should see her to really appreciate these facts. Her pictures indicate balance throughout, from the standpoint of individuality. She is large, weighing about 1,300 pounds, has splendid spring of rib, depth through body and heart, and breedy head, with the generous muzzle and nostrils that go with large digestive and lung capacity. She has good lines and an udder of excellent shape. One of her outstanding characteristics is her quality throughout, quality in hide, bone and the texture of the udder. She is a combination of refinement and strength, of beauty and utility. Not once while on test did she miss a feed through indisposition, and at the end is as full of vigor and as keen in appetite as at the beginning.

A study of the pedigree of this wonderful cow reveals the fact that she has an inherited right to her individuality, and that she is not in any way the sport of a mediocre family. Her sire, Bell-founder, has come to the attention of Guernsey breeders during the past year through the records made by his daughters. He has at present 16 daughters in the Advanced Register list whose 20 records average 12,627.72 pounds of milk and 642.26 pounds of butter fat.

It is interesting to note that of these 20 records, completed by the 16 daughters of Bell-founder, one is over 1,100 pounds, one in the nine hundreds, one in the eight hundreds, three in the seven hundreds, four in the six hundreds, seven in the five hundreds, and only three under 500, the least being 418.78 pounds of butter fat. Countess Prue has a previous record made in class B of 13,172.9 pounds of milk and 709.21 pounds of butter fat.

The new world's champion was born December 20, 1912. She has two daughters, Prudence of Falcon's Flight, sired by a grandson of Imp. May Rose King, and Duchess Prue of Riverdale, sired by Cottina's Goldseeker of A. D. F. Duchess Prue of Riverdale was born just previous to the beginning of this epoch making record.

MILK LUNCHES IN THE SCHOOLS

There has been going on quite largely through the schools of the state of Indiana an educational campaign for a larger use of milk and butter. In a great many instances this work is being taken up by the cities and the schools in a very systematic way. They are encouraging in some way the use of milk in connection with their school lunches, and this work not only results in the use of more milk, but each child who consumes this milk forms the basis of a demonstration to their families which will certainly show that milk is the proper food for growing children. An illustration of how effective this work is becoming is shown by the work that is being done in Indianapolis. Last winter a School Lunch Association was organized as a result of a demonstration that had been previously conducted in a number of schools. This association has worked out a plan of financing their work, and in cooperation with the school authorities a school lunch director has been appointed and is now at work. This director reports that the milk lunch is being used as the basis of her work. She reports that during the second week which this lunch was in progress, milk was served in 69 schools to 16,000 children; 71,938 half pints of milk were used during the week, and of this number 694 were served free of cost to needy children and 1,671 additional half pints were served for part payment by the children. The remainder of the milk and the remainder of the lunch were all paid for by the children themselves. This is certainly an excellent piece of work. Equally as good results are being obtained in many other cities of the United States, all of which contribute to the stability of the dairy business.

DIAMOND BAR SALE

When Bob Walker took charge of the Durocs at the Diamond Bar Ranch he culled the herd until it began to look as though there wouldn't be many left. What were retained were real ones, though, and for the big sale on February 16 he has chosen many of the best ones of the picked lot. Bob is a mighty good judge of hogs and he wants to sell something that will make good for the purchaser.

The sows and gilts selected for the sale include three by old Pathfinder, two by Orion Sensation, a littermate to the world's grand champion, Great Orion Sensation, eight by Mammoth Sensation Jr., four by Great Pathfinder, the Putman boar of Tecumseh, Nebraska, one of these gilts being out of Model Maud, the $6,000 first prize senior yearling sow of the 1919 National Swine Show; others by High Pathfinder, Great Model, Creator, and one show gilt by Ace of Pathfinders. This one is Cherry Duchess 2d, the first prize and reserve junior champion gilt at the Los Angeles Livestock Show last fall. She will be bred to Diamond Sensation, a good son of Great Orion Sensation, that the Diamond Bar Ranch is growing out as a herd boar prospect. Being out of a Pathfinder dam, he makes an exceptionally well bred boar to cross on gilts sired by Ace of Pathfinders and Mammoth Sensation Jr.

SWINE REGISTERED LAST YEAR

Geo. A. Stingle, a Berkshire man of El Monte, has secured from the National Swine Growers Association figures as to the number of hogs registered during last year. Quoting from his letter from the association:

"The number of hogs recorded as reported to us by the several asso-

McCracken's Dispersal Sale
OF
Big Type Poland China Sows and Gilts
Ripon, Cal., Monday, Jan. 24th, 1920

I will sell 30 bred sows and gilts, the tops out of 200 head. Sired by the leading boars of the breed, such as Caldwell's Big Bob, Surprise Prospect, Giant Bob, etc.

Mostly bred to King's Big Bone Leader, Grand Champion at Sacramento in 1918 and sire of the 1920 champion. King's Big Bone Leader as well as Waukeen Prospect, the $1,100 gilt and three of her fall boars will be in the sale. Write for information and arrange to attend.

Les McCracken **Ripon, Cal.**

POSTPONED SALE
—OF—
POLAND CHINA HOGS
At Orland, Cal., Wed. Jan. 5th, 1921

On account of weather conditions, I have postponed my sale until January 5th, at which time I will offer 60 head, including 30 spring gilts, 10 fall yearlings, 10 tried sows and a few young boars sired by Long Jumbo, Yates Big Orphan, Glenn Chief, Young Hadley and bred to Yates Big Jones, Y. C. 4, Reformer and Black Bob. Write for catalog.

R. J. Yates **Orland, Cal.**

LENDORRIS RANCH
Big Type Polands

We are offering a number of fine gilts by Lendorris Liberty Bond bred to Lendorris Liberator—a half-brother to the grand champion of this year's National Swine Show—for March litters.

W. L. Haag and Son, Hanford, Cal.

Sows and Gilts---GET ONE

Bred to farrow next two months. We are making an extremely low price on these to reduce our herd. At the price we won't keep them long. Write today. Quick before they are all gone.

H. P. Slocum, Willows, Cal.

clations for the calendar year for Duroc-Jerseys, Poland Chinas, Berkshires, Hampshires and Chester Whites is as follows: Durocs, 159,111; Polands, 150,870; Berkshires, 19,970; Hampshires, 63,980; Chesters, 32,793.

FALFADALE FARM SALE

The decision of B. H. Wilkinson, manager of the hog department of Falfadale Farm, to change his place of employment to the Sierra Vista Ranch, owned by Cash & Kyne, has caused the Falfadale owner to make a complete dispersal sale of the big herd of Durocs he has been keeping. On February 17 everything is to be offered for sale at the farm near Perris. There will be 40 bred sows and gilts of Grand Model and Winsor's Giant Orion breeding. These will be bred to Great Orion Sensation, junior grand champion at Tulare, Los Angeles and Riverside, and a son of the world's champion boar, Great Orion Sensation. Then there will be a number of the grand champion's sons and daughters of late spring and fall farrow.

The big feature of the sale will be the great boar himself. He will walk into the ring and whatever Colonel Bell can get for him will be his price. It is a big chance to take on so valuable an animal, but the owners want to settle up the business and that is the most satisfactory way to do it.

STATE RECORD HOLSTEIN AT SANTA ANITA

Anoakia Walker Pontiac, one of the fine daughters of Prince Gelsche Walker in the big herd at Santa Anita Rancho, has just finished a seven days record of 27.33 pounds butter from 455.6 pounds milk as a senior two year old. This record is a few tenths of a pound higher than the record held by the Gotshall and Magruder heifer and gives the Santa Anita youngster the record for the state. Anoakia Walker Pontiac is out of Molly Woodcrest Pontiac, a former state record cow in the same class. May Altonia Pontiac, the dam of Anoakia Gelsche Pontiac Walker, the 27 pound three year old, has just finished a record of 34.87 pounds butter from 567.6 pounds milk.

The Santa Anita herd includes some exceptionally fine stock and under the care of E. J. Sturgis and James Adams they are making excellent records.

FARM SLAUGHTERING

Meat clubs and simplifying and cheapening the effort to secure a proper meat supply for the farm, without contributing unduly to the profiteer, has become a serious problem in many sections. To meet the need of information along this line the department of agriculture has issued and is now mailing "Farm Slaughtering and Use of Lamb and Mutton." In the preface is suggested:

The production of sheep for wool alone is rapidly on the wane in the United States. More and more emphasis is being placed on the production of lamb and mutton for the table. The future success of this industry will depend upon a strong, steady market, based upon an increasing consumption.

Only 3.9 per cent of the meat consumed by the average American for the last five years was lamb or mutton. This proportion should be much larger, as mutton and lamb are among the most healthful, nutritious, and palatable of meats.

The ease with which sheep and lambs are slaughtered on the farm and the comparatively small size of the carcass make them a most convenient form of fresh meat for family use and for summer killing. The meat can also be cured for future use.

This bulletin contains a discussion of the methods employed in slaughtering the animal, cutting up the carcass and curing the flesh; also recipes for cooking the meat.

DOCKING AND CASTRATING LAMBS

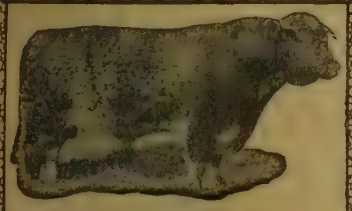
Docking and castrating of lambs when they are between ten and 20 days of age is recommended by W. F. LaGrange of the North Dakota agricultural college. The tail should be cut about one inch from the body with a docking chisel, shears or knife. A three-fourths inch board with a hole in it for the lamb's tail to pass through is convenient. A blunt chisel or tin shears may be heated to a cherry red, and the cutting performed slowly to sear the blood vessels and prevent bleeding.

To castrate, as in docking, a helper should grasp the two right legs of the lamb in one hand and the two left legs in the other. With a sharp, disinfected knife, the operator cuts off the bottom third of the scrotum or bag, then gently forces the testicles out. With the knife he cuts the peritoneum, which is the membrane covering the testicle. It is then pulled out with the cord. Hands and tools should be disinfected before operating. A mild disinfectant can be used to wash off the parts operated on.

Yuba County proposes to give work to its idle on the highways.

The number of farms in the twelfth federal reserve district, including the states of Arizona, California, Idaho, Nevada, Oregon, Utah and Washington, is 60,997 more than last year, an increase of 24 per cent. The increase in the entire United States was 1.4 per cent.

CALEDONIA SHORTHORNS



Imp. Caledonia

Caledonia Shorthorns constitute one of the choicest collections of the breed owned in America. Our herd bulls, Imp. Caledonia, Gainford Matchless, grand champion at the 1919 San Francisco show and Pine Grove King stand out prominently in the West. Our females represent choice Scotch and American families, and are noted for their type and quality. We can at all times furnish foundation material and bulls suitable for any herd or for the range. Our prices are moderate and every animal is guaranteed. Visit our farm and herd. Send for special bull list.

CALEDONIA FARMS
WEST SACRAMENTO, CALIF.
OFFICE-57 POST ST. SAN FRANCISCO.

HOLSTEIN CATTLE

Fred H. Lee, Plymouth, Michigan, writes:

"I have 26 head of Pure bred Holsteins, all descendants of my two original cows. I have become owner of a large farm, near Detroit, which otherwise would have been impossible. I have not been able to back Holsteins but Holsteins have had to back me."

Send for Free Booklets
The Holstein-Friesian Association of America
120 American Bldg., Brattleboro, Vermont

JERSEYS

Venadera Herd
REGISTER OF MERIT JERSEYS
Offers two cows six years old that have yearly Register of Merit records. Also a few bull calves sired by Jap's Perfection Owl.
GUY H. MILLER
Route 1, - Modesto, Cal.

Young Jersey Bulls For Sale
One at the head of your herd will pay big dividends on his cost. Write to
W. J. Hackett
Modesto Cal.

Jersey Bull
FOR SALE
A fine straight one, bred right, priced right.
S. F. Williams
Chico, Cal.
Member Orland Jersey Cattle Club

California Breeders
have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.
California Breeders Sales & Pedigree Company
C. L. Hughes, Sales Mgr. Sacramento, Cal.

The Healthy Cow, the Hungry Cow is the Business Cow

She's the cow that will convert her feed of grain and fodder, into pails of milk.

Remember, the better the appetite, the greater the food consumption, the greater the milk production. Hence, good health, a strong appetite and good digestion are the absolute essentials of a big milker.

Dr. Hess Stock Tonic
Keeps Cows Healthy It Makes Cows Hungry

It contains Nux Vomica, that greatest of all nerve tonics. It whets the appetite, brightens the eye and invigorates the system. It contains Quassia, that bitter stomachic tonic that produces appetite. It contains Iron that helps to replenish rich red blood, so essential to a cow in milk.

Lastly, but just as important is it—it contains Laxatives and Diuretics, that cause the kidneys to filtrate and the bowels to operate regularly, so as to throw off and carry off the waste material. There is no clogging of the system where Dr. Hess Stock Tonic is fed.

Good alike for cattle, horses, hogs and sheep. It keeps animals healthy, the whole herd thrifty. It expels worms. Always condition your cows for calving with a course of Dr. Hess Stock Tonic before freshing.

Dr. Hess Stock Tonic is compounded strictly on scientific lines. You buy it according to the size of your herd. Tell your dealer how many cows you have. He has a package to suit. We guarantee good results in the milk pail.

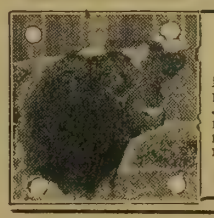
25 lb. Pail, $3.50 100 lb. Drum, $12.00
Smaller packages in proportion.

DR. HESS & CLARK Ashland, Ohio

Dr. Hess Dip and Disinfectant
Keeps the Dairy and Stables Healthful and Clean Smelling

The Victory Herd of Holsteins
Holsteins of known value, headed by Sir Piebe De Kol Segis Pontiac, a son of King Segis Pontiac Count, acknowledged one of the breed's greatest sires, and our junior herd sire, King Pontiac Alcartra Prilly, whose dam made 36.61 lbs. butter out of 805 lbs. milk in 7 days, now on yearly test. A young bull from this herd is a profitable investment.
HILLCREST FARM, H. E. Spires, Mgr., Caruthers, Cal.
Duroc-Jersey Swine of Highest Quality

Home of King Korndyke Pontiac Mead
Bargains In Bull Calves from Tested Dams.
Top Herd in U. S. for Fat Production of 100 Cows.
LOS ANGELES COUNTY FARM HOLSTEINS
HONDO, CALIFORNIA
Three Miles South of Downey on Downey-Long Beach Blvd.



CHANGE IN RULES
No animal over two years of age will be accepted for registry in the American Shorthorn Herd Book after February 1, 1921, or in the case of animals imported from Great Britian or Canada two years after date of importation. After January 1, 1921 a fee of $5 will be charged for entering the pedigree of an animal between one and two years of age. Formerly the charge was $10. Seller must furnish transfer and pay transfer fee. Twin animals must be entered for registry at the same time.
AMERICAN SHORTHORN BREEDERS' ASSOCIATION
13 Dexter Park Avenue Chicago, Ill.

WINSOR RANCH GUERNSEYS
Herd Headed by
VEDA'S MAY KING OF EDGEMOOR
GRAND CHAMPION AT LOS ANGELES, 1920
Morris C. Allen, Mgr. BONITA, CAL. Francis Brown, Karl Haffly } Cattle Dept.

"A Wonderful Herd"

That is the phrase most often heard from breeders who have visited the outstanding herd of registered Holsteins developed by Jas. J. Jeffries.

It is a matter of keen regret throughout western Holstein circles that Mr. Jeffries feels that he must sell this great herd, owing to the demand for his entire time and attention made by his oil and mining interests. The herd will be absolutely dispersed.

Thursday, February 3, 1921
Jeffries Ranch, Burbank, Cal.

The offering is noteworthy in more ways than one, some of the features among the individuals which total

65 Registered Holstein Cows
Heifers and Bulls

being: The highest 7 days record cow ever sold in California; the highest yearly record cow ever sold in California; the wonderful Grand Champion 2 year old K. S. P. J. Pet Segis and her full brother; all of the sensational show animals that featured the Jeffries exhibit at Los Angeles in 1920; a wonderful uniformity of type throughout the herd; a large number of 29 pound cows; a number of great cows and heifers making splendid yearly records; AND KING SEGIS PONTIAC JANNEK, the sire of outstanding type, and his first daughters in milk indicate great production as well.

In short this is an offering that should attract the buyer of the very best, for it is given to few breeders to develop a herd of equal merit in so short a time, or to be so fortunate in the outcome of their first herd sire.

BREEDERS, don't wait until sale day to form your companies to buy KING SEGIS PONTIAC JANNEK. Decide the matter with your neighbors or associates well in advance of sale day, and rest assured that someone is going to take home from this sale possibly the greatest proven sire that has ever been sold at public sale in the West.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer, except as announced in the sale ring.

Catalog free on request. Write for one.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.
Auctioneers: Rhoades & Rhoades, Los Angeles

ABSOLUTE DISPERSAL SALE

66 REGISTERED HOLSTEINS 66

Rhoades and Rhoades New Sale Pavilion
Hynes, Cal.

Saturday, February 5, 1921

This is a closing out sale of the herd owned by W. A. Thompson, Holtville, California, and contains a particularly well bred lot of cattle, mostly young. Included in the list are daughters of such sires as King Mead of Riverside, Prince Gelsche Walker, King Morco Alcartra, King Pontiac Ruby Burke, Arcula Alcartra Sir Korndyke, Juliana King of Rock, and others.

The sale list includes a considerable number of young daughters of King Morco Alcartra, Jr., who is by King Morco Alcartra, son of Tilly Alcartra, and out of Aaggie Acme Burke, a daughter of Segis Pontiac De Kol Burke and the great foundation cow Aaggie Acme of Riverside.

The cows in the sale are substantially bred and include those with official records up to over 27 lbs. butter in 7 days.

CATALOG OF SALE FREE ON REQUEST

Management

California Breeders Sales and Pedigree Company

C. L. HUGHES, Sales Manager, Sacramento, Calif.
Auctioneers: RHOADES & RHOADES, Los Angeles

Maxwell Farms' Holsteins

Sir Ormsby Skylark
Sire of the World's Champion Cow

The fountain head of the Ormsbys with over 50 daughters of Sir Ormsby Skylark in the herd which has two sons of Sir Pietertje Ormsby Mercedes at its head. Write for our sales catalog of service bulls.

D. G. Maxwell, Owner

Garden Court, Hollywood, Cal.

When Writing Advertisers Mention California Cultivator

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
February 3, James J. Jeffries, Burbank.
February 5, W. A. Thompson, Hynes.

Hampshires
February 8, Ortega-Underhill Ranch, Santa Barbara.

Poland Chinas
February 15, Bassett, Ross & Crawshaw, Hanford.

Berkshires
February 1, Italian Vineyard Company, Guasti.

Durocs
February 16, Diamond Bar Ranch, Spadra.
February 17, Falfadale Farm, Perris.

Percheron Horses
February 17, M. Bassett, Hanford.

Professor R. F. Miller, acting head of the animal husbandry department of the college of agriculture, is engaged in perfecting plans for the annual stockmen's week to be held at the university farm, Davis, the last week in February. A feature of the week will be the holding of several sales of registered livestock under the auspices of the different state breed associations.

At the annual meeting of the Orland Jersey Cattle Club M. Fortini was elected president; Kirby Clark, vice president, and W. H. Gurnett, secretary. The club expects to promote a number of calf clubs during the coming year.

Thirteen boys who are members of the Houston district school pig club have issued a challenge to all the grammar school pig clubs in San Joaquin County to participate in a feeding contest to extend 120 days.

F. W. Kiesel, Sacramento, owner of the Jane Garden herd of Holsteins, reports the following new records made under the direction of Harry L. Redd: Mansell Korndyke Francis, a senior three year old daughter of Adventurer Lad and Uneeda Korndyke Francis, 34.10 pounds butter from 484.2 pounds milk in seven days. This record is the third highest in class for California. Her dam, Uneeda Korndyke Francis, has recently completed a seven day record of 26.9 pounds of butter from 690 pounds of milk. Rest Easy Pontiac Veeman, a senior four year old, has to her credit 29.21 pounds of butter from 439.4 pounds milk in seven days, her average test being 5.29. Jane Garden Viola De Kol, a junior two year old daughter of Sir Aaggie De Kol Acme and the 25 pound cow Meadow Holland Nudine, has made 19.13 pounds from 446.5 pounds of milk. A large number of Jane Garden cows are to be tested during the next few months and Herdsman Redd is confident that in the lot are several that have great possibilities.

The annual sale of Shorthorns held under the auspices of California Shorthorn Breeders Association will take place at the university farm, Davis, February 22, during stockmen's week. The offering will be drawn from most of the prominent herds of the state.

The annual meeting of the Nevada Livestock Association will be held at Reno January 7 and 8.

The state department of agriculture and the California Cattlemen's Association are proposing legislation to make possible the inspection of all meat and meat products offered for sale in this state. At the present time the only form of inspection operating in California is that provided by the United States department of agriculture for meat prepared for interstate shipment, and by certain cities having local regulations.

Thursday, February 3, is the date announced by A. B. Humphrey, Escalon, for his sale of high class Berkshires from the Grapewild herd. He will sell 30 selected sows and gilts and possibly a few choice boars. This sale following that of the Italian Vineyard Company sale at Guasti on February 1, will give buyers an excellent opportunity to attend both sales.

J. G. Throckmorton, Sebastopol, had a few more Berkshire sows than the crowd could take at his recent sale. He reports the sale of a sow to Geo. Turner, Sebastopol, for $100 and the sale of two gilts to Mrs. Livingston, Oakland, for $155 and $200 each. This just about closes out the entire herd. Mr. Throckmorton has expressed himself as highly pleased with the prices received.

The dispersal sale of Poland China hogs by Les McCracken, Ripon, will close out one of the largest herds of Poland Chinas in the West. The sale offering will be the tops of about 200 head of sows and gilts. Among these will be the $1,100 gilt Waukeen Prospect. The 1918 grand champion boar King's Big Bone Leader will also be sold at this time and it is to be hoped that a boar with the prestige and standing this boar carries will go to head some good herd.

Guy H. Miller of Modesto has sold his junior herd sire, Wanda's Altama Interest, to Mrs. B. F. Williams of Sebastopol, Sonoma County. This is one of the most promising young Jersey bulls in California. He is richly bred and is a show bull as well, having been a prize winner at 1919 and 1920 fairs. He is sired by Altama Interest, one of California's most noted show bulls, and sire of 15 daughters and one son in the Register of Merit. The dam of Wanda's Altama Interest is Wanda of Venadera. Wanda has a Register of Merit record of 531 pounds of fat in a year at ten years old. She has four daughters in the Register of Merit, has been first prize and senior champion winner at the state fair. She is now nearly 15 years old, is entered in the state dairy cow competition and made 50 pounds of fat last month.

Guy H. Miller of Modesto reports the recently completed yearly test of the two year old Jersey heifer, Eloise of Venadera. For the year she gave 6,166 pounds of milk, average test 5.80 per cent, making 358 pounds of butter fat. Eloise is sired by the sire, Altama Interest, and is his fifteenth daughter to qualify for the Register of Merit.

The Jersey cow Hecla's Margery in the herd of D. F. Conant at Modesto has recently finished a yearly Register of Merit test, making 591 pounds of butter fat. Her sire is Foxy Underwood and her dam Foxy Hecla, a granddaughter of Champion Flying Fox. Lady Kate's Rosette, another Jersey in the Conant herd, has finished test, making for the year 583 pounds of fat. Rosette is sired by Mr. Conant's former herd sire, Pansy's Gertie's Lad, and her dam is Victor's Lady Kate, a daughter of the famous Connecticut bull, Lady Letty's Victor, sire of 29 cows in the Register of Merit. The cow Lambert Glory's Pearl, another of the Rancho Santa Marguerita herd owned by Mr. Conant, has qualified for the Register of Merit with a yearly test of 511 pounds of fat. She is also sired by Foxy Underwood and is his second daughter to enter Register of Merit with a test of over 500 pounds of fat in a year. Foxy Underwood was bred by Guy H. Miller and was selected from Venadera herd when a calf by Mr. Conant as his first herd sire. He is sired by Margery Goldens Fox, his dam, Pearl of Venadera, test 702 pounds of fat in a year.

The Jersey cow The Owls Nymph, bred by L. V. Walkley of Southing ton, Connecticut, brought to California by G. O. Hillier and now owned by D. F. Conant, has qualified for Register of Merit by making a yearly record of 507 pounds of fat. Nymph is a granddaughter of the famous bull Spermfield Owl, sire of 49 in Register of Merit.

W. L. Boldt of Escalon has purchased of D. F. Conant a yearling Jersey bull sired by Goldie's Altama Interest, out of Belle's Goldie of R. S. M., a daughter of Pansy's Gertie's Lad and a granddaughter of Victor's Lady Kate, the great foundation cow in Mr. Conant's herd. Mr. Boldt is laying a good foundation in starting a registered herd of Jerseys.

Richer Cream

A SOURCE of profit which is often not fully realized is in the ordinary wastes, for instance, skimmilk. Many dairymen have realized the value of this by-product and are provided with separators, but even then fail in getting full return. This, in part, because of being content with separating on a 20 or 25 per cent basis. The De Lavals are sending out a little pamphlet touching upon some of the advantages of richer cream and from it we quote:

There are four important factors which will enable the farmer to produce a better quality of cream: cleanliness in producing and handling the the cream; control of temperature on the farm and in transporting cream to the market; frequent delivery of cream to the market, and richness of cream.

All the above factors are very important for improving the quality of cream. Many creamery patrons firmly believe that sour cream tests higher than sweet cream and give that as their reason for not producing sweet cream. This is a mistake because the sourness of cream has no appreciable effect upon the butter fat content and does not show a higher test.

Richness of cream has a direct bearing upon the other three factors and, since all progressive cream patrons have a centrifugal cream separator, it is quite important that the creamery management insist upon rich cream or cream testing between 30 and 45 per cent butter fat. Rich cream means better quality of cream for four important reasons.

Why Rich Cream Is Best

Rich cream does not sour as quickly as thin cream.

Rich cream means a smaller amount to be taken care of, hence it is likely to be more thoroughly cooled and receive better care.

Rich cream can be pasteurized in the creamery with less loss of butter fat in the buttermilk.

Rich cream permits of the use of a larger amount of good starter.

Other Advantages of Heavier Cream

In addition to making it possible to produce better butter and hence give a higher price to the patron, rich cream has other very decided economic advantages over thin cream.

For instance, it means that more skimmilk is retained on the farm for feeding purposes; the cost for transportation is materially less, the benefit of which falls directly upon the patron.

When the creamery receives both milk and sweet cream, the cream patron should receive more per pound for the butter fat he delivers than should the milk patron because there is always a certain amount of butter fat left in the skimmilk, and this, of course, does not reach the cream vat. For every 100 pounds of butter fat delivered to the creamery in the form of whole milk only 97 pounds reaches the cream vat. whereas in the case of cream, all of the butter fat delivered reaches the cream vat. The loss will, of course, vary more or less, but the above amount, or three per cent, is, according to Professor Farrington, about the average.

Loss in Skimming Thin Cream

A proportionate loss to the creamery occurs in the case of the patrons who deliver 20, 25, 30 and 35 per cent cream against the patron who delivers 40 per cent cream.

Indeed the relative difference will be even greater, because the loss of butter fat in the buttermilk is almost invariably greater than the loss of butter fat in skimmilk, because thin cream gives a larger amount of buttermilk than does cream testing between 30 and 45 per cent of butter fat.

Take for example milk testing 3.5 per cent and five lots of cream testing 20, 25, 30, 35 and 40 per cent, respectively. How will the loss compare?

It will take: 2,857 pounds milk testing 3.5 per cent to equal 100 pounds butter fat; 500 pounds cream testing 20 per cent to equal 100 pounds butter fat; 400 pounds cream testing 25 per cent to equal 100 pounds butter fat; 333.33 pounds cream testing 30 per cent to equal 100 pounds butter fat; 284.64 pounds cream testing 35 per cent to equal 100 pounds butter fat; 250 pounds cream testing 40 per cent to equal 100 pounds buter fat.

Under normal conditions 85 per cent of the whole milk is skimmilk and ten per cent is buttermilk.

If the average per cent fat in the skimmilk is .1 per cent and in the buttermilk .3 per cent, then the total fat loss in 3.5 per cent milk delivered will be 3.28 pounds, leaving 96.72 pounds of butter fat. Again quoting Professors Farrington and Woll's "Testing Milk and Its Products," 22nd edition, page 192: "Certain mechanical losses are unavoidable in the creamery, as in all other factory operations, viz., milk and cream remaining in vats and separators, butter sticking to walls of churns, etc. These losses have been found to average three per cent of the total fat in the milk handled under normal conditions and under good management." This will leave only 93.72 pounds of butter fat available for butter. Taking the legal standard 80 per cent butter fat in butter, the largest amount of butter that can be manufactured from this would be 117.15 pounds, or an overrun of 17.15 per cent.

C. D. Hayworth of Modesto reports the recently completed Register of Merit test of the four year old Jersey cow Goldie of Rico Vegas, bred and owned in Mr. Hayworth's herd. For the year she made 574 pounds of fat and, like other cows of Stanislaus Jersey breeders, was fed and milked twice daily while on test. She has made an excellent record for a heifer with second calf. Goldie is sired by Lorna's Altama Interest, sire of nine young cows in Register of Merit.

One million acres of waste forest land in the United States is today producing nothing of value. This area, greater than the combined forest areas of Germany, France, Belgium, Holland, Spain, Portugal, Denmark and Switzerland, could be made into splendid productive forests.

Guernsey Females

Our herd reduction sale still continues and there is a lot of fine Imported and A. R. cows with high production records and show ring honors left to be sold. We are also offering the choicest lot of young stock ever in one herd in the West. A number of bulls of all ages from the above sired by King of Hollow-Hill and Effie's King.

Also 30 head of females 15/16 Guernsey that will make wonderful family cows.

All T. B. tested and guaranteed breeders.

Everything Priced Reasonably.

Hollow-Hill Farm

Colton, California

Revada Guernseys

At Public Auction

Revada Ranch **Yountville, Cal.**

Thursday, January 20, 1921

54 Registered Guernsey Cows, Heifers and Bulls

THE COWS—Are mostly imported, representing some of the richest breeding of the breed, and including daughters of Governor of the Chene, Raymond of the Preel XIII, Robert's Secret, and other sires of most fashionable pedigree.

THE HEIFERS—A very large percentage of the female offering is made up of heifers ranging in age from calves up to bred heifers, many out of imported dams and by such sires as Itchen Daisy May King of Langwater, Imp. Ricardo of Edgemoor, Auricle's Cherub of Edgemoor, and other sires of most desirable breeding. These heifers present a most excellent opportunity to secure foundation females of excellent breeding.

THE BULLS—Never before has the public been offered an opportunity like this, in California, for the purchase of registered Guernsey bulls, and breeders and dairymen alike should find selections to meet their requirements here. The bulls range in age from calves up to service age, and include several sons of Itchen Daisy May King of Langwater, whose splendid breeding and individuality commanded the then world's record price for a bull of the breed, $8,000.00 when he came to head the Revada herd.

Every animal is positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer, except as announced in the sale ring.

REVADA HERD was established some years ago by Mr. B. E. Nixon, who spared neither trouble nor expense in securing the foundation animals. Both the ranch and herd are now owned by Mission Land & Cattle Co., who have other plans in mind for the ranch and are making an absolute dispersal of the Guernsey herd in this sale.

REVADA RANCH is located nine miles north of Napa, California. Sale headquarters will be at Palace Hotel, Napa, from which point arrangements will be made for transportation on morning of sale for those who come in by train. SALE BEGINS PROMPTLY AT 10 A. M.

A FEW GRADE GUERNSEYS WILL SELL THE SAME DAY

Catalog of sale free on request to management.

Auctioneer:
Col. Ben A. Rhoades
Los Angeles

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

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POULTRY

The Last 50 Eggs Measure the Profits—Our 180-290 egg strain Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, Blue Andalusians (ducks, turkeys) often clear customers $5 annually. Largest southern shippers of CHICKS. Price always reasonable; reduced delivered soon or booked for delivery any month until April. Hundreds satisfied customers repeat orders often. Proof, valuable information free. SURPLUS PULLETS, HENS, MALES AT BARGAIN. Write (am rarely home) Profitable Poultry, 151 North Fair Oaks, Pasadena, California.

Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

For Sale—One million S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock for spring 1921 delivery. January prices $5.00 per 25, $10.00 per 50, $18.00 per 100. Special prices 500 and 1,000 lots. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Order early chicks now and realize big broiler profits. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., 438 Seventh Street, Petaluma, California.

We Can Supply strong, vigorous chicks guaranteed Tancred Strain from trapnest parent stock, 290 egg male birds, 240 and better female birds. These birds will grade up your flock. Price $20.00 per hundred f. o. b. Seattle. QUEEN HATCHERY, Seattle, Washington.

Baby Chix—S. C. White Leghorns from open range standard bred parent stock of utmost utility. Protect yourself in having your order booked early. Prices, etc., on application. I. X. L. Hatchery, 519 Upham Street, Petaluma, Sonoma County, California.

Baby Chicks from good layers. Booking orders now for 1921 delivery. R. I. Reds, Barred Rocks, White Rocks, White Legnorns, Brown Leghorns. Safe arrival guaranteed. Write for circular. Stubbe Poultry Ranch and Hatchery, P. O. Box 67, Palo Alto, California.

S. C. White Leghorn Baby Chicks from my carefully selected, pure-bred stock of S. C. White Leghorns. Orders for spring delivery booked now at $15.00 per 100, $140.00 per 1000. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

White Leghorn Baby Chix from heavy laying HOGANIZED STOCK. Safe arrival of full count, live, strong chix guaranteed. Price list and interesting literature on application. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

POULTRYMEN — POULTRYMEN
Both the novice and the experienced poultryman should have a copy of "Poultry for Profit" in order to prevent mistakes commonly made in the poultry business. This cloth bound book of 225 pages and 18 illustrations is written by Jean Koethen, a practical authority on all branches of the poultry business in California. Price $1.00 postpaid. Cultivator Publishing Co., 115½ N. Broadway, Los Angeles.

Baby Chicks—S. C. White Leghorn and R. I. Reds. Bred from paying flocks. Hatch each week. Chicks shipped by parcel post. Order now for early delivery. Write for prices. San Diego County Hatchery, San Diego, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Caldwell's Exhibition Quality Reds, bred to lay, choice breeding cockerels. Book order for eggs now. Price $3 and $5 per 15, $12 per 100. Write your wants. Satisfaction guaranteed. T. S. Caldwell, 335-B West Broadway, Glendale, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

White Leghorns — Chicks and hatching eggs from the home of heavy layers. Spring orders being booked. Send for price list. Curtis White Leghorn Ranch, R. 1, Box 29, Gardena, California.

Pure Bred White Plymouth Rock cockerels, U. R. Fishel strain, splendid birds. Prices $5 to $15. Mrs. B. M. Jesch, Fallon, Nevada.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Baby Chicks—Can book a few more orders for early S. C. White Leghorn and S. C. Rhode Island Red chicks. Tupman Poultry Farm, Box 7C, Ceres, California.

White Rock Eggs — From heavy winter layers, $2.00 per setting, prepaid. Mrs. C. W. Sebastian, Wasco, California.

POULTRY

Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made such a remarkable record in the state laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

Successful Chick raising accomplished, using Petaluma Electric Incubators and Brooders. Electricity is life. Modern poultrymen are rapidly adopting our methods with splendid results. Safe, efficient, economical, better chicks. Hatch for yourself, or get chicks from hatcheries using our machines or we will furnish chicks ourselves. Ask for free catalogue or any information desired. Petaluma Electric Incubator Co., Petaluma, California.

Buy Early Chicks—Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, California.

Baby Chicks—We have 8,000 selected Hoganized hens, all on free range on different ranches, all mated to Tom Barron roosters. We guarantee full count of strong, healthy chicks. Book your orders with us now and avoid disappointment, as orders are coming in fast. 30 years in the business. Lasher's Hatchery, Petaluma, California.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

Quality Barred Plymouth Rock and Ferris S. C. White Leghorn guaranteed hatching eggs. Also Barred Plymouth Rock breeding cockerels for sale. We have good stuff at honest value for you this season. GOLDEN RULE POULTRY FARM, Porterville, California.

Chicks — Eggs — Hoganized White Leghorns, Brown and Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, Calif.

For Sale—S. C. White Leghorn Baby Chicks and Hatching Eggs from 227 egg strain of winter layers. Book your order now for early delivery. Meyer Poultry Farm, Route A, Box 17-C, Modesto, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

Baby Chicks hatched from our utility S. C. White Leghorns, a result of many years selecton and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Hatching Eggs from trapnested, line-bred, pedigreed S. C. White Leghorns, trapnested 17 years for high production, vitality and consistency. Best foundation stock on the Coast. Our circular tells you why. Waldeck Ranch, Burbank, Calif.

Baby Chicks—White Leghorns—10's, 100's. 1000's hatched right in $60,000 brick and concrete hatchery from Hoganized, Trapnested heavy layers. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

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For Sale — Thoroughbred White Minorca roosters, 1½ year old. Extra fine birds. Price $5.00 each. Geo. M. Ketscher, 1101 E. 4th Street, Santa Ana, California. Phone 572W.

"Eastman's Bred-to-Lay" Trapnested Barred Rocks. JANUARY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Parmentier's Barred Plymouth Rocks—Have the laying and winning qualities combined. Both light and dark matings. Eggs and stock for sale. W. P. Parmentier, Chatsworth, California.

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Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

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Now Is the Time to Buy Geese for breeding, or to order your eggs. Send for catalog and mating list of our wonderful utility and prize stock of Bronze Turkeys, Geese, Pekin Ducks, Muscovy Ducks, White King Pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, Guineas. Paradise Valley Poultry Ranch National City, California.

Mammoth Geese—Bronze Turkeys. Now is the time to buy breeding stock of "McNeely's Mammoth Geese," fine Bronze Turkeys, Toms and Hens at right prices. Chas. McNeely, Alpaugh, California.

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ANCHORAGE FARM BERKSHIRES
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BRED GILTS FOR SALE.

Grape Wild Farm—Berkshires, Guernseys, Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Registered Berkshire Pigs, either sex at farmers prices—sire Lee's Matomas 2nd—dam Bernice Leader 3rd. LAWRENCE BOWDLE, Hawthorne, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

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Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bred Sows and Gilts and young stock. Pathfinder and Great Wonder I Am breeding. Monthly payments if you wish. Derryfield Farm, Capital National Bank Building, Sacramento.

Big Type Duroc-Jersey Spring Gilts and Boars; also one 22 months old boar weight 700 pounds. Guaranteed. Write quickly for prices. Lowell Beaver, Fresno, California., R. C. Box 397.

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Duroc Hogs and Guernsey Cattle—Pure bred stock for sale at all times. Hollow Hill Farm. B. W. Shaper, Manager, Colton.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

Registered Duroc Gilts and Boars. Also Poland Chinas. Eleventh and Verdugo Streets, Burbank, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

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Bargains in Polands—600 pure bred Polands—sows, gilts, boars, feeders, must be disposed of to make room. Take one or more at your own price. Santa Anita Rancho, Santa Anita, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

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Registered Hampshire Pigs, excellent individuals, prices reasonable. H. G. Ranch, Solvang, California.

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Rebuilt Windmills, irrigating pipe, tanks, pumps, cylinders, rods, fittings.
WHY PAY MORE?
WE SELL FOR LESS.
New 1,000 gal. galv. tanks $47.25; 2,000, $67.25; 10,000 gal. redwood $115; 25,000, $195. Ship wood tanks knocked down. Many other bargains. 350 ft. 8 in. galv. irrigating pipe 35c, SNAP. SPECIAL in complete pumping plant consisting of 15 h. p. Western engine, deep well double acting Ames pump with pipe, rods, cylinder for 90 ft. lift $950. This is only what pump head alone would cost new. Give us call, see who's cheapest. DEMMITT CO., Upstairs, 120 N. Main St., Los Angeles.

FOR SALE AT A BARGAIN
1—250 gal. Bean Sprayer.
1—10-20 Cleveland Tractor.
1—26-in. 3 bottom Oliver disc plow
1—16-in. Killefer engine disc.
This machinery is practically new.
E. Rex Gorton, El Cajon, California.

For Sale-Samson Tractor, model S25 used small acreage part of two seasons. Good order. Three bottom power lift plow, 8 ft. chisel, 10 ft. cyclone, 10 ft. drag trap wagon all complete for $1,000. F. D. Hudson, Van Nuys, California.

For Sale—One 14-28 Avery tractor. Used three weeks. Good as new. No further use for it. Will sacrifice for quick sale. E. Clyde Allen, Big Pine, California.

For Sale—Merry Garden Tractors. Circulars and demonstration free. Dwight E. Smith, L. A. County Agent, 1645 North Normandie Avenue, Los Angeles.

For Sale—Yuba 12-20 tractor, John Deere, two-gang plow, 8 foot Cyclone harrow, good condition, price right. Ralph Esaley, 126 Rose Street, Compton. Phone 483.

For Sale—Yuba 20-35 tractor and full line of orchard or open land tools. O. W. Ames, 126 S. Western Avenue, Los Angeles. Phone 567872.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 237-241 Court St., Los Angeles.

DUCKS

Mammoth White Pekin Duck eggs for hatching, $1.00 per dozen. A Surtman, Petaluma, California.

RABBITS

Pedigreed Flemish Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California.

Pedigreed New Zealand Reds, reasonable prices. Burrel Hyde, Box 267, Visalia, California.

FARM LAND FOR SALE

Agriculture—the Mother of Civilization, but who is going to do the work when the hired man quits or the boys go to the city? Don't try to farm so much land that you make life a burden. We have an ideal one man proposition to offer you. Soil and climate where you can grow anything that grows in California. Water piped under high pressure to your door for irrigation and domestic purposes. Good schools and churches in a 100% AMERICAN colony. A limited amount of cleared land for $200 per acre. PARADISE RANCHITA, Paradise, California.

For Sale by Owner—50 acres choice river bottom alfalfa land, gradually changing to prunes, apricots, pears, peaches, vines, etc.; 2½ miles from growing railroad town 30 miles from Fresno, California. No alkali or hardpan, abundance of water. Priced at half value to insure quick sale and half down. Price $9400. Box S W R. CULTIVATOR, Los Angeles.

Plenty of Government Land in Oregon and California still to be had for little or nothing. Fruit, grain, grazing, mining, timber, near to railroad. Ask for free folder, stating kind of land you'd like. RALLY, Dept. 9, 312 Grant Bldg., Los Angeles.

For Sale—40 acres in Oakdale Irrigation District, four room plastered house, barn room for 20 cows and six horses, 12 acres in alfalfa, the rest checked ready for seed. Price $10,000; $3,700 cash, 7 years on balance. Write, Owner, P. O. Box 585, Oakdale.

For Sale—28 acres of Rogue river bottom land, mile from Grants Pass. All under gravity water improved, fine alfalfa or garden soil. Your chance to buy reasonably from owner. Write: J. F. Webster, Grants Pass, Oregon.

By Owner—20 Acres irrigated dairy and poultry ranch. Rich deep soil, highly improved. Stock feed and tools go with place. Income easily 1-3 of asking price. Must sell. W. R. B., Box 125, Patterson, California.

For Sale — 10 acres, 640 Valencias, 300 Fuerte Avocados, 11 room house, garages, water, gas, electricity. West of Charter Oak. Address Owner, Box 56, Charter Oak, California.

For Sale by Owner—20 acres in alfalfa. Orchard, vines in best fruit and dairy section of San Joaquin. Building, stock implements. Box 192 Cultivator, Los Angeles.

Bearing Orchard one of the best here. Apples, apricots, pears, cherries and grapes. Easy terms. S. W. Knouf, Box 86A, R. F. D., Beaumont, California.

25 Acres Improved Land water stocked, $140.00 per acre, $2,750.00 cash, fine alfalfa or grape land, one mile out North Broadway. J. J. Dunlap, Blythe, Calif.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

TURKEYS

Turkeys—"Goldbank"—"Copper King V" strain. Selected Giant Bronze toms. Sired by son of famous "Copper King V." First Prize Yearling, N. B. T. Club Show, Madison Square, N. Y., January, 1919. Bred to 20 lb. hens. Egg orders taken. Prices reasonable. Address: BRONZE KING MOUNTAIN FARM, P. O. Box 308, Calistoga, California.

Mammoth Bronze Turkeys, Stafford strain, Eastern stock, beautiful plumage, extra large frame and bone. Money back guarantee. Send for circular. R. M. Dodge & Son, R. D. 2 Box 129, Bakersfield, California. Phone 31F4.

For Sale—Pure bred young Bronze toms—$15.00; hens, $10.00. Satisfaction guaranteed. Have pure bred Buff Orpington cocks and cockerels $5.00, $7.50; hens, $3.50 to $5.00. Mrs. M. L. Trewhitt, Route B Box 47, Hanford, California.

Earl E. Sanders, Modesto, breeder of Mammoth Bronze turkeys and Single Comb White Minorcas, is booking orders for eggs, chicks and breeding stock. Route D, Box 1880.

Turkeys—Finest breed of each, Bourbon Red, Mammoth Bronze. Box 27, Shawmut, California.

Mammoth White Holland Turkeys for Sale—Choice hens and toms from our famous breed of large vigorous turkeys. Earl V. Smith, Loma Vista Ranch, Willows, Calif.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Mammoth Bronze Eggs from prize winning stock. Order now for early delivery. $30.00 per 100. T. T. Middleton, Lankershim, California.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, S. Reservoir, Pomona, California.

Bourbon Red Toms for sale. L. S. Grosse, Scottsdale, Arizona.

MISCELLANEOUS

Distributors to appoint agents and sell Powerene at wholesale. Agents make $30 a day. Special terms to distributors. Equals gasoline at 5c. The equivalent of 20 gallons, express prepaid, $1.00. P. Barnes, H424, Santa Rosa, California.

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Orchard Deciduous Pruning by Whitten long system. Acreage only. Address: W. I. Scibird, 2212 Nicholson Avenue, Monterey Park, California. Phone Alhambra 656-W.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Mo.

Leaf Tobacco — prepaid, 3 lbs. either chewing or smoking $1.25. WHICH? 5 lbs. weak $1.30. Guaranteed. Aden Francis, Dept. Y, Dresden, Tennessee.

For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

If You Want to sell or exchange your property write me. JOHN J. BLACK, 116th St., Chippewa Falls, Wisconsin.

SEEDS AND PLANTS

Berrydale Berries and Roses—"De Roo's Mary Lewis" New Everbearing Raspberry. The finest, largest and best flavored berry grown. Can ship 500 miles in perfect condition. Plants strong and need no supports. Plants ready for delivery now. Price per 12, $3.00; 100, $20.00; 1,000, $150.00. Sample plant 30 cents, parcel post. Write for catalogue, sent on receipt of 5 cents in stamps. Salesmen wanted. Our salesmen are making good up to $600.00 per month. BERRYDALE GARDENS, Dept. D, 1715 Webster Street, San Francisco, California.

Strawberries—1,000,000 plants, leading varieties; 200,000 Cuthbert raspberry; 100,000 Black Cap Tips; 100,000 Loganberry Tips. Order now; low prices. Also 100,000 choice peach seedlings — will graft in plums or prunes on contract for fall delivery 1921. Lafayette Nursery Company, Lafayette, Oregon.

For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

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Berry Plants — Strawberries, Loganberries, Currants, Gooseberries, Blackberries and Raspberries, for immediate delivery. All stock first class and strictly true to name. Write for prices. M. J. MONIZ, Berry Specialist, Sebastopol, California.

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For Sale—Grape cuttings, Black Mission, Malaga, Flame Tokay, Black Malvoise and other varieties. Vineyard near Old Mission, San Fernando, California. Address all correspondence to C. D. Hubbard, Carpinteria.

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My Price List contains interesting reading. Send for it. Bishop's Nursery, Highland, California.

For Sale—Unrooted grape cuttings, fruit trees, rooted grapevines. Burke's Nursery, Lodi, California.

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For Sale—200 head of grade Holstein cows and heifers, mostly springers. Can be seen by appointment at the McGrath Ranch, Ventura County. Write J. D. McGrath, Box 316, Oxnard, or Phone 613.

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Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

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For Sale—Six heavy milking young Holstein grade cows. Right in every way. B. M. Lederer, Chino, California.

For Sale—Jersey bull 6 months old out of imported bull Helen's Oxford Son. Price $75.00. J. R. Carhart, Fullerton, Calif.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

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French Prune on Myrobolan, Peach and Almond root.
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Plums in all varieties on Peach and Myrobolan root.
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Royal Apricots, Tuscan, Sims and McClure Clings, Elberta and J. H. Hale Freestone Peaches, Santa Rosa and Beauty Plums, Pear, Apple and Walnut Trees. Grapevines, Berries, etc. Order now; leading varieties scarce. Los Nietos Valley Nursery, Downey, California.

For Sale — Placentia Perfection and Eureka walnut trees, also Eureka Lemon and Almond trees. These are all high grade stock. Ketscher's Nursery, 1101 E. 4th St., Santa Ana, California. Phone 572WK

For Sale — 80,000 Black Walnut Seedling trees, one year old next spring, ready to graft, at Van Nuys, California. Can leave on ground as long as desired. Get my price. Geo. M. Ketscher, 1101 E. 4th Street, Santa Ana, Phone 572W.

For Sale—Walnut trees, fine stock Eurekas grafted on black root. Prices, 4-6 feet in height $2.00; 6-8 $2.25; 8-10 $2.50; 10-12 $2.75. La Puente Walnut Nursery, Puente, California. Phone 103.

For Sale—Citrus trees and grape vines, two years old on Sour root. Valencia, Navel, Pomelo, lemon trees, and rooting vines. J. S. Ogawa, Rt. A, Box 114A, Sanger, California.

For Sale — Elberta, Phillips, Tuscan peaches, French and Sugar prunes, Franquette walnut, almonds, berries, etc. Send for price list. Ben Putnam Nursery, Winters, California.

For Sale — 100,000 Florida Sour Orange Seed-bed Trees; 100,000 California sweet seedling orange seed-bed trees. SOUTHLAND NURSERIES, 1941 East Colorado Street, Pasadena, California.

I Have Just a Few Thousand Elberta peach trees three to four feet at 50 cents f. o. b. Los Angeles. Wm. Kelly, El Centro, California.

A Limited Number of almond seedlings at 10c each. Also St. George (resistant) grape cuttings $5 per M. Mountain View Ranch, Calistoga, California.

For Sale—Orange, lemon and grapefruit nursery trees. Can be seen at 126 S. Western Avenue, Los Angeles. O. W. Ames. Phone 567872.

Seed Bed Stock—Florida sour and California sweet. Nursery 100 Ventura Street. Address Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena.

For Sale—Placentia and Eureka walnut trees at reduced prices. Mannon Ranch, Magnolia Street near Pico, El Monte, California.

For Sale—Budded English Walnut trees grafted on Northern Black Walnut stock. Address: Italian Vineyard Company, Guasti, California.

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Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited.

For Sale—1,650 No. 1 French prune trees, 4x6 almond root, 65c. W. M. Burton Nursery, Box 43, Porterville.

Grape Vines, orange, lemon, grapefruit trees; citrus seed bed stock. L. A. TUTTLE, R. 1, Box 385, Pasadena.

For Sale — Three thousand Mission and Manzanilla olive trees. York Nurseries, Highland, California.

Peach and Apricot Trees—Leading varieties. C. Truelsen and Son, Hemet, California.

LIVESTOCK

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

18 Milk Goats—$15, $18, and $20. Betsy St. Clair 5556—¾ Saanen hornless bred to Echo Prince 5087—$45: El P. Mark Anthony 6672 pure Togg, $60. Zufich, Chittenden, California.

WANTED

Experienced Farmer and Western College graduate wants to manage ranch, citrus grove, orchard or farm. Twenty years experience in California, Nevada and Arizona. Married, no children. Local references. Address: Add, Cultivator, Los Angeles.

Wanted—Second hand milking machine, Empire or Pine Tree. A. A. Trask, Willows, California.

Wanted—Walnut Meats. Fred L. Mitchell & Son, 214 French Street, Santa Ana, Phone 551-M.

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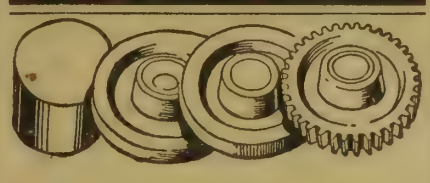

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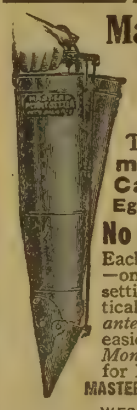

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FARM INVENTORY INDEX TO FINANCIAL PROGRESS

What is the net worth of your farm business Is it more or less than one would imagine from a casual inspection of your farm? Do you know for sure whether you are going or coming in financial standing?

These are important questions to the farmer and questions that are not so easily answered as would at first appear. Farming is an intricate business and one in which returns from investment are sometimes long delayed, so that progress can not be accurately measured by the amount of money taken in in a given time. Sometimes cash income may be almost wholly attributable to reduction in other assets, so that in reality the result is like taking money from one pocket and putting it in another.

The farm inventory, or property list, offers the only practicable way of answering these questions. Once the farmer has made a complete list of all his assets and liabilities and has balanced them he knows just what his net worth is, and when he has made such a list annually he knows each year whether he has gone forward or back and just how much has been the increase or decrease in the net worth of his business.

The United States department of agriculture has just issued Farmers' Bulletin 1182, entitled "Farm Inventories," in which are given detailed instructions for making an inventory of farm property and revising such a list from year to year. By using the simple system described in this bulletin any farmer can determine exactly his financial status and lay the foundation for a permanent system of accounting. Without the farm inventory as a basis no system of accounting that might be chosen would be of any great use to the farmer.

THE COST OF SUCCESS

The road to success is no rougher, or harder, or more painful than the road to failure, but there is a difference. We voluntarily choose to bear the pains of success, while the pains of failure are thrust upon us.

The pains of success are mental and physical, as are those of failure.

The boy or girl who aspires to success in school pays a daily penalty in the act of resisting the impulses to enjoy the pleasures of the moment; in forcing the brain to exercise when it is crying to quit; in doing daily mental tasks which are just as tiring as any physical labor.

The man who succeeds pays his penalty too.

He must save when he would like to spend.

He must work when he would like to loaf.

He must be up and doing when he would like to sleep.

He must take kicks and not kick back.

He must assume responsibilities when he dislikes to add to his burden.

He must be patient when his nature is to be impatient.

He must bring his appetite to reason when it calls to be unreasonable.

All of us know men who want to succeed, but we know they cannot because they will not pay the daily penalty.

It is, of course, as certain as the rising of the sun that they will pay the penalties of failure; they cannot avoid them, although they think they can.

The penalties of success are suffered for the most part in early years. —David Gibson in Tractor Farming.

TREATMENT FOR SCALY BARK

Treatment for trees affected with psorosis or scaly bark and gummosis has been outlined at the University of California college of agriculture following results obtained from experiments at the citrus experiment station.

Scrape the bark over and surrounding the diseased areas, giving particular attention to the advancing edges of the diseased lesion, and apply Bordeaux paste or other suitable fungicide. Badly affected limbs may be pruned out when practicable.

Discovery that the lemon brown rot fungus was responsible for the most severe types of citrus gummosis and was able to enter the bark under conditions of excessive moisture in the soil has led to simple treatment in preventing one of the most destructive diseases of citrus trees, according to Professor Fawcett.

Dry and well aerated soil immediately at the base of the tree is the simple remedy for the disease, it is stated.

AVOID ALKALINE WATERS IN SPRAYING

Avoid alkaline or hard waters in spraying orchards with acid lead arsenate. Instances are not infrequent of severe burning in apple, pear or prune orchards where this type of lead arsenate is used. Foggy or showery weather at the time of spray may also cause a similar burning. Under these conditions it is better to use the basic form of arsenate of lead.

SUGAR BEETS IN AFRICA

A recent issue of the Semaphore Algerien states that the government general of Algeria has acquired a large quantity of sugar beet seed from France, intending to encourage the cultivation of sugar beets.

Concrete Roads and Safety First

You're safe on concrete—whether the surface is wet or dry, whether you are running in "high" or "low," uphill or down, on the straight-away or around a curve—the even, gritty surface of the Concrete pavement makes you sure of car control.

You can depend on the Concrete Road—no other type gives so sure a grip for your tires, with so little tractive resistance. That's just ***one*** reason why you see Concrete Roads everywhere. It's not a sudden impulse. It's the crystallization of public opinion formed over a long period of time.

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Market Your Grain in Egg Cases

Grain prices are low—egg prices are high. The great item of cost in egg production is feed—so the more *cheap grain* you turn into *high-priced eggs*, the bigger your profits.

You have the feed and the hens. Now work this profitable combination to the limit. Give your birds a varied ration—feed it freely—get eggs NOW—beat the grain market—cash in on the high-level egg market. And you'll be doubly sure of a big egg "harvest" by mixing

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with the feed. This great poultry tonic and conditioner quickly puts hens in laying condition and offsets the strain of heavy laying so they keep on shelling out the eggs. It supplies many needed things lacking in the winter feed—keeps the egg-making machinery working steadily and effectively. It enables you to "market your grain in egg cases," to your great advantage.

Expert poultrymen who make a specialty of this hen business and study it carefully find Pratts Poultry Regulator a big help. That's why they're spending their money for it. You'll find every dollar paid for Pratts Poultry Regulator giving big returns in increased egg production.

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P-40

Pratts

The Way to Begin

By Jean A. Koethen

HERE is a letter of the sort we always expect to receive about this time. I had hoped to answer it before it came, but lack of space prevented:

"Can you tell me where I can get information about how to build chicken coops, and what are the best kind of chickens for a novice? I expect to try the chicken business this spring and hope you can tell me the best way to go at it and where I can get the best books on poultry raising."

If this inquirer read in the Cultivator of December 11 the account of R. C. Gibson's work with poultry, he has already found out one good way to go at it. Mr. Gibson first read everything he could get his hands on, not periodicals merely, for they are necessarily fragmentary in their treatment, but the best scientific books he could buy. He did not delay beginning, however, till he had finished his reading, for precept and practice must go hand in hand. At the proper season he began raising chicks which he purchased from reliable breeders — White Leghorns, which are proving popular and satisfactory in large commercial plants. That year he raised 225 pullets, which means that he bought at least 700 chicks, for it takes three baby chicks to make one full grown pullet, and in the fall he began trapnesting those pullets to find the ones that were worth while as foundation stock.

Now, I am not counselling this inquirer to do just what Mr. Gibson did. Mr. Gibson knew something about the chicken business before he started his plant. This writer says he is a novice, and I do not know just what that means. If it means that he has never raised chickens at all, he will find his work cut out for him if he raises 100 pullets the first season. If he has never cared for a good sized hatch in a brooder I am not sure that he will want to try this first year. Twenty good big R. I. Reds or Buff Orpington hens will raise his flock for him and do a better job than he can. Let him set two hens at a time on 15 eggs each. If they come off with ten chicks apiece—and they ought to do better—he can buy 20 chicks more and let each hen have her quota of 20. Sitting only once in a season his 20 hens will thus care for 400 chicks, and most of them will sit twice. This is more trouble than raising 500 chicks at one time under one big hover, but both losses and cost of equipment are less, and when his hens have finished their work as mothers they can be sold for about what they cost.

If he prefers artificial brooding he will need to build his brooder house before his chicks are to be delivered. If he elects hens for brooders he will need an A-coop or a clean, rain tight box for each one, with a portable wire run to attach to the front of it. He might, if he prefers, build his brooder house and let the hens use it this first spring. He can divide it into runs with two foot wire, but he will also have to provide some means of egress for each separate brood.

He will have to have a place ready for the chicks when the hen leaves them, and his simplest course will be to take them at once to the laying house. When the cockerels are broiler size they go to market and this leaves room for the pullets.

Plans for brooder and laying houses are found in the Cultivator book, "Poultry for Profit," or may be had free from the poultry division of our own college of agriculture at Berkeley if they are not out of print. The laying house recommended by the poultry division is unnecessarily complex for a beginner. A simple shed roof house, with open front to the south or east, 6 to 7 feet high in front and 5 to 5½ feet at the back, 16 feet deep and 20 feet long, is sufficient, but he should not attempt to build till he has visited other poultrymen and studied their houses. Nearly every one has his own pet plan, and most of them are good, though some are more expensive than others. On page 498 of the Cultivator of October 9 is an article describing several types of laying house, but it is hardly wise to build an elaborate house till one is sure he will stay with the game. Certain houses seem fitted to certain localities, and for this reason it is safest to look around and see what your neighbors are doing.

Two books which should be in every poultryman's library are Harry R. Lewis' Progressive Poultry Husbandry, published by Lippincott's, and Professor Dryden's new book on Poultry Breeding and Management. I do not remember the publisher, but it will be found in the public library of almost any good sized town. One of the best things a novice can do is to take the correspondence course in poultry husbandry which is offered by the poultry division at Berkeley. You can begin at any time. I think the fee is $5, but it may be free, as it was formerly. You can find out by writing to College of Agriculture, Berkeley. Then you should, of course, join the poultry association in your own neighborhood. One learns a great deal by attending the meetings of these associations and hearing what other poultrymen have to say, and there isn't one of them who won't be glad to help you over a hard place if you ask him. Poultrymen are a cordial, friendly lot, and always glad to give others the benefit of their experience.

Poultry Queries

Conducted by J. A. Koethen

Sudden Deaths

We are anxious to know what is the cause of our pullets' dying. Frequently we find a nice, healthy looking pullet dead in the morning. It is first in one pen, then in another. It must be something in the feed, and yet we can't find out what it is. They have good laying mash before them all the time, greens at noon, grain at night, equal parts wheat, milo, oats and barley.—Subscriber, Long Beach.

It is impossible to explain these sudden deaths without a post mortem, and not always with one. Sometimes there are symptoms which might have been noticed had the caretaker been watching, a darkened comb, rough plumage, lassitude, lack of appetite. In other cases there is nothing external, but an enlarged liver or fatty condition round the heart is revealed on opening the carcass. More often than not a too concentrated diet, with lack of exercise and green feed, is the underlying cause of such deaths. In absence of more certain knowledge it can certainly do no harm for you to make the mash more bulky by adding an equal amount of bran, to feed twice as much green feed as you are now giving, and to feed the grain in such a way that your hens will have to work for it.

Enlarged Liver

We are losing some of our hens and would be thankful for information as to cause and cure. Some of them mope around a day or two and drop dead on the roost at night; others hang on for several weeks, eating fairly well but gradually growing lighter and weaker. I find those that die immedaitely have a liver enlarged to five or six times its natural size.—S. T. R., Lodi.

The reply to Long Beach subscriber above will probably meet your need as well as hers. That enlarged liver shows that your hens are getting too little green feed and too little exercise. The cure is more exercise, more green feed and a lighter ration generally. Feed less grain and add bran to the mash. Bicarbonate of soda in the drinking water is a corrective in these cases. Allow 1 to 2 grains per day for each bird. Dandelion leaves are particularly good for liver trouble, and the sliced roots of the plants may be steeped in water and mixed with the morning mash as a tonic. Be sure that your hens are not overcrowded. If you can give them a little range it will be a help.

Danger From Sprays

I have a large number of birds running in an orange grove which is

about to be sprayed with a solution of lime and sulphur, Triumph and glue. Is there anything in this that could possibly poison them? The poultry department of the Cultivator receives my first attention when the magazine comes, and I receive many helpful hints from it. — Subscriber, Strathmore.

There is nothing in lime, sulphur or glue that can harm the hens, at least in such an amount as they could get from a spray. What the preparation you call "Triumph" contains I do not know. The label should tell. If it does not, ask the manufacturer. Anything poisonous to human beings is poisonous to chickens. Arsenic and copper are the poisons most generally used in such sprays. If they are carefully used there is not much danger, but it would be well to find out exactly what the spray does contain and see that none is thrown on the ground or left standing in vessels where the birds can get at it.

California Farm Bureau Egg Laying Contest

By J. E. Dougherty

Nowhere in the country, we believe, can there be found a more comfortable, commodious, carefully designed, up-to-date and health and comfort promoting poultry laying house than the house especially designed and built for this contest. It is a full monitor type of house extending north and south. It is practically 300 feet long, 26 feet wide, with 6 feet side walls and with a 6 foot alleyway down the center and pens on each side. The pens are 10 feet by 16 feet in size and each pen contains 3 entries of 12 hens each so that the floor space per hen is 4½ square feet. These 36 hens are provided with 18 trapnests. In addition to a liberal supply of windows in the full monitor top and in the east and west walls, the whole interior of the house is whitewashed so that every part is exceptionally well lighted. The ventilation system is of special design and keeps the air pure and free from odors during the dampest weather. At the south end of the contest building are the office, exhibition hall and rest room, feed room and egg room. At the other end are the hospital and sand and straw storage.

Since November 1 the electric lights have been turned on at 4:30 a. m. and off at daylight. In the morning the birds are fed equal parts of cracked corn, wheat, milo and barley in a deep straw litter and a dry mash consisting of 240 pounds mill run, 180 pounds brown middlings, 180 pounds ground oats, 100 pounds soybean meal, 60 pounds fishscrap, 60 pounds meatscrap, 30 pounds charcoal and 4 pounds fine salt, is always before the fowls in self feeding hoppers. The first feed of finely chopped greens is fed in green feed hoppers soon after breakfast and the fowls are given all the greens they will eat during the day. At noon as much moist mash is fed as the birds will eat during the day. At noon as much moist mash is fed as the birds will clean up in 15 minutes, using the dry mash formula given above. At 3 p. m. as much sprouted oats with root sprouts one-fourth inch long is fed in troughs as the birds will consume in 15 minutes and at about 4:30 p. m. the night feeding is given of the same scratch grain mixture as is fed in the morning.

Pen Records for November

All birds are S. C. White Leghorns except six pens noted.

W. A. Ford, Umatilla, Oregon, 188 eggs; Geo. Gray, Santa Cruz, 179; D. B. Walls, Petaluma, 75; Alex. Steward, Santa Cruz, 113 2/3; Ed. Crewdson, Santa Cruz, 127 2/3; Bellows Bros., Lakeside, 119 2/3; D. B. Walls, Petaluma, 45; W. J. Neef, Santa Cruz, 179; La Rita Poultry Farm, Santa Cruz, 181; S. L. Gibson, Santa Cruz, 121 1/3; J. A. Hanson, Corvallis, Oregon, 197 1/3; Sea Breeze Farm, Capitola, 76 1/3; H. Beernick, Lyndon, Washington, 91; Ed. Buttler, Berkeley, 59; Boehm & Noel, Haywards, 21; Santa Barbara Poultry Ranch, 131 2/3; W. Wood, Santa Cruz, 143 2/3; H. Struve, Watsonville, 140 2/3; E. Credson, Santa Cruz, 156 2/3; C. E. Hyde, Santa Cruz, 142 2/3; Oregon Agricultural College, 60 2/3; P. Lehrbach, Los Angeles, S. C. R. I. Whites, 13; Mrs. H. C. Kleinsmith, Hoff, Oregon, S. C. Barred Rocks, 120; Oregon Agricultural College, S. C. Barred Rocks, 22; S. L. Gibson, Santa Cruz, Brown Leghorns, 72; S. L. Gibson, Santa Cruz, S. C. Brown Leghorns, 79; S. L. Gibson, Santa Cruz, S. C. White Leghorns, 159; Hampton & Loucks, Van Nuys, 76; Geo. G. Parker, Santa Cruz, 134; S. L. Gibson, Santa Cruz, 187; N. C. Westerfield, Modesto, 104 2/3; Hollywood Farm, Hollywood, Washington, 220 2/3; Sea Breeze Farm, Capitola, 84 2/3; Enterprise Poultry Ranch, Chino, 54 1/3; D. B. Walls, Petaluma, 52 1/3; Ed. Crewdson, Santa Cruz, 59 1/3; Fuller & McCallister, Inglewood, 14; Geo. Wood, Santa Cruz, 73; N. S. Kaime, Santa Barbara, 73; E. H. Schlink, Ramona, 15 1-3; La Rita Poultry Farm, Santa Cruz, 151 1/3; C. K. Hale, Santa Cruz, 161 1/3; C. N. Bolfing, Gilroy, 56 1/3; E. L. Spacher, Santa Cruz, 214 1/3; Chas. Lehman, Santa Cruz, 123 1/3; G. C. Brenneke, Santa Cruz, 103 2/3; W. J. Neef, Santa Cruz, 192 2/3; R. J. Kentor, Santa Cruz, 179 2/3; W. Wood, Santa Cruz, 203; Forster Bros., Berkeley, 110; Geo. Wood, Santa Cruz, 191; W. H. Marshall, Santa Cruz, 172 1/3; A. M. Webb, Santa Cruz, 99 1/3; J. S. Conrado, Santa Cruz, 180 1-3.

Fractions caused by dividing floor eggs equally between three entries in each pen.

Highest Individual Hens

Hollywood Farm, 25, 24, 24, 25 eggs; E. L. Spacher, 24 eggs, 25; Charles Lehmann, 24 eggs; W. J. Neef, 24 eggs. In addition 13 others laid 23 eggs, 21 laid 22 eggs, 33 laid 21 eggs and 46 laid 20 eggs each during November. 121 hens out of a total of 648 entered in the contest, or approximately 19 per cent of the flock, laid 20 eggs or better during this month.

In closing this report the attention of poultry breeders is called to the fact that the next contest will begin October 1, 1921, and not November 1. Lay your plans now for the production of that pen of wonder layers that is going to help in making the 1921-22 California farm bureau egg laying contest even better than the present one, for "Progress" is the watchword of the poultry industry and egg laying contests have become the milestones on the road of steadily increasing egg production.

WHY GET EXCITED

"Some tornado that was we had around here last night. Do any damage to your new barn?"

"Dunno. Hain't found the durn thing yet."—Cottonyarns.

UNTO ETERNITY

They were looking down into the depths of the Grand Canyon.

"Do you know," asked the guide, "that it took millions and millions of years for this great abyss to be carved out?"

"Well, well," ejaculated the traveler. "I never knew this was a government job!"

The National League of Commission Merchants will meet in St. Louis, January 12-14.

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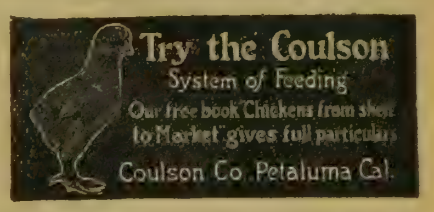
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Los Angeles Markets

Los Angeles, January 5, 1921.

BUTTER

Butter, creamery extras. Produce Exchange price 52 cents.

Dec.	29	30	31	Jan. 1	3	4
'20 ...	52	52	..	..	52	52

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 61 per dozen case count. Produce Exchange closing price 61 per dozen; pullets, Produce Exchange closing price 60 per dozen.

Dairy Exchange price last week on extras:

Dec.	29	30	31	Jan. 1	3	4
'20 ...	70	70	..	..	65	61

POULTRY

Price to producers: Hens, lt., 33; heavy 33; colored, 36; broilers, 40@45; roasters, 35; old roosters, 14; fryers, 40; ducks, old, 23; ducklings, Pekin, 3½ up, 25; others, 23; geese, 25; turkeys, live, young tom, 45; dr., 50; old, live, 40; dr., 41; hens, live, 45; dr., 50; squabs, 45@47.
Belgian hares, live, 16@21; old, 9.

LIVESTOCK

Los Angeles, Jan. 4.—Weighed and delivered off cars without food or water:
Hogs, (hard grain): 125 to 175 lbs., 11.00; 175 to 225 lbs., 11.50.
Cattle (on foot, gross weight): Steers, good, 8.50@9.00; medium, 8.00@8.50; cows, good, 7.50@8.00; medium, 7.00@7.50; bulls and stags, 6.00; calves, 125 to 150 lbs., 11.00; 175 to 225 lbs., 10.50.
Sheep: Ewes, 7.50@8.00; lambs, 12.50@13.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, January 4, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.
Potatoes: Supplies liberal, market steady, quality generally poor. Stocktons: Burbanks, 1.75@2.25 according to quality; few high as 2.40. Idahos: Russets mostly 1.85@2.00. Local: Mostly 90@1.00 per lug. Sweets, best, mostly 1.40@1.50.
Onions: Supplies heavy, market weak. Stockton: Whites, 1.50@1.75, Browns mostly 1.00@1.25 per 100 lbs. sacked; Yellows, 90@1.10 cwt.
Garlic, lb., 14@17.

VEGETABLES

These are the actual prices obtained January 4, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.
Beans: Ky. Wonder, Refugee mostly 18@20 best; poorer low as 15.
Beets: Doz., 35@45; sk., 1.25@1.75.
Cabbage: Supplies heavy, market slow, wide range in quality. Best mostly 1@1½ per lb.; per field crate, mostly 85@1.25.
Carrots: Best, 1@1½ lb.; 75@1.10 field crate.
Cauliflower: Supply liberal, field cr., best, 1.25@1.75.
Celery: Cr., 1.75@2.25.
Cucumber: Market firm; local, best, lug, 3.25@3.75 lug.
Egg Plant: Lb., 9@11.
Lettuce: Field crate, best 75@1.10.
Peas: Local lb., 11@13; poorer low as 7.
Peppers: Bells, 8@10; Chilis, 15@17.
Rhubarb: Crimson Winter, best bx., 75@1.00.
Squash: Local Hubbard, lb., 1½.
Tomatoes: Local lugs, mostly 85@1.25 lug; best high as 1.50.
Turnips: Per doz., 25@35; sk., 1.10@1.35.

DECIDUOUS FRUITS

These are the actual prices obtained January 4, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.
Apples: Supplies liberal, movement slow, market steady. Californias: Bushel boxes Bellefleurs, fancy, 4 tier mostly 1.90@2.00; 4½ tier 1.65@1.75; Jonathans fancy, 2.75@3.25; Delicious fancy 3.25@3.50. Rome Beauty, fy., 2.50@3.25. Idahos and Utahs: Loose Jonathans and Winesaps mostly 6@7 per lb.; Ganos and Ben Davis mostly 5@5½ per lb. Oregon and Washingtons: Bushel boxes, extra fancy Jonathans and Spitzenburgs mostly 3.00@3.25.
Bananas: Lb., 10½@11.
Cranberries: Bbl., Late Howe, 21.00@22.00; Oregon, bx., 6.00.
Grapes: Emperor, Cornichon, 9@11; poorer low as 7, best high as 16.
Pears: Various varieties, 7@11.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 2.00@2.50; special packed brands, 2.75@3.50.
Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.25@2.00, few high as 2.75; loose, 1.00@1.25; lug mostly 40@50.
Oranges: Supplies heavy, market dull. Navels, special brands mostly 3.00@4.00 according to size and quality, grove run 85@1.50 loose. Tangerines, best, 9 lb.

HONEY

Movement slow: Carloads f. o. b. usual terms: Per lb. 5-gallon cans White Orange and White Sage, 16½@20; extra Light Amber Orange, and Sage, 19; Light Amber Orange, 18½; Light Amber Sage, 12@18½; Light Amber Alfalfa, 11@17. Beeswax: Sacked, in less than car lots 40@42 per lb. Prices given represent quotations; practically no sales being made. Wide range due to extremely unsettled market conditions; low prices are considered possible in near future.

NUTS

California Walnut Growers' Association announces prices on 1920 walnuts: No. 1, soft shell, 12½; No. 2, 18½; Budded, 25½; standard budded, 22½ per lb.

GRAIN AND FEEDS

Grain Exch. prices bid January 4:
Milo: Carlots, 1.82½@1.85; Eastern, bulk, 1.50@1.70.
Kafir: Eastern, 1.56¼@1.62½.
Corn: Bulk, Yellow, 1.85@1.90¼; sacked, 1.95.
Wheat: Mixed feed, Mont., 34.00.
Barley: 1.60.

HAY

Alfalfa Growers of California, report under date of January 5:
Demand continued during the week at the previous rate and was met with sufficient supplies. The present tendency in all lines of business, of buying only for immediate needs and of carrying as small stocks as possible, also extends to alfalfa, but in the case of alfalfa the situation is fortunately much better, supplies in the hands of dealers and users being already below normal, while the stocks still left in the hands of growers will all be needed before new hay becomes available. The position of milo is much less favorable. We have therefore so far this season not held out much, if any, hope to our milo growing members for an improvement in the situation.
There were 880 tons received on the tracks in Los Angeles the week ending January 1, 1921, with 270 tons held over as against 750 tons the week before.

Rabbit	41.00
No. 1 dairy	28.00
Standard alfalfa	24.00
Stock	20.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@24.00
Barley	18.00@22.00
Alfalfa	20.00@28.00
Barley straw	6.00@10.00

San Francisco Markets

San Francisco, January 4, 1921.

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 48½
Dairy Exchange prices extras this week and year ago:

Dec.	28	29	30	31	Jan. 1	2
'20 ...	50½	48½	49½	48½	..	48½
'19 ...	66	66	66½	66½	..	66½

Rcts. 5 days ending Jan. 2, 3,136 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream	22@26
Jack, half skimmed	17@20
Ore. Y. A.	34
Oregon Trips	29½
Cal. Y. A.	33
Cal. Flats	26

EGGS

The prices paid by wholesalers to producers are eight per cent less.
Dairy Exchange quotations, dozen including cases:

Extras	66½
Extra Pullets	65
Undersized	64

Dairy Exchange prices, extras this week and year ago:

Dec.	28	29	30	31	Jan. 1	2
'20 ...	76	72	67½	67½	..	66½
'19 ...	67	71½	67½	67½	..	4½

Rcts. 5 days ending Jan. 2, 269,693 doz.

POULTRY

Wholesale prices are:
Broilers, 15 pounds per dozen, 45@55.
Colored fryers—2 to 3 lbs., 37@38.
Colored young roosters (smooth), 3 to 4 lbs., 32@33.
Old roosters (colored), 20@23.
Leghorns, young, 15 lbs. to 24 lbs. per dozen, 32@33.
Leghorn hens, 3 lbs., 32@33; under, 25; Eastern, 31@35.
Large colored hens, 33@35.
Young Pekin ducks, 30; old ducks, 23@25; young geese, 32@35; market easy.
Live Belgian hare, 23@25; dressed, 28@30.
Squabs: Large, 65@70 per lb.
Pigeons: 3.00@4.00 per dozen.

LIVESTOCK

Western Meat Company prices are: Cattle: Grass steers, No. 1, weighing 1,000 to 1,200 lbs., 9½@10½; second quality, 8½@9; thin, 6@6½.
Cows and heifers: No. 1, 7½@8; second quality, 6@7; thin, 3@4.
Calves: Light weight, 9½@10; medium, 8@9; heavy, 7@8.
Lambs: Milk, 9½@10½; yearling, 8@8½.
Sheep: Wethers, 7½@8; ewes, 4@5.
Hogs: Hard, fat, grain-fed weighing 100 to 150 lbs., 9½; 150 to 225 lbs., 10½; 225 to 300 lbs., 10; 300 to 400 lbs., 9.

POTATOES AND ONIONS

Wholesale prices on street:
River, 1.60@1.75 for No. 1; do, Oregon Burbanks, 2.60@2.75; Salinas, 3.50; Idaho Gems, 2.60@2.75. Sweet potatoes, 3@3½ lb.
Onions: Yellow, 65@85 per cental; Australian brown, 90@1.25; do, white 1.50@1.75.
Garlic: New, 8@9.

VEGETABLES

Wholesale selling price:
Beans: Lb., garden, 10@12; Italian, 8@10; Limas, 12@13.
Brussel Sprouts: 5@7 lb.
Beets: Sk., 75@1.00.
Carrots: 75@1.00 sk.
Cauliflower: Doz., 1.00.
Cucumbers: Cr., 2.50@3.00.
Cabbage: Lb., 1.
Celery: Cr., 1.75@2.50.
Corn: Sk., 2.00@2.50; fy., 3.00@3.50.
Egg Plant: Southern, 8@10 lb.
Lettuce: Cr., 1.75@2.25.
Mushrooms: 25@1.25 bx.
Onions: Green, per bx., 75@1.00.
Peas: Lb., 12½@15; fy., 12@16.
Peppers: Bells, lb., 12½@15; Chili, lb., 5@6.
Rhubarb: 1.75@2.00 lug.
Spinach: Lb., 6.
Squash: Hubbard, 75@1.00 sk.; Marrowfat, sk., 75@1.00.
Tomatoes: Bx. fy., 1.25@1.50.
Turnips: Sk., 75@1.00.

FRESH FRUITS

Apples: Bellflowers, 1.50@2.00 for cold storage; Newtons, 3½ and 4 tier, 1.90@2.15; 4½ tier, 1.75; Hood River Spitzenberg, extra fancy, 3.00@3.25; fancy, 2.50@2.75; choice, 2.00@2.25 Lady apples, 3.00@3.50 box; Roman Beauties, 1.50@2.50; Delicious, 2.50@3.50.
Avocado: Fla., 5.00@6.00; Tahiti, 4.00@5.00 doz.; Cal., 1.75@2.25.
Bananas: Lb., 8@10.
Cranberries: Per bbl., 25.00@27.00, Oregon, 6.00 box.
Dates: Lb., 10@22.
Mangoes: Doz., 6.00@10.00.
Olives: Lb., 3@6.
Pears: Winter Nelis, 3.50@4.00; other varieties, 3.00@3.75.
Persimmons: Bx., 1.00@1.75.
Pineapple: Doz., 4.00@5.50.
Pomegranates: 1.50@2.25 per half orange box.
Strawberries: Dr., 1.25@1.50; cr., 3.50.

CITRUS

Navel oranges, 3.50@4.15. Lemons, 2.50@3.75 per box; lemonettes, 1.50@2.00. Grapefruit, new crop, 2.50@3.00; do, Arizona, 3.50@4.50. Limes, 1.50@2.25 per half orange box; Tangerines, bx., 2.50@3.25.

DRIED FRUITS

Raisins: Sunmaid, seeded, 36 15 oz. package, 24c lb.; seedless Sultanas, 25c lb. boxes, 23c lb.; Thompson seedless, 25-lb. boxes, 23½c lb.; Thompson seedless, 48 15 oz. packages, 24c; 3 cr L. M. raisins, 25 lb. boxes, 24c lb.; 2 cr L. M. raisins, 25 lb. boxes, 23c; 1 lb. clusters, 20 lb. boxes, $5.50 box.
Peaches: Blue Ribbon brand, 48 11 oz. to cs, $10 cs; Blue Ribbon brand, 24 2 lb. bxs to cs, $11; fancy, 25 lb. bxs, 19c; extra choice, 25 lb. bxs, 17c; choice, 25 lb. bxs, 15c.
Pears: Fancy, 25 lb. bxs, 20c; extra choice, 25 lb. bxs, 16c; choice, 25 lb. bxs, 13c.
Figs: Fancy black, 25 lb. bxs, 11c lb.; extra choice black, 25 lb. bxs, 9c lb.; choice black, 25 lb. bxs, 8c lb.; fancy white, 25 lb bxs, 15c.
Apricots: Fancy, 25 lb. bxs, 29c; extra choice, 25 lb. bxs, 24c; choice, 25 lb. bxs, 23c; standards, 25 lb. boxes, 18½c.
Prunes: 30-40s, 25 lb. bxs, 17c lb.; 40-50s, 25 lb. bxs, 14c; 50-60s, 25 lb. bxs, 12½c 60-70s, 25 lb. bxs, 9½c; 70-80s, 25 lb. bxs, 8½c; 80-90s, 25 lb. bxs., 7½c; 90-100s, 25 lb. bxs, 7c.
Apples: Fancy, 50 lb. bxs, 11c lb.; extra choice, 50 lb. bxs, 9c; choice, 50 lb. bxs, 8c.

NUTS

Peanuts: Japanese, 9.
Pecans, 25.
Almonds: California Almond Growers Exchange quote:

Nonpareil	26
I. X. L.	26
Neplus	25
Drake	18

BEANS

Jobbers' prices:
Small white, 4¾ per lb.; large white, 5; pinks, 6¼; Limas, 6¾; cranberry, 6¾; Mexican Garvanzas, 7; Lentils, 12½; Blackeye, 6½; Mexican Reds, 6¾; Popcorn, 6½; California Bayo, 11½; Kidney, 11¾; split peas, 7; green peas, 4.

RICE

Receipts for three days ending January 3, 16,223 centals.
Fancy California Japan rice offered f. o. b. San Francisco, immediate, $4.40; prompt, $4.25; first half January, $4.10; January, $4; February, $3.90; March, $3.80.

GRAIN

Sales grain exchange January 4:
Wheat: Mill run, 2.85@3.10; feed, 2.75@3.10.
Corn: 2.00.
Oats: Red feed, new crop, 1.50@1.75.
Barley: New feed, 1.45@1.55; shipping, 1.75@1.85.
Shorts, 33@44.
Middlings: 52@55.

HAY

Alfalfa Growers of California under date of January 5:
Comparatively large arrivals of Nevada hay, in excess of the current rate of consumption, caused a temporary oversupply and corresponding shading of price.

No. 1 dairy	23.00
Standard alfalfa	20.00
Stock alfalfa	17.00

Under date of Jan. 3, A. W. Scott Co. says:
Receipts past week, 675 tons. In spite of the very light receipts the prices in San Francisco have in some grades still further declined and the influence of this market is felt throughout the state, quite a number of sales having been reported at $4 a ton lower than the ruling figures for the past few weeks. This is normally the dullest week in the year in the hay and feed trade and indications for the next few weeks are not particularly encouraging. Still further general weakness and decline in millfeeds and feedstuffs of all kinds weakens the feeling in the hay market. Better grades of hay seem to be weakened, although alfalfa has dropped off by reason of the heavy shipments coming in from Nevada at cut figures.
We quote today wholesale prices in carload lots as appear from dealers' transactions upon the hay market in San Francisco (for prices to consumers charge of cartage, commission and handling expenses must be added, according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5 wire bales	19.00@20.00
Tame Oat Hay, fair to choice	18.00@20.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	18.00@20.00
Stock Hay	10.00@14.00

Citrus Markets

Los Angeles, January 5, 1921.

Packing houses are starting up and regular season's shipments will be in full swing within the next two or three weeks. Such shipments as have been made have found a much better reception than last week. F. o. b. prices up to the present time are around the $3 point. Central and Northern California have practically finished on Navels.
The lemon situation is materially unchanged, with little hope of immediate betterment.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 1,356 cars; lemons, 757; total, 2,113. To same date last season: Oranges, 3,567; lemons, 600; total, 4,167. From Central California to date, this season: Oranges, 3,705; lemons, 34; total, 3,739. To same date last season: Oranges, 3,259; lemons, 120; total, 3,379. From Northern California to date this season: Oranges, 290; lemons, 3; total, 293. To same date last season: Oranges, 259; lemons, 20; total, 279.

AT THE AUCTIONS

December 29

New York: 27 or., 6 lem. Nav. 1.85-4.90, lem. 2.75-3.70.
Boston: 6 or., 1 lem. Nav. 2.55-4.70, lem. 2.90-3.35.
Cincinnati: 3 or., 1 lem. Nav. 2.10-3.10, lem. 3.10-3.25.

December 30

New York: 28 or., 3 lem. Nav. 1.90-5.85, lem. 3.05-3.45.
Boston: 6 Nav. 2.50-4.20.
Philadelphia: 2 or., 1 lem. Nav. 2.60-3.35, lem. 2.20-2.80.
Pittsburg: 3 or., 1 lem. Nav. 2.45-4.00, lem. 2.50-2.85.
St. Louis: 3 or., 1 lem. Nav. 2.20-3.40, lem. 1.70-2.70.

January 4

New York: 11 or., 2 lem. Nav. 2.85-5.45, lem. 2.85-3.30.
Boston: 6 or, 1 lem. Nav. 3.50-4.85, lem. 2.95-3.25.
Philadelphia: 2 Nav. 3.45-4.15.
Pittsburg: 1 or., 1 lem. Nav. 4.15-4.65, lem. 2.90-3.25.

PROTECT FORESTS

A demand is growing on the part of the wood using industries and the public at large for a national policy of forestry which will insure adequate future supplies of timber and other forest products. Figures gathered by the forest service this year showed the extent of the depletion of the nation's forests, and have served to focus attention on the fact that the country is short of growing forests and that something must be done at once. The acute shortage and skyrocketing prices of lumber and newsprint early in the year also contributed to the growth of the movement.
The forest service is advocating a program based on the conviction that the problem is national and not local, and must be handled as such. Nation wide protection from forest fire for all classes of forest land is the first and most essential step and it is the belief of Chief Forester Greeley that the police powers of the states offer the best means of enforcing reasonable requirements against forest destruction.
There are still large quantities of timber in the United States, but they are not in the right place. More than 60 per cent of what is left lies west of the Great Plains, far from the bulk of the country's population, agriculture and manufacture. The country is taking about 26 billion feet of wood from forests each year and is growing only six billion.
"We have used up our forests without growing new ones," says the report. "At the bottom of the whole problem is idle forest land. The United States contains 326 million acres of cut-over or denuded forest containing no saw timber; 81 million acres of this amount have been completely devastated by forest fires and methods of cutting which destroy or prevent new timber growth.
"The area of idle or largely idle land is being increased by from three to four million acres annually as the cutting and burning of forests continues." These facts, together with the steadily increasing distance between the average saw mill and the home builder "have had a vital bearing on the high cost of lumber, which during the year reached a prohibitive figure for many uses and checked the building of homes which is so urgently needed."

This year's export of grapes from Almeria, Spain, is about 300,000 bushels less than that of 1918, but about 50,000 bushels greater than that of 1919. Great Britain is the greatest purchaser, buying 851,000 barrels. The United States is second, purchasing 249,000 barrels. Third on the list is Norway with 60,000 barrels.

STORES OF PAINT IN SALTON SEA

Several years ago a number of men took up profitless mineral claims on Mullet Island, a tiny volcanic formation protruding above the saline waters of the Salton Sea of Southern California Gold and pumice were the minerals they were seeking, and little did they think that the waters which lapped against their rocky shores hid from their view a mineral deposit of another variety and practically incalculable value.

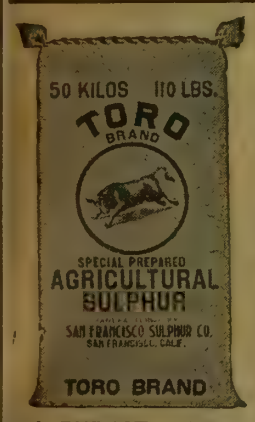
Last year the Salton Sea developed another of its characteristic temperamental streaks. Its surface level dropped 4½ feet, leaving Mullet Island surrounded by hundreds of acres of soft slimy mud. Presently the attention of the prospectors was attracted to the mudflats by a strong odor of sulphurous gas and noises which sounded like the fierce boiling of thousands of teakettles of colossal proportions.

They investigated by providing themselves with long wooden shoes resembling a hybrid ski and snowshoe with which they were able to walk about over the slimy mud without bogging At no great distance from the shore they found, uncovered by receding waters of the sea, numberless boiling hot springs, tiny geysers and mud volcanoes. From these flowed various colored saline waters, some bright red, others green, blue, and yellow, with all the intermediate shades of the rainbow. Great accumulations of the material were soon built up around each of the springs, and samples were soon in the hands of a chemist Analysis disclosed it to be mineral paint pigments; ocher, carmine, ultramarine and all the other colors essential in the manufacturing of paints.

The prospectors immediately began the construction of impounding reservoirs to segregate the waters from the springs of individual colors The boiling water is drained very slowly through these impounding beds, and the cooling causes the paint pigment to be precipitated to the bottom of the pools.

After several days of aeration, the water from each spring is diverted into another pool. Then, after drying in the sun for a few hours hundreds of pounds of pigment are spaded out of each pool. The pigment is first dug out into boxes, trundled onto the island in wheelbarrows and later sacked for shipment to the paint factories. It comes from the pools practically pure and requires little or no refining.

A crop of low grade salt is a profitable by-product of the newly developed pigment industry—John Edwin Hoag in Popular Mechanics.



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Book Review

PASTORAL AND AGRICULTURAL BOTANY

"Pastoral and Agricultural Botany," by John W. Harshberger, Ph. D., University of Pennsylvania, published by P. Blakiston's Son & Co., Philadelphia.

This book is not so botanical as it appears from its title for as one looks through the illustrations appear to be largely of livestock. There are, however, many illustrations and descriptions of poisonous plants. The illustrations of livestock have to do with the effects of these poisonous plants. The illustrations and the text, however, do not treat entirely of poisonous plants as many of the country's most valuable economically are given place. There are 18 chapters in the 300 pages touching upon stock killing plants, poisoning by plants, fungi and other spore bearing plants, gymnospermous, monocotyledonous, dicotyledons, loco and other poisonous plants, feeds and feeding, structure of grasses, description of important forage plants, cereals, leguminosae, root tubercles, weeds and weed control, agricultural seeds, seed selection and testing. "During and since the great world war there has been a growing demand for information on the injurious and useful plants of America. The injurious plants are represented by those belonging to the lower phyla, the thallophytes, which include the fungi destructive to farm crops, and the higher flowering plants, which are some of them also injurious. Particular attention is given to the flowering plants, with casual mention of the flowerless forms. The contents of the pages, which follow, epitomize the laboratory and research work of the writer connected with a course in botany given to the veterinary students of the University of Pennsylvania for the past 25 years."

The material presented is all of practical value, being the result of professional study combined with practical experience of stockmen, farmers, agricultural professors, botanists, etc. It points out the useful plants to cultivate and the dangerous plants to destroy, the effect of poisonous plants when eaten, active principles in the plant, susceptibility of various animals, remedies to employ, distribution of plants and destruction methods.

PORTO RICO NOTES

From the 1919 report of the Porto Rico experiment station, just received, we glean the following which may be of interest. Citrus scab is their most serious orange disease and is worst where leaf growth is greatest and in the shade. Some trouble is experienced with citrus thrips. Cover crops are receiving attention and the velvet bean is giving good results. Budwood selection is being practiced.

Hundreds of improved budded mangoes were sent out in the past few years, fruits are now becoming common and some are shipped to New York. The growing of avocados is steadily increasing and Guatemalan varieties are being introduced. As no refrigeration on ships is available, the native or soft shells cannot be exported. The rice and bean acreage is each year being extended but difficulty is experienced in getting corn varieties suited to the climate. Duncan and Triumph are the leading pomelos, the Duncan being the better, though Triumph is the earlier.

Clear Lake in Lake County now has more water than at its highest last year.

Much rice is still unharvested because of late rains and it is now asserted that some which was bound and shocked will remain in field until spring.

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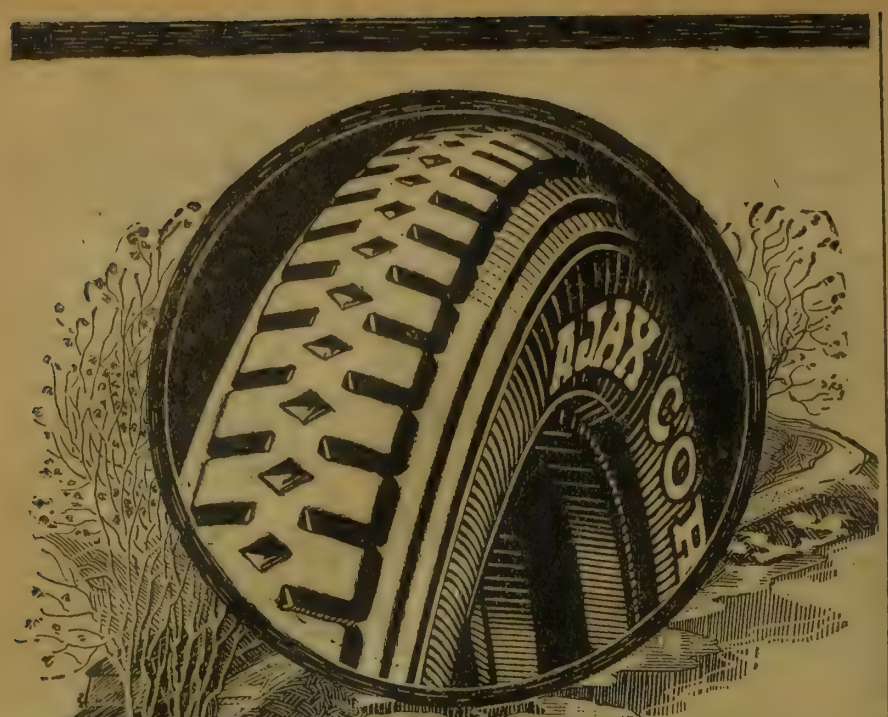

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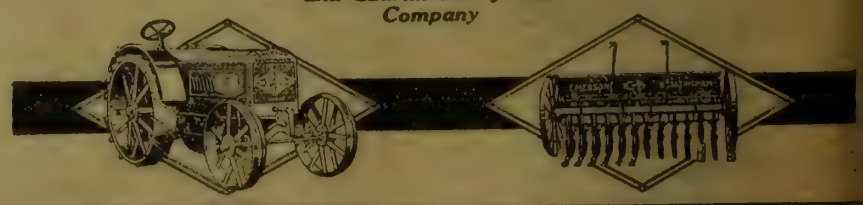

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Vol. LVI — January 15, 1921 — No. 3

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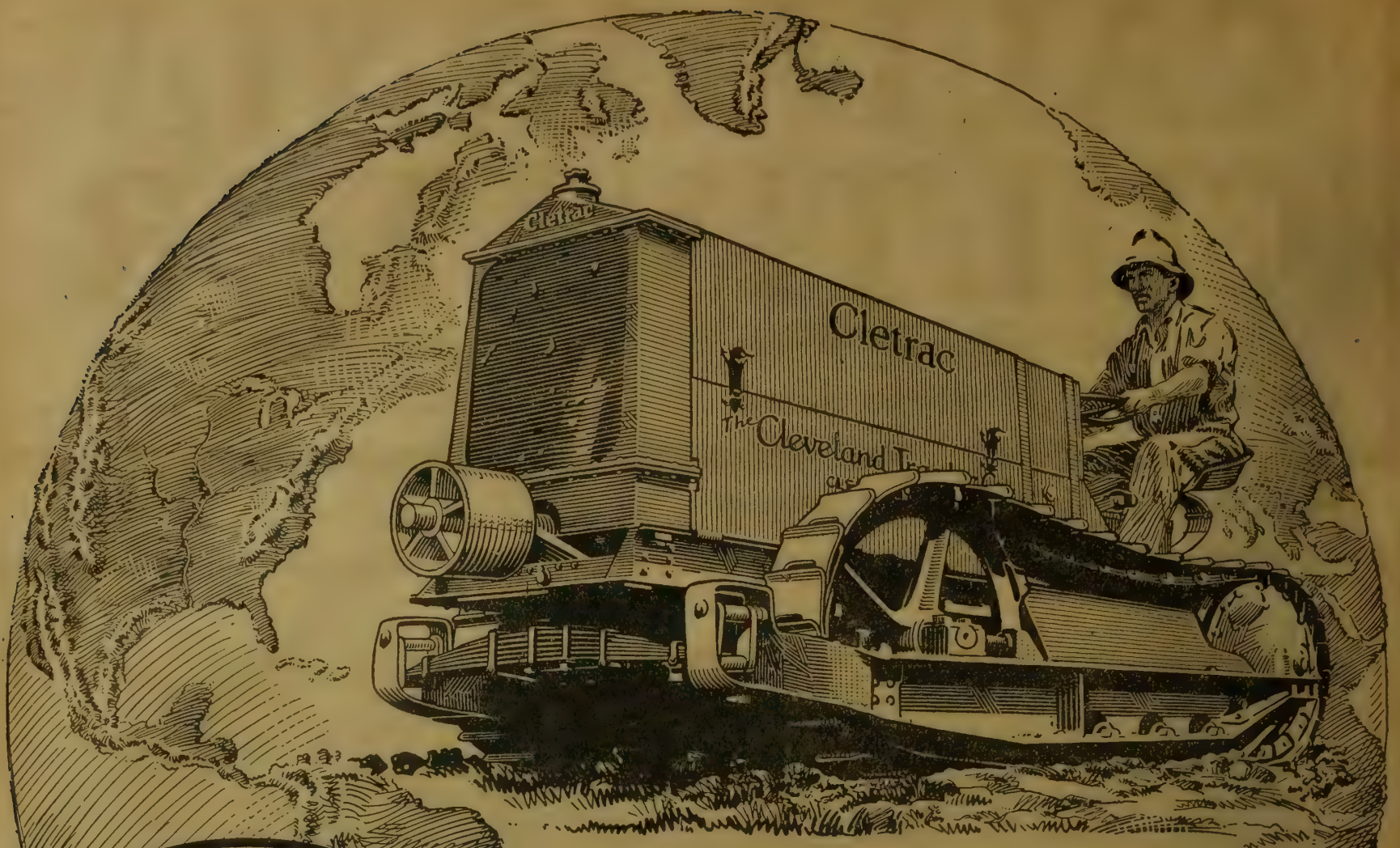

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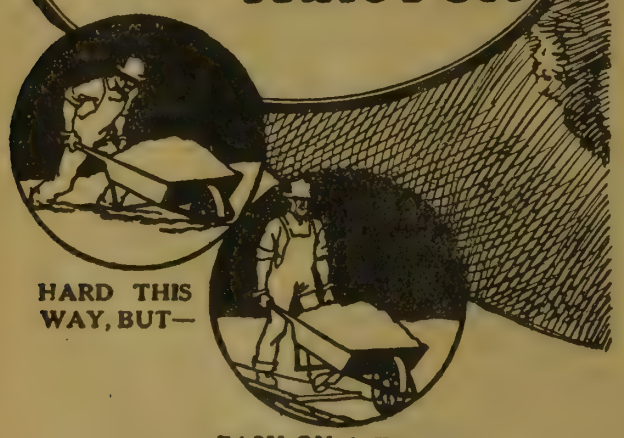

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California Cultivator

Vol. LVI, No. 3 | Los Angeles, January 15, 1921 | One Dollar Yearly

Planning and Planting a Vineyard---Nursery Stock

By Fred K. Howard

AFTER the variety or varieties have been decided upon and the land put in shape for planting, the prospective grower has for consideration the very important question of nursery stock. Fortunately, the grape is as a rule easily propagated by cuttings, so the cost of securing good stock is comparatively small. It should be remembered, however, that the selection of good nursery stock for planting is as necessary to the permanent success of a vineyard as is the use of high grade or pure bred animals in the live-stock business. Demand and accept only the best from your nurseryman.

Even when the grower uses every precaution possible there are several things over which he has very little control which may mean the difference between success and failure, and at this time it may be well to consider some of these things as they relate to the use of rooted vines and the possibility of using cuttings planted directly into the vineyard.

In this issue of the Cultivator we will consider only a few of the important points relating to rooted vines, leaving until another issue the discussion of Phylloxera, a tiny root louse, which is indeed a very serious vineyard pest.

Rootings Versus Cuttings

Shall we use cuttings or rooted vines in planting? If we decide on the rooted vine, then we must be sure they are true to name, that they are free from disease and are not harboring any of the numerous insect pests, for who wants to start a new vineyard with a serious handicap of this sort? If we decide on the cuttings, is it best to plant them directly into the vineyard, or shall we grow them a year in the nursery row? Let us consider these matters a bit.

The cost of rooted vines is at the present time quite high when the cost of growing them is considered. These vines are grown largely as a side line or as an intercrop in the young vineyard or orchard, and the planter can have no assurance that they were produced from strong, vigorous, healthy parent vines or that they are even true to name. It has happened many times that a grower has planted rootings and cared for them until they were of bearing age, only to find that the stock had been so badly mixed that his vineyard was an eyesore. On the other hand, when rooted vines are planted the stand is usually good and the growth is uniform, if only good strong vines were used.

When cuttings are used and planted directly in the vineyard, unless the land is level and plenty of water is available at all times, the venture is almost sure to be a dismal failure. If, however, the cuttings are properly selected and the right kind of care is given them, it is very probable that it will be impossible to tell the difference in growth between cuttings and rooted vines at the end of the third growing season. This method of starting a vineyard is very popular among growers who have been particular with their leveling and preparation of the land. Perhaps a better method is to carefully select the cuttings and plant them in the nursery row for a year, right on the ranch. They can be easily cared for in this manner, and as approximately 50,000 rootings can be grown to the acre, very little space is used. The balance of the land can then be used for some other purpose which will bring in the usually much needed cash.

Leaving the question of selecting rooted vines for future discussion in the Cultivator, we will outline a few of the essentials which will contribute to the success of planting cuttings.

Selecting the Cuttings

One of the most serious objections to the use of cuttings in the vineyard is that they will not as a rule show a uniform growth, due to the fact that some of the wood used will have a greater supply of reserve plant food stored up and will therefore get a stronger start. This objection, however, may be partially overcome by careful selection of the cuttings.

Although many growers do not consider it worth while, and in fact a greater share of the cuttings made are taken where they are the most easily secured, there can be no question in the light of recent horticultural development that it pays to use cuttings only from strong, vigorous vines which have produced uniformly good crops over a period of years. Only the fruit or bearing wood should be used. Unhealthy vines should, of course, be avoided in all cases, as should vines which have been defoliated or injured by insect attack or which have suffered during the season from lack of water.

The cuttings should be made, if possible, within a month after the leaves have fallen. Be sure to avoid wood which has sustained possible frost injury. Select only the well ripened wood with medium distances between joints and ranging in size from one-third to two-thirds inch in diameter. The use of mallet cuttings, those on which a piece of the old wood is left at the base, should be avoided, as the old wood will in time decay and may spread root rot to the trunk and roots of the vine. Using only one cutting from a cane, and selecting that wood as near the base as is possible, is a practice that is to be recommended, although the cost of making such cuttings will be greater. The maturity or ripeness is indicated by the firmness of the wood: soft, pulpy cuttings should be avoided, although the wood should be moist enough that a little sap may be squeezed from a newly made cut. The pith should be light colored and the buds well formed

Testing for Starch

A test which will indicate the presence of sufficient reserve plant food can be made by applying a solution of iodine and alcohol to a freshly made slanting cut through the cutting. This solution is made as follows: One part (by weight) iodine, 100 parts (by weight) 75 per cent alcohol. If there is plenty of plant food in the cutting the entire cut surface will turn dark in three or four minutes. If not, only spots of dark will appear, and such cuttings should not be used.

Never use wood for cuttings that has been pruned off and left exposed to the sun and frosts for several days, if you expect to get the best results. Careful personal supervision of the making of cuttings, and particularly the selection of the best wood from good vines, is a paying investment, especially if the cuttings are to be planted in vineyard form. The penalty for carelessness is an uneven stand, and this never can be satisfactorily corrected.

Length of Cuttings

The length the cuttings should be made depends largely upon the type of soil in which they are to be grown. Roots will form only where the conditions of heat and moisture will permit, therefore a long cutting in wet, heavy soil is almost sure to fail, and a short cutting in light sandy soil will often dry out before it has a chance to start. In general cuttings from 16 to 18 inches in length will succeed best in light soils and from 12 to 14 inches in heavy soils. The length will of course vary somewhat, due to the difference in distance between joints. The cut at the base end should be made just below the joint, while that on the upper end may be made an inch or even more above the joint.

Care of Cuttings Before Planting

The cuttings should not be left in the field any longer than necessary after they are made, and in no case should they be left exposed over night. The cuttings should be loosely tied together in bundles and placed in a trench on some well drained place, preferably in the shade, and carefully covered with soil. The usual practice is to bury the cuttings butt end up. This may not be necessary; but at least every care should be given to prevent the leaves from starting before the roots do, as the reserve supply of plant food in the cutting may be easily used up in this manner before the roots are far enough advanced to replenish it. In covering with dirt be sure that it is well worked down around the cuttings to prevent too much drying out. Frequent examinations should be made to determine the exact conditions, as too much or too little moisture in the soil may mean failure.

The First Season's Growth

The success of this Thompson vineyard is due to good soil, plenty of water and intelligent care. The owner expects enough fruit next year to pay the cost of cultivation. Photo by Fred K. Howard.

STRAWBERRY ROOT WEEVIL SITUATION

A conference was held by the Oregon state board of horticulture in Portland, Oregon, December 17, to consider the strawberry root weevil situation, with particular reference to the action taken by California in issuing Quarantine Regulation No. 8.

It was arranged that a survey be made by the entomologists of the Oregon agricultural college to determine the areas infested by the three weevils, Otiorhynchus rugifrons, Otiorhynchus ovatus and Otiorhynchus sulcatus. The Oregon board of horticulture will quarantine those areas in Oregon found to be infested, prohibiting shipment of strawberry plants from infested to non-infested areas.

The writer attended the above meeting and agreed to recommend that the director of agriculture modify or amend, as the case may be, Quarantine Regulation No. 8 to conform to the findings of the Oregon authorities. At the same time the three species of weevil will be included in the quarantine instead of, as at present, the one weevil, rugifrons.

It will also be necessary to extend the quarantine regulation to apply to the state of Washington, in view of the following information contained in a communication from M. L. Dean, chief, division of horticulture, Olympia, Washington:

"We are about to promulgate a quarantine covering our entire state, forbidding the shipping of plants except from beds which have been carefully inspected and carrying with them a clean certificate. I believe it would be well for you to advise shippers to require certificates on plants coming from Washington, as a protection against possible infestation. We have the weevil in many sections of the state and have found it is difficult to control shippers who make a promiscuous business of gathering plants and disbursing them to the trade."

It would appear impracticable, as well as hazardous, to confine quarantine action to infested beds. Such action must be made to apply to well defined districts and, in many cases, to counties.

A meeting of persons interested in this matter will be called in San Francisco in the near future to consider immediate and equitable quarantine action. The date will be announced within the next week.—Lee A. Strong.

Agricultural News Notes of the Pacific Coast

Northern California

Ukiah, Mendocino County, has shipped 1,500 bales of hops.

California is the biggest pear producing state in the Union.

Petaluma is making carload shipments of eggs to New York.

The Sacramento Valley is shipping 9,000 sacks of beans to Havana.

Ranchers about Susanville are pleased with the heavy rains and snowfalls.

The Knightsen irrigation district in Contra Costa County plans to hold a bond election in the near future.

Eldorado-Amador Livestock Association is aiding in reducing indebtedness of the Cattlemen's Association.

Eldorado County irrigators are endeavoring to organize an irrigation district which will probably include Placerville.

The state water commission reports applications for appropriation of water to irrigate 10,000,000 acres during the past two years.

Heavy rains caused a landslide on the state highway between Valdor and Helena, in Trinity County, blocking the roads for five weeks.

Members of the Live Oak farm center of Sutter County are planning to slaughter 50 hogs and 20 sheep and offer the meat for public sale.

A large tract of land near Rio Vista has been purchased by San Francisco capitalists and will be planted to walnuts and used in diversified farming.

Ground has been broken for the erection of the Sacramento Valley Meat Canning and Provision Company's plant in the city of Sacramento.

Yolo County fruit producers are signing contracts for next season's production. Papers announce "high prices are the rule" but no figures are given.

Secretary Wilson of the Agricultural Legislative Committee has been explaining to farmers organizations the work of the committee in Sacramento.

Butte County rice growers are calling attention to the fact that the 1913 crop of rice was not harvested until March and yet it was a most successful season.

Reports on file at the office of the Pacific Rice Growers Association show that of a crop estimated approximately at 4,000,000 bags, only 1,500,000 have so far been harvested.

Glenn County farm bureau centers will hold meetings during January at Willows, 17; Capay, 19; Plaza, 21; Elk Creek, 24; Grapevine, 26; Larkin, 28; directors meeting, 22.

The farm bureau of Sonoma County has organized a department of viticulture. An annual membership drive is now on in which it is hoped to increase the membership to 1,500.

The annual report of the California Cattlemen at its meeting in San Francisco brought out the fact that the present membership totals 2,707. T. H. Ramsay of Red Bluff was chosen president.

Reclamation districts of the Sacramento Valley have appointed a committee to appear before the railroad commission on January 17, when it is expected that new rates for electricity will be fixed.

Central California

Tulare County farm bureau is campaigning for a large increase in membership.

Kings County farm bureau cow testing association has a membership of 1,143 cows.

Prune and apricot growers of Los Gatos, Santa Clara County, are signing up the new contract.

Due to the holidays, many of the fat hog auctions were called off during the past two weeks.

Chester H. Rowell has been appointed by Governor Stephens a member of the state railroad commission.

Tulare County is conducting a squirrel cleanup campaign. Carbon bisulphide is the principal ammunition.

The annual meeting of the California Grape Growers Exchange was held on Tuesday of this week in San Francisco.

The California State Automobile Association has erected over 7,000 new road signs in central and northern California.

Santa Cruz County farm bureau meetings: Mountain, January 17,; Aptos, 21; Happy Valley, 28; directors meeting, 21.

Kern County farm bureau meetings will be held at Mountain View, January 17; Pond, 19; Inyo-Kern, 20; Rosedale, 21.

Farm bureaus of the valley are generally endorsing bulk grain handling and many elevators will be built before next harvest.

President Walker of the state farm bureau federation attended the recent annual meeting of the Stanislaus County bureau last week.

It is expected that the 12 directors of the Central California Milk Producers will resign this week and an entirely new board be elected.

Some Santa Cruz County strawberry fields which have been seriously injured by rising alkali are improved by the heavy rains of this reason.

Directors of Tulare County water district No. 1 recently met at the Alpaugh Water Company's office and elected officers for the coming year.

Kings County farm bureau has organized and filed articles of incorporation of the Kings County farm bureau exchange, a marketing organization.

California Associated Raisin Company and the Peach and Fig Growers are both contemplating a building program which will expend over a million dollars.

Lindsay has installed a water pressure gauge in the city clerk's office so that the municipal water supply shall not be allowed to fall below an established minimum.

One of the features which is attracting much interest from farmers and seedmen is the pure seed bill which has been introduced into the legislature by Assemblyman Cummins.

Fresno County farm bureau meetings will be held at Selma, January 15; Kingsburg, 18; Reedley, 19; Sanger and Fowler, 20; Bowles, 21; San Joaquin, 25; directors meeting at Fresno, January 26, and centers at Parlier, 27; Bullard, 28. Several of the centers have held fig pruning demonstrations in charge of I. J. Condit.

Southern California

Garden Grove walnut packing house has been closed for the season.

Packing houses in nearly all Navel sections are now running full handed.

The Yucaipa Valley produced 7,710,050 pounds of deciduous fruits in 1920.

The third annual institute of the walnut growers is being held at Whittier this week.

The Fordney emergency tariff bill, new before congress, provides a 1¼ cents per box tariff on lemons.

Members of the Tustin and Garden Grove pig clubs of Orange County recently took auto trip to Diamond Bar hog ranch.

Poultrymen of the San Dimas, Los Angeles County, section, are holding meetings, contemplating the formation of a poultrymen's association.

At a meeting of San Diego dairymen to consider new rules for cow testing a new slogan was adopted: "We don't ask profit on inefficient cows."

Sugar beet growers of Southern California have an organization committee at work which it is hoped will succeed in giving satisfactory return to the grower.

Palo Verde Valley ranchers of Riverside County have placed orders for more than 250,000 rooted grape cuttings for spring planting, mostly of Thompson and Malaga.

Manager Greene of the Dairy Council has been visiting various Southern California points during the past week and holding sessions with milk producers and distributors.

Fruit grower's organizations in all southern counties have held meetings of late and adopted a lower wage scale for all classes of workers than the one prevailing last year.

A representative of orange shippers in South Africa, now visiting local plants, says his country ships oranges to England in 30 days, arriving in splendid condition after the ride of 9,000 miles.

George McFee, Orange County sealer of weights and measures, estimates that the county's farmers saved more than $11,000 in 1920 through having barnyard manure analyzed before purchasing.

Dairymen of Imperial Valley have been holding meetings, listening to addresses by Dean Van Norman and others and endeavoring to put the dairy business of that county on a more profitable basis.

D. D. Sharp, horticultural commissioner of Riverside County, is urging peach and apricot growers to spray trees now and again in spring before buds swell, first with Bordeaux and later with lime-sulphur.

The Golden Orange Groves, Inc., met at Covina last week and authorized purchase of a spraying outfit, also a "fire fighter" trailer from the county for $400, and appointed a committee to investigate cost of cooperative fumigation.

The Edison Company of Los Angeles contemplates the most gigantic power development on the Colorado River, which will not only develop hydroelectric power in excess of any similar project, but store sufficient water to irrigate 3,000,000 additional acres.

The Coast and General

Hawaiian Islands Arbor Day is November 19.

Hood River, Oregon, still has 400,000 boxes of apples to ship.

The Cuban pineapple crop will be 100,000 crates greater than that of 1919.

The University of Missouri is working for a new building of the college of agriculture.

California's canned fruit and vegetable output aggregates an annual value of $108,096,875.

Florida's shipments of grapefruit for this season totals about 4,000 cars; of oranges about 6,600 cars.

Florida citrus shippers are again opening packing houses which were closed during the holiday season.

The president of the Washington Potato Growers Association, recently elected, is George Cannon of Buckeye, Washington.

A wage cut of 25 per cent has been made in nearly all the lumber mills of the Northwest. 60,000 workmen are affected.

Market centers of the East are reporting scarcity of truck farm supplies largely because of high transportation costs.

Dairymen of Montana recently convened at Great Falls and discussed cooperative marketing.

Montana farmers are digging pit silos in preparation for storing more of next summer's crops.

The coffee crop of the republic of Salvador will run around 300,000 bags, a serious reduction over former years crops.

Sonora, Mexico, is planning utilization of the waters of the Sonora River so as to bring thousands of acres under intensive cultivation.

Oregon truck growers are standardizing and reducing size of containers, hoping hereafter to ship higher quality to arrive in better condition.

One serious pest of the prune in Oregon is the prune leaf spot. The experiment station is recommending its control with weak Bordeaux.

Small fruit growers of the Northwest are making every effort to secure tariff on currants and other small fruits from Mediterranean sections.

The eighteenth annual corn show of the Missouri Corn Growers Association is being held at the college of agriculture at Columbia. It will close January 21.

Yakima, Washington, shipped to Europe by refrigerator steamers, by way of the Panama Canal, 61 cars of Washington apples. Most of the apples went to London.

Conferences of six state associations met in Spokane last week. They included the potato growers, horticulturists, beekeepers, wheat farmers and Farmers Union.

Sugar beet growers of Utah are concerned over a root rot affecting many fields. The sugar companies have taken steps to eradicate or at least bring under control.

Hawaiian Islands quarantine and vaccinate against rabies all dogs which come to the islands from countries where rabies exists. They are required to remain in quarantine 40 days.

Problems of the Peach and Fig Growers

By Frank Wilson Before Fruit Growers at Fresno

OUR present and future problems certainly offer us at this time a fertile field for discussion. The past is behind us; in the present are the living issues; the future is always a problem.

I shall not attempt to deal with matters affecting our organization through the prosecution brought against the California Associated Raisin Company by the department of justice. The merits of this case have recently been argued before Judge Bledsoe in the federal court. National interest has been aroused by the prosecution of this case. The result is being awaited with much interest by both friend and foe of the cooperative movement.

As you are doubtless aware, a merger is now being effected between the California Peach Growers, Inc., and the California Fig Growers. This being the last year of operations under our peach contract, it became necessary to go before the growers for a renewal before the contract expired. In view of the deplorable condition of the fig market, an active sales organization seemed necessary; the Fig Association, up to this time, acting only in an advisory capacity, had not attempted the marketing of the product. After several conferences between prominent fig growers and our board of directors, a merger of the two interests was decided upon. Contracts have now been signed covering over 75 per cent of the total peach and fig acreages of the state.

With the peach interests our difficulties have been largely solved. Our "Practically Peeled" peach, packed under the "Blue Ribbon Brand," has grown in popularity, and widespread distribution has been secured. About 65 per cent of our sales for the present season have been under this brand, a high percentage being sold in 11 ounce, two pound and five pound cartons. In a comparatively short time we believe our entire offerings will be sold under the "Blue Ribbon Brand."

But the consolidation of the peach and fig interests brought many new problems. No food product offers greater opportunities for exploitation than the California fig. Few have received less attention. True, some of our most prominent fig packers have maintained a high standard of pack and their brands are widely and favorably known. Much of the product, however, packed and shipped as Choice California figs (not mentioning the cheaper grades) have been of inferior stock and have had a very depressing effect on the market. No special effort has been made to popularize this wholesome fruit. It is, perhaps, asking too much of the packer to expect him to expend large sums of money in national advertising or the carrying on of extensive experiments in the production of new uses of the fig, etc. In this, as in our other lines of food production, it devolves upon the producer to carry this burden. In so doing he must of necessity undertake the manufacturing and marketing of the crop, a brand must be established which stands for merit, and the quality of this brand must be maintained. Whether in the fresh, canned, or dried form, our offerings must be clean, wholesome and appetizing.

With the heavy new planting of figs now coming into bearing, the tonnage will in a short time be greatly increased. Provision must be made for the handling of this added tonnage; new and more enticing uses for the fig must be worked out; a national advertising campaign must be inaugurated. Along these lines I would say we are now having plans drawn for a modern, up to date packing and storage plant capable of turning out from eight to ten cars of finished product per day. Special attention is being given to economy in operations, sanitation, durability, etc. We hope this building will be completed and ready for occupancy before the coming delivery season.

Regarding our experimental work: For the past several weeks we have been carrying on extensive experiments in the production of new dishes and new uses of the fig, such as fig bread, fig pies, cakes, etc., figs canned in different degrees of syrup, fig bars, fig paste, etc. We hope, before the coming season, to have something good to offer the housewife, something which will be a ready seller and increase materially the consumptive demand for figs. We already have our plans perfected for a national advertising campaign.

Realizing that the fig industry is one requiring careful study, and to a degree expert knowledge, our management thought it necessary to employ the services of an expert in fig culture. Professor Condit, formerly of the University of California department of agriculture and more recently associated with J. C. Forkner as a specialist in fig culture, is now on our staff in connection with our standardization department. His duty is, among other things, to serve the grower, working with him in his cultural problems to reduce to a minimum the defective fruit common in our fig crop.

It is known that much of our plantings of White Adriatic and Calimyrna figs have been made where soil and climatic conditions are unfavorable. The result is a high percentage of smuts, sours, and defective fruit. These plantings should be at once top grafted to such varieties as the California Black Mission, the Kadota and others less susceptible to these defects.

Because of the extensive planting in recent years of the Calimyrna fig, which requires artificial pollenization, and in view of the scarcity of Caprifigs carrying the fig wasp used in this caprifying process, and the consequent high prices asked, we have decided to plant an extensive acreage to proven sorts of Caprifigs for distribution to the growers. We hope in a few years to be in a position to furnish these figs in necessary quantities and at reasonable prices.

These are some of the problems which we are encountering in connection with the growing and manufacturing departments of our business. I feel that all are in course of satisfactory solution. The big problem confronting us today is not so much with the growing and manufacturing—for here we get earnest cooperation—but rather with a certain branch of our marketing agency, which I regret to say in many cases has shown no sympathy with our work and leaves very much to be desired from a merchandising standpoint. I refer to the wholesale grocerymen and their attitude toward our grower organizations, as voiced in their trade journals, public utterances, and in many other ways. This condition is wholly undesirable and should not continue. Are the new and old systems of marketing so fundamentally different that we cannot function in a friendly manner? I am inclined to believe an application of a little personal equation might prove mutually beneficial. Certainly, to have an efficient marketing agency we must entertain more friendly relations toward each other. Let us hope these seeming differences may be speedily overcome, that we may enjoy a similar degree of cooperation from our marketing agents as we have in other departments of our business.

The fundamental principles of our organization are sound and enduring. While differences exist in types of organization, the underlying principles are the same. The degree of success we obtain is measured by the ability we display in the management of our affairs. In our operations mistakes will occur; we are not infallible. Let us benefit by these mistakes, making them the stepping stones to greater success.

For the past few years the people of this country have been experiencing prosperity almost unheard of, and we have been carried along in the flood of high prices and reckless extravagances—were in the clutch of conditions not our making and which we were powerless to change. I believe the period of adjustment is at hand.

The pendulum is swinging backward. "Conservatism" should be our watchword, our craft should be piloted into more placid waters until the breakers have passed. We should adopt a conservative policy, yet one tinctured with optimism. Our dealing must be on the level, giving a square deal to all, then we need have no fear for the future.

California Prune and Apricot Growers Association

WITH the ending of the season 1920-21 California Prune and Apricot Growers, Inc., will end its existence. There will be no effort to renew the contract, so the matter of forming a new association is up to the growers. We may say the matter of perpetuation or destruction of the industry is up to the growers.

Every grower who has been in the business for the past dozen years recalls the situation which prevailed when there was no organization. He also knows that the success of the past dozen years has been because of cooperation. Those who realize this to the fullest are awake to the necessities of the case and beginning this early are laying the foundation for a new California Prune and Apricot Growers Association. This shall differ from the old company in that it will be a non-stock, non-profit organization. The membership agreement is so long that we hesitate to give it entire, but it is of such vital interest that we believe it will be read by believers in cooperation, whether growers of prunes, of apricots or of other fruits.

* * *

Membership Agreement

The undersigned propose to organize a non-profit cooperative association, without capital stock, under the laws of the state of California, for the purpose of encouraging and fostering the business of producing and marketing prunes and apricots cooperatively; for reducing speculation; for stabilizing markets; for cooperatively and collectively handling the problems of prune and apricot growers; and for other pertinent purposes.

We, the undersigned grower or growers, in consideration of the premises and of our mutual undertakings and of the agreement of each and every other party hereto, do hereby agree as follows, each for himself and, collectively, for the express benefit of the association to be organized:

1. (a) Wherever the word "association" is used herein, it means the California Prune and Apricot Growers Association, a new, non-profit, cooperative association to be organized under the terms hereof.

(b) Wherever the term "old association" is used, it means the California Prune and Apricot Growers, Inc., an existing corporation under which prunes and apricots are being handled and marketed cooperatively.

(c) Wherever the term "warehousing corporation" is used herein, it means the Growers Packing and Warehousing Association, Inc., a corporation organized for the express purpose of packing, processing and physically handling prunes and apricots marketed by the old association.

(d) Wherever the term "grower" is used, it means a person or persons, firm or corporation engaged directly or indirectly, wholly or partly, in the production of prunes and apricots.

2 (a) We will become members of the California Prune and Apricot Growers Association, a non-profit, cooperative association to be organized under the laws of the state of California.

(b) The association will confine itself to the problems of packing and marketing prunes, apricots and apricot pits, and their by-products only, and for its members only.

(c) The association will have suitable articles of incorporation and suitable by-laws, stating the purposes and powers of the association; the rights and duties of members; the duties of directors and officers; the manner of forfeiture or transfer of membership; withdrawal or expulsion from membership; the value of property interests upon withdrawal or otherwise; and any other pertinent and important

(Continued on Page 72.)

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR
and LIVESTOCK and DAIRY JOURNAL

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

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EDITORIALETTES

A bit of sugar and plenty of cream is all that is needed to make the cover illustration very appetizing. California is a great producer of small fruits, and by "small fruits" we are not referring to the size of the fruit in this particular illustration. A suggestion we would offer is that we grow more of this type of fruit; another, that we do not grow more until white American producers can be assured of disposal of a crop at fair prices. The growing of small fruits has proven exceptionally attractive to the Japanese and has practically resulted in their entire control of the business.

* * *

It's been nippy cold for a few nights. Citrus growers lighted the heaters, and while the newspapers announce "Not as bad as feared," it has been cool enough to cause considerable concern. As yet, however, no serious injury has occurred; 27 degrees is about the minimum reported from any citrus section.

* * *

The state legislature is sweating blood in its endeavor to provide money needed for conducting the state administration during the next biennium. It seems to be necessary to raise about $14,000,000 in excess of the amount raised during the preceding two years. It has been suggested that the money be raised by going back to the ad valorem tax. This suggestion has caused such serious opposition, however, that it is now thought about 30 per cent additional tax will be put upon the corporations, which means that ultimately it will come back to the consumer and producer of the state.

* * *

It is to be hoped the state legislature will eliminate the "indeterminate sentence law." It is believed by many to be a breeder of crime; in any case it adds no dignity to the law when the criminal understands that such measures give added chance for escape from just punishment. The administration of state laws is altogether too lax and the people will look with little favor on the effort to prevent the repeal of this law.

Harding has requested a simple and economical inauguration. There has been a lot of expensive folderol at many former inaugurations. It gives opportunity for pomp and display, but just at present the American people are not in a mood to enjoy paying for a big bunch of fiddlers to add merriment to the "elite" of Washington. Anyhow, why is an inaugural "ball"?

* * *

This matter of taxation is desperately perplexing and always recurring, but there is one thing we believe should be done, and that is that the people should take away from themselves their own vote upon taxation measures. The voter is unable to go to the adding machine and total the amount which various measures placed upon the ballot will add to the state's expenses, hence his vote is cast merely upon the impulse, or rather because of the appeal of an interested party, when it becomes easier to promise to vote for a measure than to argue with the enthusiast, especially where the enthusiast is working for an increase in salary. But the voting was done and millions have been added, and now we must raise the money. But this cannot always continue and the state remain solvent.

PRUNE AND APRICOT GROWERS

The California Prune and Apricot Growers, Inc., is about to be reorganized. It will be changed from a stock to a non-stock, non-profit, association. The contracts now in force between members and the corporation will expire with the handling of the 1921 prune and apricot crop.

There are now 11,000 grower members of the association. Unless practically 100 per cent of this membership signs the new contract the association will terminate and two great industries of the state be jeopardized. Perhaps this early in the new year it would be fairer and truer to speak from the optimistic side and say that if 100 per cent of the present membership does sign the new contract the success of the two great industries will be assured. This hopeful view is the only one to take of it, for with as intelligent a class as are the prune and apricot growers cooperation appeals as the only way of securing success to the growers.

We quote at length, on another page of this issue of the Cultivator, from the new contract. There is nothing in it that will work an injustice to any member; there is much in it of prosperity. We hope the contract will receive 100 per cent signature, and that without undue effort on the part of the management.

CALIFORNIA'S CROP REPORT

IN THE issue of California Cultivator of November 6 there was given a table of California crop production for the years 1918, 1919 and a very accurate estimate of the 1920 production. Those figures were made possible because of the affiliation of the bureau of crop estimates, United States department of agriculture, and the agricultural statistical service of the state department. Since the issuance of the early November report and estimate the two departments have been busy verifying and correcting and likewise gathering more complete data as to 1920 production. This data is received just as we are going to press so we can only give a hint of the value of the report, which will be quoted from more liberally in the next issue.

California's crop production in 1920 failed to measure up to the record year of 1919, and the terrific slump in prices toward the end of the season caused decided decrease in valuation of the crops compared with those of the preceding year. In fact, this lowering of price caused the abandonment of some fields which were never harvested. This is particularly true of rice and cotton. The total acreage of all field crops harvested during the year was 5,641,700. The preceding year's acreage totalled 5,739,440. The total tonnage of field crops was 8,437,000. The farm value to the grower in 1920 was $240,071,000 compared with $301,781,000 in 1919. In fruits the total production for 1920 was 2,530,000 tons which was valued to the grower at $236,955,000, or an average of about $94 per ton. The 1919 production was approximately 2,696,000 tons which was valued at $233,910,000. The grand total value of all products of the soil in California for the present year was $493,026,000, while their value in 1919 was $551,891,000.

Of all the field crops wheat showed the most marked decline in production. Compared with 1919 production that of 1920 was only 55.7 per cent. Beans came next, showing only 57 per cent. Cotton, on the other hand, showed great increase in production, 144.4 per cent compared with 1919. This was the greatest increase of any California product. Its price, however, was 18 cents as compared with 43 the preceding year. This severe decline resulted in a $12,000,000 crop as compared with a $21,000,000 crop in 1919.

Table showing more exactly production of both field crops and fruits next week.

AT SACRAMENTO

By R. P. Royce

Farmers have vital interest in the proceedings in the legislative halls at Sacramento. Mr. Royce is permanently located at the capital and will give each week notes of interest to Cultivator readers. The first installment arrives too late to use entire, but here are a few of the notes contained in the first report.

The first week of the legislative session is over and while little transpired that is of interest to the agricultural interests of this state, a casual observer could not escape the impression that when the mill starts grinding away in earnest, agriculture for the first time will be in a sufficiently strong position to see that measures affecting the welfare of that basic industry will be accorded the attention and consideration deserved.

This new order of affairs is due, first of all, to the fact that the agricultural legislative committee is on the job and because of the strength represented by the committee and its determined and conservative attitude it has gained the respect of the entire personnel of the legislature. Again, there seems to be a widespread feeling on the part of the members that the time has come when everything possible must be done to strengthen agriculture as an industry.

For several months the agricultural legislative committee has been investigating the general needs of agriculture and weeks before the session opened a rather definite program had been mapped out. As matters stand now, it is doubtful if any important agricultural measure that lacks the endorsement of the committee will stand much chance of passing, and on the other hand it is more than likely that the most of the features that have the backing of the committee will become laws. The committee proposes to aid in getting bills out of committee; to arrange hearings before the proper committees; to follow the various measures through the many necessary steps and to see that bills passed will not fail by veto.

Economy seems to be the most popular keynote at the beginning of the session, but it remains to be seen whether or not we will hear much of economy later.

Reapportionment will be one of the big problems of the present session and it is certain that Southern California will gain several new assemblymen and senators.

Assemblyman West of Sacramento has introduced a concurrent resolution asking for a complete investigation of the present status of the college of agriculture and the university farm school. The general opinion heard around the legislature is to the effect that the time has come when California agriculture must be provided with a college of agriculture that is in keeping with the industry of the state. Many members have expressed the opinion that the college of agriculture should be divorced from the University of California.

The agricultural committee of the senate is made up of the following senators: Rigdon, chairman; Arbuckle, Carr, F. M. Duncan, Jones, Nelson, Purkitt, Rush and Slater.

Senator Inman of Sacramento and Senator Purkitt of Willows each have a bill making gambling in futures in foodstuffs a felony. The bills are aimed at the different exchanges.

Long of Contra Costa County and Colburn of San Diego have bills relating to the destruction and storage of foods. The Long bill will make it a felony to willfully destroy food fit for human consumption. The Colburn bill declares it a felony to hold food in cold storage for such long periods as to cause it to spoil.

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Hayward..Hayward Batt. Co.
Healdsburg, Healdsburg Batt. & Ign. Co.
Hollister....Hollister Batt. Co.
Hollywood, Hollywood Auto Elect. Co.
Huntington Pk., Huntington Pk. Auto El. Co.
Kingsburg, Kingsburg Batt. & Vulc. Wks.
King City, King City Batt. Co.
Lemoore...Lemoore Batt. Wks.
Lindsay.....E. M. M. Service
Livermore.Livermore Batt. Co.
Lodi.....J. W. Blair
Lompoc.....King Serv. Sta.
Long Beach.....A. C. Walker
Los Angeles,
L. A. Duncan
E. E. Mason
Vaughn-Schuler Co.
Western Auto El. Corp.
C. D. Wilson
Los Banos, Los Banos Tire & Batt. Co.
Los Gatos..Gem City Serv. Sta.
Madera, Valley Bat. & Vul. Wks.
Marysville Ray'd Lawton Co.
Merced.....Merced Batt. Co.
Modesto....Mission Batt. Co.
Monrovia, Sto. Batt. Serv. Co.
Monterey, Monterey Batt. & Vulc. Co.
Napa....Auto El. & Batt. Serv.
Newman.....K-L Garage
Oakland....Auto El. Serv. Co.
Ontario.....R. J. Tobey
Orange, Orange Co. Ign. Wks. Inc.
Orland..The Orland Batt. Co.
Oroville....Records & Brandt
Oxnard..Herbert Hedges, Inc.
Palo Alto.....Reed Supply Co.
Pasadena.....F. W. Birnie
Paso Robles, Auto El. Supp. Co.
Petaluma, Lloyd's Auto El. Co.
Pomona.....Loney Bros.
Porterville, Porterville Bat. Wks.
Red Bluffs, Tehama Co. Batt Co.
Redlands....R. B. Goodfellow
Redding..Mt. Shasta Batt. Co.
Reedley.....Enos & Murdock
Redwood City, Auto Ignition Co.
Richmond, Pioneer Batt. Co.
Riverside, Mission Auto El. Co.
Sacramento.....E. W. Cutler
Salinas, Salinas Sto. Bat. & El. Sp.
San Bernardino, G. H. Stickel
San Diego....J. Stanley LaSha
San Fernando..Walter & Box
San Francisco, C. W. Barnes Co.
Julius Brunton & Sons Co.
H. F. Toomey & Co.
San Luis Obispo, San Luis Auto El Wks.
San Mateo..Davis & Goodhue
San Jose..Electric Batt. Sta.
San Pedro, Ross Sto. Batt. Serv.
San Rafael.....Sparrow Bros.
Sanger.....Sanger Batt. Wks.
Santa Ana, Orange Co. Ign. Wks.
Santa Barbara, Santa Barbara Sto. Batt. Co.
Santa Clara, Coutts & Smith Batt. Co.
Santa Cruz, Santa Cruz Batt. Co.
Santa Monica, G. C. Hammond
Santa Maria...Lukeman Bros.
Santa Paula..Fred A. Ransdell
Santa Rosa..The Battery Shop
Sausalito, Linderman's Serv. Sta.
Sebastopol, Walkers Bat. Ser. Sta.
Selma..Selma Batt. & Tire Co.
Sonora, Gibbs Sto. Batt. & Ign. Wks.
Stockton, Stockton Auto Ign. Co.
Stratford, Stratford Batt. Sta.
Suisum, Solano Supp. & Con. Co.
Taft....Maxwell & Thompson
Tulare.....Electric Garage
Turlock.....Gailey Serv. Sta.
Ukiah.....Auto Elect. Co.
Vallejo, Vallejo Sto. Batt. Co.
Van Nuys, A. P. Ridenour's Batt. Serv. Sta.
Venice.....Elect. Serv. Co.
Ventura.....R. B. Haley
Visalia....Ferguson Elect. Co.
Watsonville, Watsonville Bat. Co.
Whittier, Whittier Auto El. Wks.
Willows..Dean's Batt. & El. Co.
Woodland..Woodland Batt. Co.
Yreka....The Elec. Supp. Co.

ARIZONA

Casa Grande, Western Mach. Co.
Douglas....Lohman & Wright
Flagstaff, Vyne Bros. Elect. Co.
Globe....Western Machy. Co.
Kingman, Kingman Batt. & Ign. Co.
Lowell.....Lowman & Wright
Mesa....Western Machy. Co.
Nogales..Western Machy. Co.
Phoenix..Western Machy. Co.
Prescott..Vyne Bros. Elect. Co.
Tucson....Western Machy. Co.
Yuma, Reid & Morton Elect. Co.

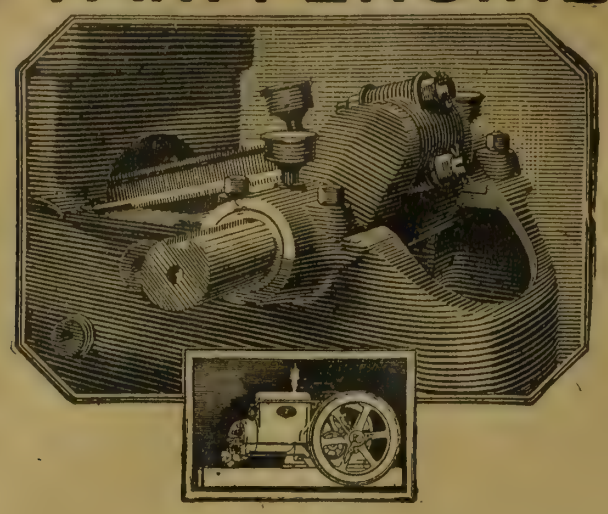
NEVADA

Carson City, Nev. Tele. Supp. & Const. Co.
Elko....Harris Elect. Serv. Co.
Ely.....Ely Battery Co.
Reno.....Brown-Milberry
Tonopah, Tonopah El. & Tire Co.
Winnemucca, Winnemucca Batt. & Tire Co.

WILLARD STORAGE BATTERY COMPANY, Cleveland, Ohio

Willard THREADED RUBBER BATTERY

FAIRBANKS-MORSE "Z" FARM ENGINES



The "Z" Lives a Long and Useful Life

The "Z" Engine is built for service and long life. It has case hardened parts, steel forgings, large crankshaft, die-cast, removable bearings. "Z" parts are accurately made by precise machine work. Every part is individually inspected before being assembled into the engine.

The methods used in manufacturing "Z" Engines are the same methods used in building automobile engines—never before considered necessary or possible for farm engines.

Other "Z" features are: Runs on kerosene as well as gasoline; Bosch magneto; more than rated power; parts interchangeable; clean-cut design.

Let your nearby dealer show you these features that have been so appreciated in over a quarter-million "Z" engines bought to date by farmers.

PRICES

1½ H. P.	$ 85.00
3 H. P.	135.00
6 H. P.	220.00

All F. O. Factory

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MANUFACTURERS — CHICAGO

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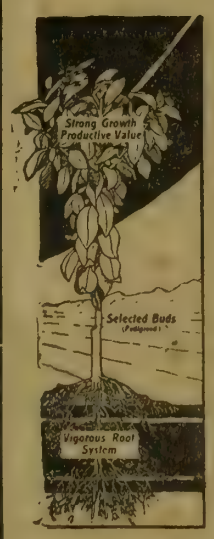
They are the best that can be produced.

If you intend planting CITRUS TREES it will pay you to come and see our stock and let us figure on your requirements while we still have a good assortment to select from, as the supply of good trees is limited.

Avocados, Feijoas and other Tropical fruit trees in all of the recommended varieties.

Send for our new descriptive price list and tell us what you intend to plant.



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Box A San Dimas, California

Founded in 1889 by R. M. Teague

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CALIFORNIA PRUNE AND APRICOT GROWERS ASSOCIATION

(Continued from Page 69.)

points, all as determined by the organization committee hereafter provided.

3. The association may include in its membership any prune or apricot grower, or the landlord or tenant, or lessor or lessee, of orchards on which prunes or apricots are grown, provided the landlord or lessor receives all or part of his rental in prunes or apricots.

4. The affairs of the association shall be controlled by a board of 15 directors, and the office and principal place of business of the association shall be at San Jose, California. Business offices or branches may be established anywhere throughout the world.

5. (a) The members, through the voting board hereafter provided, shall elect annually 14 directors from among members growing prunes or apricots, maintaining at all times a fair and equitable representation of the prune and apricot producing districts included in the membership.

(b) One director may be a person nominated in writing by the governor of the state of California; and when elected he shall have full authority as a director, representing primarily the interests of the general public in the conduct of the association.

No person shall be elected as such director unless the name has first been approved by a majority of the voting board.

(c) The board shall appoint an executive committee of five directors to conduct the detailed affairs of the association, subject to the general control of the board of directors.

6. Every member of the association shall have one vote.

7. Every member of the association shall pay an entrance or membership fee of $10. The property interest of all members in the association shall be equal.

8. (a) The undersigned grower hereby appoints a voting board as his proxy and attorney, to vote in his name, place and stead for him and representing his interests and the joint interests of all other growers at all annual, regular, or special meetings of the members of the association, or otherwise, where a member may be called on to act in or for the association, with the same powers and rights as the grower himself would have if personally present, from the date of execution of this proxy, agreed as July 31, 1921, for a full period of seven years thereafter. The voting board shall consist of 39 members, representing the various districts as here set forth:

Two from District 1, including Butte, Shasta and Tehama Counties.

One from District 2, including Yuba and Sutter Counties.

One from District 3, including Colusa and Glenn Counties.

One from District 4, including Merced, Stanislaus, San Joaquin, Sacramento, Placer, Amador and Eldorado Counties.

Two from District 5, including Yolo and Solano Counties.

Two from District 6, including Napa County.

Five from District 7, including Sonoma, Mendocino and Lake Counties.

Sixteen from District 8, including Contra Costa, Alameda, Santa Clara and San Mateo Counties.

Two from District 9, including San Benito, Monterey and Santa Cruz Counties.

Two from District 10, including San Luis Obispo, Santa Barbara, Ventura and Los Angeles Counties.

Two from District 11, including Orange, Riverside, San Diego and San Bernardino Counties.

Three from district 12, including Kern, Tulare, Kings, Fresno and Madera Counties.

Counties not named here, but which now or hereafter may have any membership producing prunes or apricots, shall be included in the nearest or most convenient district, as the board of directors may decide.

(b) The members of the voting board shall be selected by ballot by the members in the respective districts. The organization committee shall provide for primary elections to choose nominees from each district in double the number of the places to be filled. The election shall be held in each respective district by mail to elect the members of the voting board from such district. The organization committee shall provide for such primary and final elections to take place July 31, 1921, and the names of members so elected shall be certified by said organization committee and shall be deemed for all purposes to have been specified in this agreement as a voting board prior to the date of execution hereof.

(c) This voting board, so elected, shall select the directors for the first year and each year thereafter.

(d) No person may serve as a director and as a member of the voting board at the same time.

(e) The voting board shall determine all questions by majority vote.

(f) The voting board shall meet whenever it may deem it necessary; elect its own chairman and secretary and conduct its own method and manner of meeting; fill vacancies by election of other members as hereafter provided; expel any member of the voting board who, in the judgment of two-thirds of the total board, may not represent the best interests of the growers as a whole, in the conclusive judgment of the voting board; and give the greatest possible care to the selection of proper directors to represent the interests of the growers and to recommendations for the guidance of the board in the conduct of the business of the association.

(g) All expenses of the voting board, including such compensation as it may determine for its members performing regular duties for the board, or otherwise, shall be paid by the association as part of its general expenses.

(h) On written demand or vote of 16 of the voting board any particular problem or problems of the association shall be referred to the full membership of the association. In such event the proxy and power of attorney shall be temporarily suspended and the entire membership shall be requested to vote thereon. The voting board shall thereupon vote as a unit as a majority of the association members so voting shall determine.

(i) Twenty-five per cent of the membership in any district may call an election in that district to demand that resignation of all or any members of the voting board from such district, and the members of the voting board shall act as the election may indicate resignation or otherwise.

(j) In the event of the withdrawal, resignation or expulsion of any member of the voting board, or in the event that any such member ceases to be a grower, or in the event of any vacancy, the members in the district where such vacancy may occur shall hold a district election to choose his successor for the balance of the term.

(k) In all elections and ballots where the members vote directly, voting by mail shall be provided, and in the instance of elections, primary and final ballots shall be provided as above set forth.

9. The association shall create a membership fund out of the entrance or membership fees of $10 per member.

This fund must be retained in cash or in specified assets of the association representing an aggregate value equal to $10 for each member of the association.

10. (a) The association shall be organized by an organization committee, consisting of the board of directors and the board of trustees of the old association.

The organization committee shall begin an immediate campaign to secure signatures hereto, and shall continue the campaign to and through April 30, 1921.

(b) If by April 30, 1921, signatures of growers covering 75 per cent of the prune acreage of California shall be secured for this agreement, this agreement shall be binding upon all of the subscribers in all of its terms as to prunes.

(c) If by April 30, 1921, signatures of growers covering 75 per cent of the apricot acreage and 75 per cent of the prune acreage of California shall be secured for this agreement, this agreement shall be binding upon all of the subscribers in all of its terms as to apricots.

(d) If by April 30, 1921, signatures of growers of 75 per cent of the prune acreage or the apricot acreage of the state, respectively, shall not have

been secured, then the organization committee shall notify every subscriber at his address noted below and shall consider as cancelled the agreement signed by him in reference to only that fruit, either prunes or apricots, for which the minimum acreage has not been secured; or, if the minimum acreage of prunes is not secured, in reference to both.

(e) For all matters of acreage, or signatures; and for all statements of fact in connection herewith, the written statement of the organization committee, signed by the chairman and secretary of the board of trustees of the old association, shall be absolutely conclusive, with or without notice to the subscriber.

11. (a) Each subscriber who is not now a member of the old association agrees to pay to the organization committee, upon execution of this agreement, the sum of $10 for the membership fee of such subscriber, to be placed in the membership fund of the association.

(b) If the signatures of growers covering the minimum acreage shall not have been obtained by April 30, 1921, the organization committee shall return to such subscribers, not now members of the old association, the said sum of $10 originally paid for the membership fee.

12. (a) We do hereby authorize the organization committee, as the representatives of all the subscribers, to take such steps as it may deem proper to secure subscribers hereto, and when the adequate number is secured, to take all steps necessary and advisable to organize the California Prune and Apricot Growers Association.

The organization committee shall cause the voting board to be elected at the earliest possible date, and the voting board shall choose the directors for the first year as incorporating directors and shall cause them to incorporate the association.

(b) The association, when organized, shall make every reasonable effort to secure signatures of additional growers to the standard agreements, to cover the largest possible acreage of this state.

13. The subscriber, as a present member of the old association, expressly authorizes and agrees:

(a) That he shall be credited with a payment of $10 towards his entrance or membership fee, on account of payments heretofore made to the old association.

(b) That he shall be credited in the advance fund, hereafter provided, for the full face value of, or beneficial interest in, capital stock of the old association held or owned by him on January 1, 1922, over and above aforesaid $10 per person.

(c) That he shall be credited in the advance fund with the face value of any and all deductions made prior to January 1, 1922, for the purchase of common stock or retirement of preferred stock of the Warehousing Corporation, calculated cumulatively.

(d) That he hereby assigns, sells and transfers over to the association all of his interest in the California Prune and Apricot Growers, Inc., and agrees to surrender to the association his trustees' certificate, together with all of his interest in the capital stock of the old association, or in any assets thereof, and his claims against the old association, as and to any deductions made for the purchase of stock of the Warehousing Corporation or otherwise.

(e) That he authorizes and instructs the board of trustees of the old association to vote for and arrange a transfer of all of the assets of the old association to the association, for the value thereof, and to credit to the old association as part payment therefor such proportion of the transfer price as may be represented by all of its member stockholders, subscribers hereto, in the aggregate; and to pay all non-signing members or stockholders of the old association in cash for their respective interests prior to January 1, 1923; and to take such additional or other steps in reference hereto as may be required by law.

(f) That he authorizes and directs the trustees and directors of the old association to close out the business of the California Prune and Apricot Growers, Inc., as soon as the present contracts expire, and to dissolve the said old association at the earliest possible day.

14. The association shall create and maintain an advance fund.

This advance fund shall be the aggregate of the amount of the issued capital stock of the old association, less $10 per person deducted as already provided, and the aggregate value of assets developed from all deductions made for the purchase of common stock or preferred stock of the Warehousing Corporation prior to January 1, 1922, and of all deductions thereafter made for the purchase and retirement of preferred capital stock of the Warehousing Corporation.

Series A certificates, bearing interest at the rate of seven per cent per annum, shall be issued for and on account of the respective interests therein of the subscribers, members of the old association. The certificates shall be delivered to the voting board, to be held for the benefit and account of such subscribers until redemption, but interest shall be paid annually to the beneficial owners.

The Series A certificates shall be retired, as the directors may elect, generally, at the annual estimated rate of one-seventh of individual holdings and the aggregate amount of the entire Series A certificate, in the conclusive discretion of the directors.

The Series A certificate shall be so retired by the payment in cash of the face value thereof, with accrued interest.

The interest on all certificates shall be paid annually to the owners thereof.

For any or all deductions made for the purpose of retiring the said Series A certificates, every grower shall be credited cumulatively, and Series B certificates shall be issued according to such deductions for and on his account to the voting board.

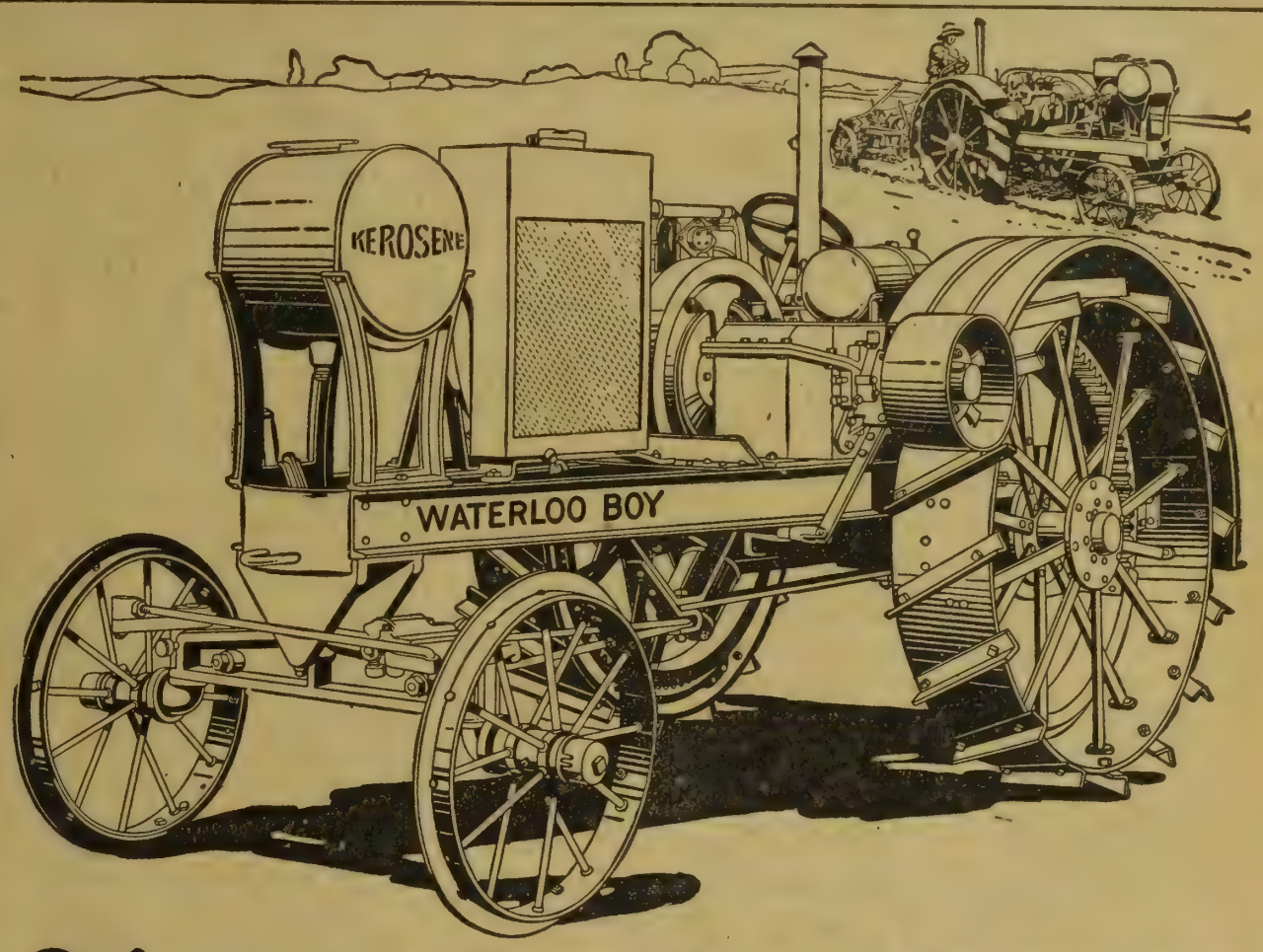
Said Series B certificates shall entitle each grower to seven per cent interest on the face value, and shall further entitle him to such proportion of the face value of the advance fund as each certificate bears to the total issued and unredeemed certificates.

The said advance fund must not be distributed except for payment of Certificates Series A, and replacement by deductions and issuance of Certificates Series B, as long as there are any outstanding liabilities of the association over and above the amount of the membership fund.

The said advance fund shall otherwise remain intact. If the members do not elect to continue cooperative marketing hereunder, at the end of the seven years period, the directors, with the consent of two-thirds of the voting board, shall sell the assets of the association and, after deducting and retaining the entire membership fund for distribution equally by membership, shall distribute the proceeds proportionately to the owners of the certificates then unredeemed.

15. All members of the old association not signing this agreement shall have the value of their respective interests in the deductions calculated as of January 1, 1922, and shall be paid in cash therefor on or before January 1, 1923, without interest.

16. (a) The subscriber agrees (1) execute, when requested by the association, a marketing agreement in terms substantially the same as those set forth in the agreement herewith



9 Acres a Day for 42 Days

IN the big things and the little things that make for tractor efficiency, you can count on the Waterloo Boy. When the owner of a Waterloo Boy starts out in the morning he knows his tractor will do his work the way he wants it done, finishing the day as strong as when it started. And he knows his tractor will keep on doing the same thing, day after day, week after week, always responsive in meeting the requirements of economical work.

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This confidence in Waterloo Boy ability has been brought about by real field performance. For instance:

A farmer living near St. Thomas, N. Dakota, owns four Waterloo Boys. His name is Ray Huffman. Last fall his Waterloo Boys plowed 1,520 acres in forty-two days—nine acres per day for each tractor. And he was plowing seven inches deep. That meant dependable service, the kind that counts most.

Mr. Huffman's four Waterloo Boys burned 2,470 gallons of kerosene in plowing his 1,520 acres, or an average of only 1.6 gallons per acre—a remarkable showing, but not unusual for a Waterloo Boy. This is the sort of economical power that appeals to farmers who want their work done well at small cost.

Ask your John Deere dealer to drive out a Waterloo Boy. Watch how it handles your own drawbar and belt work on your farm, under your conditions. Drive it yourself. Then you will know why Waterloo Boy owners are satisfied with their power investment. Write to John Deere, Moline, Ill., for a booklet, describing the Waterloo Boy. Also ask for Better Farm Implements, a 114-page book giving description, care and operation of the full line of John Deere tools. It's free. Ask for package WB-46

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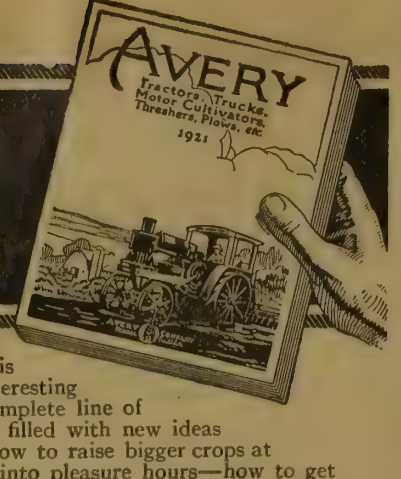

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All the leading varieties such as Black Mission, Calimyrna, Kadota and White Adriatic.

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embodied, or (2) at the option of the association, to be bound by the terms of the following marketing agreement.

For such purpose signature to this association contract shall be deemed to all effects the same as signature to the said marketing agreement and as acceptance of each and every provision thereof and herein, as of the date of the exercise of such option by the association. Notice thereof shall be mailed to each subscriber at his address as noted below.

(b) The subscriber here applies for membership in the association when organized and expressly agrees that his signature to this association contract and to the marketing agreement, herewith embodied, and to this application for membership, shall be irrevocable, and that he so agrees, in order to induce other growers to sign this agreement for his benefit as well as their own general benefit and the public welfare.

Acceptance of this application for membership and of the marketing agreement shall be deemed conclusive upon the mailing of the notice by the association, and such mailing and notice shall be conclusively established by the affidavit of the secretary of the association.

* * *

As a part of the membership agreement the entire marketing agreement is used. This consists of 18 paragraphs or specific agreements and is made up of details as to fruit, methods of delivery, manner of pooling, making other disposal of fresh fruit, sale of orchards, mortgaging crops, breach of contract, and other conditions.

* * *

These provisions are subject to minor modifications or amendment by the organization committee, on the suggestion of the corporation commissioner, or otherwise, so as to carry out the general purposes hereof, or to conform to the provisions and privileges that may be embodied in any act providing for federal incorporation of cooperative associations enacted prior to July 31, 1921.

It is expressly agreed that this instrument is one of a series substantially identical in terms. All such instruments shall be deemed one contract for the purpose of binding the subscribers, to the same extent as if all of the subscribers had signed only one such contract.

* * *

Field Manager Dunlap, with Wm. G. Alexander and A. Kammerer, directors of the association, started on January 2 for a month's tour of prune and apricot growing counties of the state, where they will hold mass meetings to inform growers as to the new contract. Meetings will be held:

January 15, at Hollister, 2 p. m.; Morgan Hill, 8 p. m. 17, Hanford, 2 p. m.; Visalia, 7:30 p. m. 18, Kingsburg, 2 p. m. 19, Saratoga, Foothill Study Club House, 2 p. m.; Evergreen, School House, 8 p. m. 20, Sunnyvale, Stowell Hall, 2 p. m.; Willow Glen, school house, 8 p. m. 21, Oakley, Mercantile Hall, 2 p. m.; Walnut Creek, Judge Duncan's court, 7:30 p. m. 22, Watsonville, Auditorium, 2 p. m.; Oak Grove, school house, 8 p. m. 24, Redlands, Chamber of Commerce building, 10 a. m.; Banning, basement of Baptist Church, 2 p. m.; Hemet, basement of library, 7:30 p. m. 25, Nuevo, Community Hall, 9:30 a. m.; Elsinore, Fraternal Brotherhood Hall, 1:30 p. m.; Santa Ana, City Hall, 7:30 p. m. 26, Ontario, Chaffee High School, 2 p. m.; Van Nuys, high school, 7:30 p. m. 27, Moorpark, Community Church, 9:30 a. m.; Santa Paula, City Hall, 2 p. m.; Ventura, City Hall, 7:30 p. m. 29, Centerville, Anderson Hall, 8 p. m. 31, Hayward, Dania Hall, 8 p. m.

Raisin Crisis

The people of Central California face today a crisis.

By order of the department of justice of the United States, agreed to by stipulation of the attorneys for the California Associated Raisin Company, the contracts under which the cooperative organization of raisin growers is operating are outlawed, and this association must obtain new contracts if it is to continue to serve the people for the season of 1921 and following.

This cooperation is the one thing that must not fail. We cannot permit the association of California raisin growers, brought to a full usefulness after 20 years of struggle, to lapse because of incidental legal objections that have no bearing on the essential character of the association. We nave not gone through 20 years of communal battle against the forces of disorganization and of antagonistic marketing corporations, to be defeated as a community of raisin growers through one reversal.

We know that the union of raisin growers cannot be accomplished with any 60 per cent association. We should have a 100 per cent cooperative body. We have not been getting along any too well with a 90 per cent organization. The cooperative character of the association would virtually disappear with only a majority of the acreage of raisins held in one company. The old system of cutthroat prices, of jockeying the market, of gambling with other people's raisins, would be restored. The same dependence of the dried grape man on the uncertainties of the market would recur as we have now in the green fruit market.

It is for the raisin growers of California to say that these times shall not return. They must all say it, if the danger is to be met. We have been accused of coercing unwilling growers into our association. Let us now show the world that we all, as raisin growers, demand an opportunity and a right to enter an association.

We shall expect of the directors of the California Associated Raisin Company that they present to us, on February 1, a contract that shall meet the legal objections raised by the department of justice. But we shall demand that a new contract give us all—every man and every acre of us—a chance to cooperate for the preservation of our interests as raisin growers.—Fresno Republican.

NATIONAL ORANGE SHOW

The management of the Eleventh National Orange Show, to be held in San Bernardino, February 18 to 28, writes that it is planning to make this a show which will fully live up to its slogan of "California's Greatest Midwinter Event." It is planned to have more citrus fruits on display than ever before. Nature has smiled on the exposition and has aided in this, for Southern California has one of the largest orange and lemon crops in years. There is more fruit on the trees, therefore there will be more fruit in the show.

Among the communities and organizations which have already made application for feature displays are the following: Sacramento chamber of commerce, Fresno chamber of commerce, associated chambers of commerce of the San Gabriel Valley, Redlands chamber of commerce, Ontario chamber of commerce, Rialto chamber of commerce, Orange County, California Fruit Growers Exchange, Mutual Orange Distributors, Elephant Orchards, Pacific Electric and the Santa Fe.

Citrus Institute

The annual California Citrus Institute will be held during the Orange Show again this year, an interesting program with prominent speakers having been arranged. Among the topics to be discussed are: "Control of Insect Pests in Citrus Orchards," "Traction Power for Citrus Orchards," "Status of the Citrus Industry," and "Transportation of Citrus Fruits." Among the prominent speakers will be G. Harold Powell, head of the California Fruit Growers Exchange; J. A. Prizer, fumigation expert; H. S. Smith, scale control authority; Don Francisco, advertising manager for the California Fruit Growers Exchange; D. E. Huff and W. H. Fleet, grove cultivation experts.

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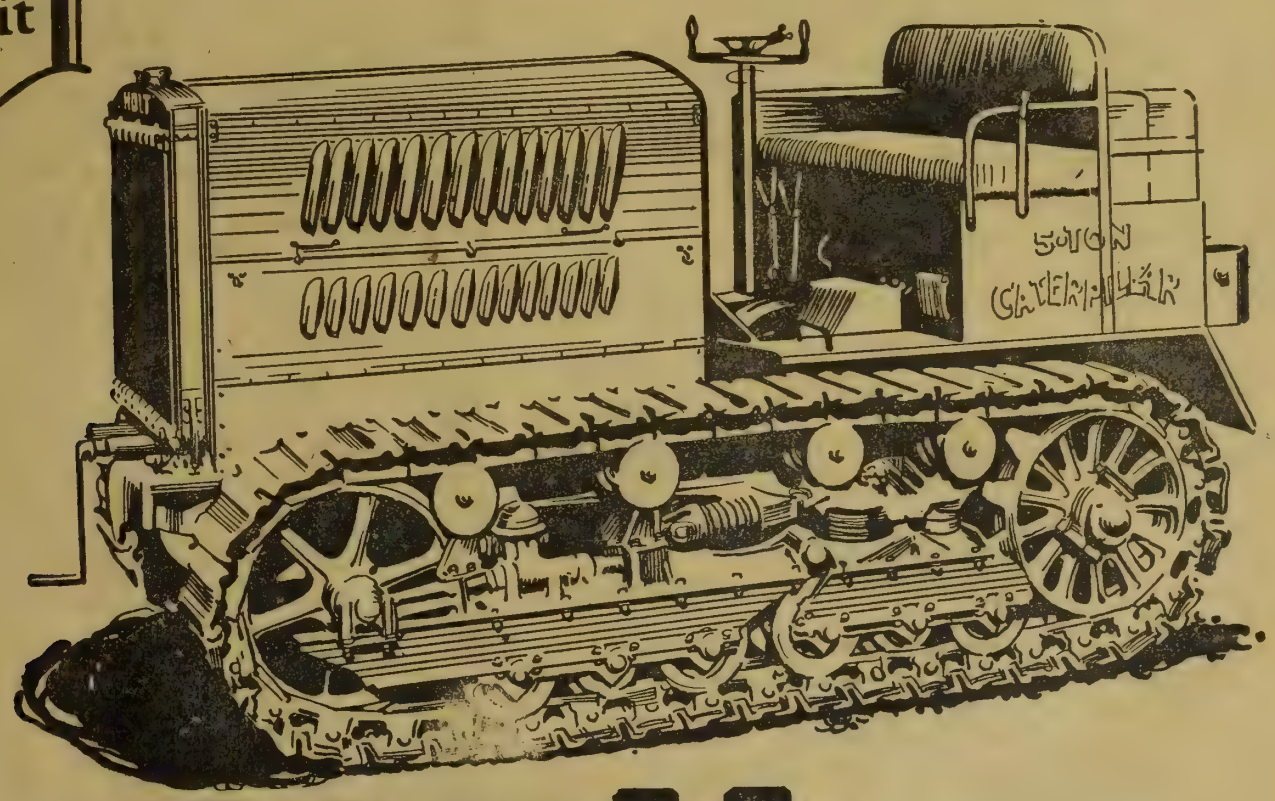
But if you hayen't investigated the 5-Ton, if you aren't already familiar with its detailed points of superiority, investigate it without delay. For a time, at least, only a limited number of "Caterpillar" 5-Ton Tractors will be available for delivery here. You must act promptly to secure immediate or early delivery. Write, phone or call at the nearest Holt branch or agency.



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Cooperation---Make It a Slogan

By M. A. Jumper

WHEN the manufacturer of an automobile, baby carriage, cream separator, or whatever it may be, has his article ready for sale, after figuring cost of producing, labor plus profit, it is put on the market at so much per—take it or leave it! If you cannot pay his price for the automobile you simply continue to travel along behind the old grey mare. The retailer who sells that article, sells it at a set price, making his commission, of course.

But how about the farmer? What would the manufacturer say if, after producing his article, a jaunty individual tripped up to him and exclaimed: "I am a buyer. I will pay you so much for a carload of your baby carriages. Rush out a carload, as the price is going down every minute." And suppose this manufacturer did as he was directed by this middleman and in a month saw his product on the market selling for almost twice what he received for it, what would happen? Baby carriages would become extinct! The manufacturer would have to go out of business.

How about the farmer? We might get along without baby carriages, but could we get along without the products of the farm? It is the farmer who produces the world's four big commodities, wheat, corn, cotton and wool. We must have these four things. Yet in no way is this great producer protected, or even encouraged, to try it again.

If the manufacturer does not get enough for his product he goes out of business. If the workingman does not get enough pay for his labor he strikes! Yet the farmer goes on year after year, worrying whether he can pay for his winter's coal or not, being the "goat" of Wall Street and the middleman. Possibly the human element in the farmer may some day assert itself, and he may go out of business—or strike! What then about you and me?

It behoves the country to sit up and take notice. It behoves the farmer to cooperate. Cooperation is the only feasible means of bringing the farmer into his own. Of course the government might take a hand and set a price each year on cotton, wool, wheat and corn. The government might even abolish stock gambling in foodstuffs—but in the meantime cooperation is the thing. We have proof substantial of what cooperation will do for the farmer in the Raisin Growers Association of California.

In California in every agricultural community is seen the beginning of cooperation in the home farm bureau. A fine thing, it should be encouraged more than it is. We are too apt to criticize the head of the farm bureau, possibly, to others. That is not cooperation. If you do not like the way he is running the thing go and tell him so: that is your privilege if you belong to the association, and you should if you are a farmer. If he is making mistakes, go tell him so and with your cooperation try to rectify those mistakes. No one is perfect!

The wheat growers, corn growers, those who raise cotton and wool, all are forming associations or have formed them. What they need is the farmer's cooperation. Stick together! Don't be scared out by a convincing middleman who tells you the prices are dropping every minute. That's his line of talk; talk is his stock in trade.

If the cotton growers will stick together and hold their cotton they will get a fair price for it. Why should they not? They planted their cotton, raised it under the high prices. They paid the high price for having it picked. Not only the farmer but the public in general will suffer for all the cotton left in the fields unpicked. Possibly next spring there will be a cry that cotton goods is high because the farmer would not pick his cotton. Possibly the verdict of the public would be "Mean farmer."

The tire manufacturer who buys long staple does not want to lose. Of course! He is human! Well then, let the farmer show he is human too! Show the world that the modern farmer is a business man. Show the world that the bewhiskered individual so long cartooned is the chrysalis from which has come this modern business man who has a production to sell at so much per, "Take it or leave it." That can be done with cooperation, for as the raisin growers take care of their members in a crisis, so could the wheat growers, cotton growers, corn growers, or producers of wool.

The Pocket Gopher

By E. L. Koethen

The extreme prevalence of the gopher at the present time causes it to be a peculiarly timely subject for discussion. We have never seen them so plentiful before as they are now. Many reasons have been suggested to explain this, but we think that the suggestion that it is because of the lack of drenching rains for several years is the most plausible reason given.

Our farm bureau recently announced that a demonstration of gopher fighting would be held at a nearby orchard. As we drove to the place we wondered what "that young fellow would be able to tell an old gopher hunter about gophers." We knew some of the things he told, namely, that the animal was solitary in its habits during the most of the year and that at the mating season they work in pairs. We knew that they throw up the mounds at a distance of from a foot to 18 inches from the main runs so that the main runs may be located by observing the location of the mounds; that they have two sets of runs, one at a shallow depth and the other some inches deeper; that they carry food and cache it in chambers, mainly in the lower runs. We knew that poison was the most effective method of getting the majority of the beasts, to be followed by trapping in order to make a cleanup. But there were some things that we did not know, some things that are new enough in their discovery to warrant them being given here.

In the first place we were told that in making the mounds the animal pushes the soil out in a fan shaped mound and that the point of the fan indicates the location of the run. As poison should be placed in the main run this is important. It saves much work to know that the run can be found easily. The operator uses a pointed steel rod with a step attached to the side, which enables him to push it down with the foot in probing for the run. His method is to find the run in this way and place poison in the runway by dropping it in through the hole made with the probe.

The location of the runway is determined with certainty, as the probe drops readily into the open space after the surface has been punctured; then it is wiggled sufficiently to leave a hole open when it is removed. This will be large eneough to drop the poisoned bait in.

The bait is prepared in this way: Saccharine is used to disguise the bitter taste of the strychnine, powdered strychnine being employed. For bait such material as carrot, sweet potato, apple and parsnip are used. In order to make a piece of bait too large for the gopher to put into his pocket to carry to his lair, it is cut into pieces from one inch to an inch and a half long, and rather small in width and breadth, say not over a quarter of an inch. This is done that the bait will fall readily into the hole to the runway. The powdered poison is sprinkled over the bait and mixed well so as to make a complete covering. It is now ready for use.

The orifices are readily made and the placing of the poison is so quickly done that a large tract can be gone over very quickly. In a few days the

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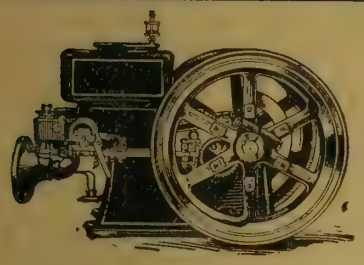

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territory is gone over again, and wherever new mounds are made the poison is reset. This is repeated until nearly all the vermin are eradicated. After that traps may be resorted to in order to secure the wise ones that will not take the bait.

RECLAMATION WORK ACCOMPLISHED LAST YEAR

A summation of the work of the U. S. reclamation service to the beginning of the fiscal year July 1, 1920, shows it has dug 12,663 miles of canals and ditches, and excavated 95 tunnels with an aggregate length of more than 27 miles. Dams of masonry, earth, crib and rockfill have been erected with a total volume of 13,827,295 cubic yards. The excavations of rock and earth amount to 179,000,000 cubic yards. The government has used 3,015,000 barrels of cement. The available reservoir capacity is 9,441,910 acre feet. The service has built 7,293 bridges with a total length of over 32 miles. Its culverts number 9,400 and are over 61 miles long. There are now in operation more than 512 miles of pipe line and 129 miles of flumes. The service has built 986 miles of roads, much of it in what was before inaccessible mountain regions, 83 miles of railroad, 3,146 miles of telephone lines, 650 miles of power transmission lines, and 1,450 buildings, such as offices, residences, power plants, pumping stations, barns, storehouses, etc. The power developed amounts to approximately 60,000 horsepower.

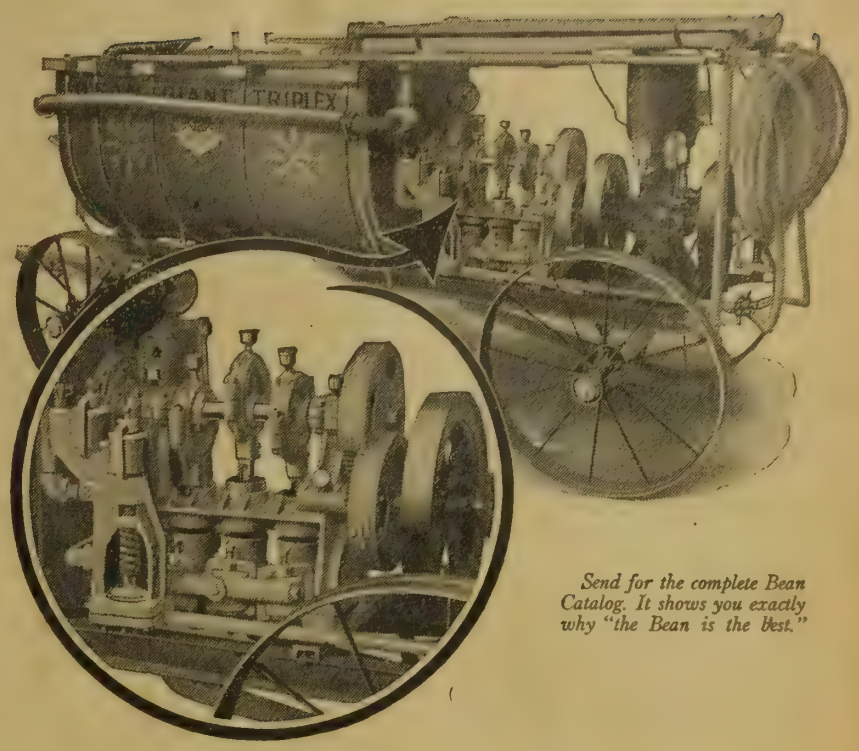
The net construction cost of the reclamation projects to the end of the fiscal year 1919 was a little less than $125,000,000.

The projects now under way or completed embrace approximately 3,300,000 acres of irrigable land and will ultimately provide about 60,000 farms of from ten to 160 acres each. During the year 1919 water was available from government ditches for about 1,636,000 acres on 39,000 farms, of which about 1,200,000 acres were irrigated; in addition water was supplied under contract for about 1,000,000 acres outside the government projects. The value of the crops grown in 1919 on lands served either in whole or in part from the works of the service amounted to $150,000,000, about $89,000,000 of which represents the value of crops grown on the 1,113,469 acres of cropped land on the projects proper, from which definite crop statistics are secured, or about $80 per acre, and the balance an estimated amount from approximately 1,000,000 acres of land served with water under the Warren Act from the works of the service.

BEET GROWERS ORGANIZING

The beet growers of California, more especially those of the southern part of the state, under direction of State Market Director Daniels and Farm Adviser Wahlberg of Orange County, are taking steps to form an association. An organization committee composed of the following named well known beet growers of Los Angeles and Orange Counties has been named: D. H. Goodwin, W. A. Draper, C. J. Smith, W. D. Johnston, Mr. Koch, J. A. Knapp, Earl Gardner, M. Chuml, J. W. Martin, J. W. Seay, Geo. C. Buehn, C. L. McComber, Sam Geizler, R. B. Marshbank, H. B. Woodrough. Mr. Goodwin was named chairman and Mr. Knapp secretary.

The university farm is exhibiting field crops in the state exposition building, Exposition Park, Los Angeles. Each specimen consists of a sheaf and a sample of thrashed grain, accompanied by a placard giving its history, soil and climatic adaptation, culture, yield records at Davis, and utilization. The collection includes the following varieties: White Durra, Select milo, Hybrid feterita, feterita, Spur feterita, Brown durra, White milo, Brown Kaoliang, Red kafir, Black Hulled White kafir, White kafir, Red Amber, Orange sorghum, Honey sorghum, Early Amber, Dwarf broom corn, Standard broom corn, Brackets Black Hulled Kaoliang, Shallu, Sudan grass, Harding grass, San Diego grass, Club wheat, Baart wheat, Sonora wheat, Bunyip wheat, Turkey Red wheat, Defiance wheat, White Australian wheat, Hard Federation wheat, barley, Red oats and Burt oats.



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There are 36 years of experience built into every Bean Spray Pump. Bean Porcelain-lined Cylinders, the Bean Pressure Regulator, Bean Threadless Ball Valves, Bean Eccentrics, Bean Cup-shaped Plungers [which require no stuffing boxes]—these and the many other Bean advantages are not the result of a day! They represent the work of years!

Here and there you will see a Bean feature copied, but in no other sprayer will you find *all* of these superiorities built into a single pump—for most of the vital improvements are patented and protected against infringements.

Send for the New Bean Catalog

It illustrates and describes the entire Bean line from the Bean Magic Hand Pump and the Bean Simplicity, the new one-man power outfit, to the powerful Super-Giant, the outfit for large orchards, where great capacity and very heavy pressure is required.

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Please send your "Sprayer Catalog"
Name
Street
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Kind of Fruit Grown
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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Tree Toads

I would appreciate it very much if you will tell me how to get rid of small frogs that make a good deal of noise at night and keep us awake. They have only come during the past year and each month are getting worse. I caught quite a number last summer in large fly traps the same as we catch flies. There is a good deal of shade and moisture around the house, which I do not want to take away, as we want shade in summer and flowers, and both trees and flowers require irrigation.—Subscriber, Anaheim.

We imagine these small frogs are tree toads, little fellows not much more than an inch and a half in length, with small, almost transparent membrane, or sac, underneath the chin with which they are able to produce a "song" which some people enjoy and others detest. Personally, we rather like the woodsy effect and find that a goldfish pond in the garden attracts them. This, however, was not acceptable to some of the neighbors, so, knowing other neighbors farther away were anxious for a supply, a little electric flashlight made it possible to gather in a good big collection in one evening, all of which were duly delivered to the neighbor who wanted to stock up. One will soon learn so that he may quietly visit their haunt, and if a quick, deft movement of the hand is made soon after the light is flashed into their eyes they may be picked up, canned and delivered to some other admirer, or, if preferred, at some far away stream or water hole. Some do not like the feeling of the "critters" to the hand and others fear that there is danger of warts, but there has never yet been an authenticated case of warts from handling them, and the feel is all in getting used to it. Also, bear in mind that the ordinary garden toad, one of the most beneficial adjuncts of the garden, does not make this noise, so in gathering up the toads be sure and leave the large or garden toad. He has a neighborly little croak, but never the song which the tree toad or the little fellow who is only about an inch or an inch and a half long has.

Tubercular Meat

Is meat fit for human consumption after the animal has been pronounced tubercular by a county inspector? A county physician claims there is no danger in eating the meat. I have read that such meat was of a pinkish color and was dangerous, as the disease could be contracted by eating the meat.—Subscriber.

Meat from tubercular animals may or may not be fit for human food. If pronounced safe by inspector or physician it probably is all right. As a rule tubercular animals are affected only as to lungs or the vital organs. There are cases, however, where the tubercles are all through the muscular tissue. In such case the meat is only fit for fertilizer. The pinkish color is not necessarily indicative of tubercular meat.

Slugs or Snails

We are bothered with slugs and would like to know of some way to get rid of them other than getting up at night and putting salt or chloride of lime on them.—Subscriber, Anaheim.

Surrounding plants with a ring of air slacked lime and liberal use of this lime about them is practically the only control of this pest other than the night work and gathering them up and destroying. Where they are numerous a bellows may be used to blow the lime dust over them. Your salt method is all right once you catch your pest and sprinkle it over him, but poking into a pan with stick is quicker. Where they are present in large fields freshly ground lime is scattered over the field at the rate of 25 to 30 bushels per acre. Instead of lime some use tobacco dust, nitrate of soda, blue vitriol in a three or four per cent solution, and kainit. One advantage of this blue vitriol solution is that sticks or branches which are covered with it cause the death of the snails as readily as if sprayed over the body. Even a small cord steeped in the blue vitriol solution and laid around the plants is a most effective guard from the pests. Common gypsum freely scattered about is likewise a good remedy. As Bordeaux mixture is composed in part of copper sulphate, or blue vitriol, liberal spraying with that has proven helpful. One gardener has recommended common insect powder mixed with soft soap and warm water, thoroughly stirred and sprinkled about places frequented by the slugs.

Persimmons

Would like to know about persimmons. What kind of soil do they require? How much irrigation? The best variety to plant? Would they be profitable to plant in Orange County?—Subscriber, Orange.

Persimmons are successfully grown in all sorts of soils in the southern end of the state, but it is believed they do better in light soils of good drainage. The more popular variety locally seems to be Hachiya, as it is the largest. Hyakume and Tamopan are both good. The heaviest crop of medium sized fruits the writer has seen were on two trees of Costata in a private garden at Ontario, San Bernardino County. Dai Dai Mara, Yemon and Tane Nashi are standard commercial varieties. A few of the Gailey are generally planted in orchards for pollinating the others, for larger crops result with all varieties where Gailey is present. We cannot advise you as to persimmons proving profitable, but the outlook is very good.

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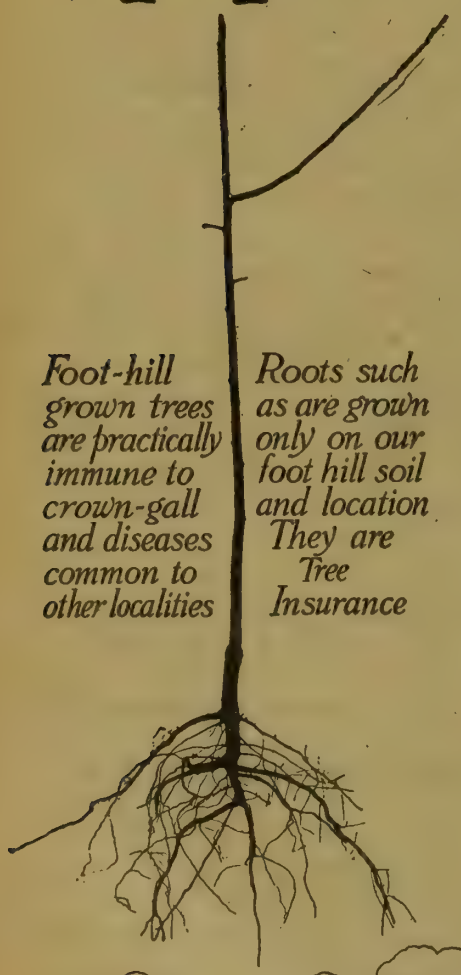

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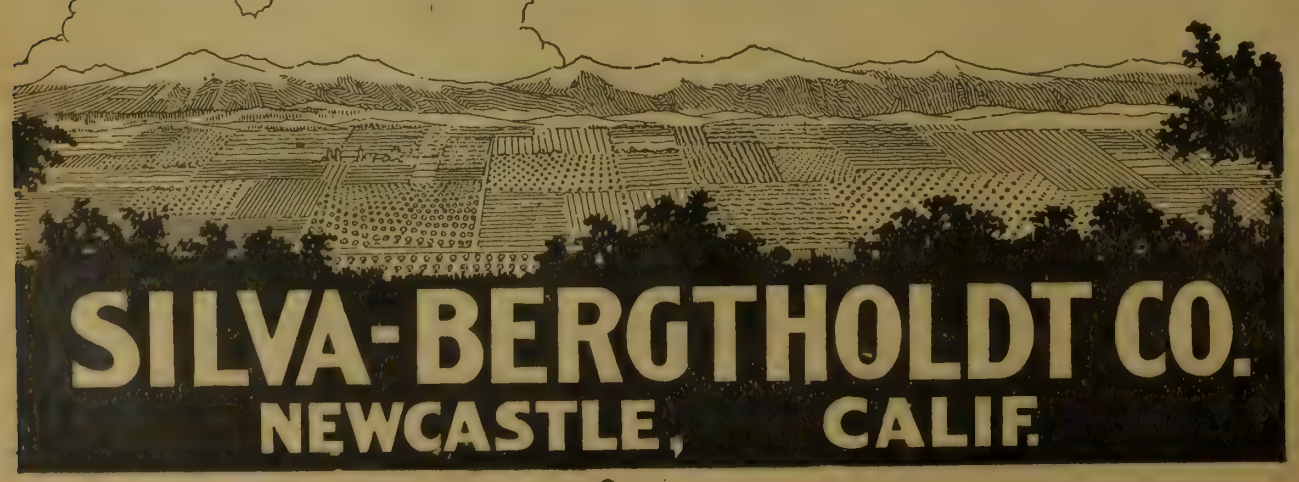

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Changing Contract

Husband and wife hold property deeded to them as joint tenants. Can the words "with right of survivorship" be written in in the presence of notary or by going to the trust company who executed the deed and made the deed valid?—Subscriber, Bonsall.

If an alteration is made with the consent of all parties, it merely makes a new contract. A deed is a contract just as all other agreements between parties are. However, if the deed has been recorded the copy in the recorder's office is prima facie evidence of the contents of the deed and the change made in the deed after recording would doubtless require explanation, which might be difficult to make. If a change is desired to be made in the deed, the only safe method is to

execute an entirely new deed and have such new deed recorded. It is quite probable that the words desired to be written in are unnecessary, but it is well to have them inserted.

Boy Not Adopted

Husband and wife have no children. They took a boy from a state home, raised him without adoption, but under contract with the home. They desire the boy and his heirs to have the ranch upon their death. What is the best way to convey the property so as to avoid probate? Can it be done by giving a deed or escrow or in some other manner. Would such deed make it possible for the owners to dispose of the land if they desired to sell?—Subscriber, Turlock.

It is true there are many ways of avoiding the probate, but they are fraught with considerable danger of subsequent litigation. It is far more expensive and troublesome than are the laws of the probate courts which have been established out of the wisdom and experience of the ages. A deed can be executed and the parties owning the property deliver to a third party to hold until the death of the grantors. Such deed and any interest in property conveyed would be avoided by any transfer of the property. The question invariably comes up as to whether there was a legal delivery, and as to terms of the contract under which the third party holds. As the boy is apparently a legal heir, the next of kin of the husband and wife would have the right to take administration upon the estate in case there was no will. Such administrator would have the right to the possession of the personal property and funds in bank, thus being possessed of the funds needed for litigating with the boy. The best and safest method in such a case is to legally adopt the child; make a will in his favor for the property which is desired to give to him, and appoint him, if he is of legal age, as the executor of the estate.

Leaving Property to Wife

A couple have several children, only one of whom is a minor. It is desired to leave all property to the wife if she survives. If a will is made must something be left to the children in order to make the will valid? Is it possible to arrange the estate in such a way that the wife can have the property without probate proceedings or other expense?—Subscriber, Lodi.

It is not necessary in the will to leave anything to the children, but they should be named therein and a distinct statement made that nothing is left to them. Otherwise, the law will presume that the testator in making his will had overlooked the children and the child overlooked would be entitled to such portion of the estate as he would have received in case there had been no will. It makes no difference in this respect whether the child is a minor or not. There are methods by which administration is avoided. They are exceedingly dangerous for a person to take without the consultation or advice of an attorney who is fully conversant with the facts in each case and it is not advisable in case of any complications to undertake such steps in any event.

Paying for Fence

I am fencing my five acres with a five foot fence. My neighbor has his fenced with a two foot fence, except a line fence which is fenced only one-half way and that in very bad condition. Can he be made to pay for half of the new fence?—Subscriber, Roscoe.

It would doubtless be true that he could be required to pay one-half of the cost of constructing a new fence.

FAIR WARNING

"Nigger," warned one, "don't mess with me, 'kase when yo' do, yo' shuah is flirtin' wid de hearse."

"Don't pesticate me, nigger," replied the other, shaking his fist. "Don't fo'ce me to press dis upon you, 'kase if I does I'll hit yo' so hard I'll separate yo' from amazin' grace to a floatin' opportunity."

"If yo' mess wid me, nigger," cried the first, showing the whites of his eyes, "I'll jes' make one pass and dere'll be a man pattin' yo' in de face wid a spade to morrow."

the proven strain is sealed and stenciled

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Proven Hairy Peruvian Alfalfa

What the *sealed* and *stenciled* bag means to you:—

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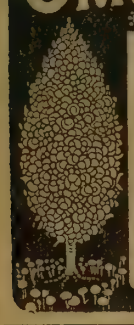

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Household Department

MY SON A MAN

He has grown into my world; he is a man,
My son, an equal of the men I know,
The women with whom I talk and laugh and plan.
How shall I make him now my friend? They say,
These other mothers, that their sons outgrow them
And are amazed because they do not know them,
But find their son a stranger—or a foe.

The boy in him will always for the sake
Of Motherhood revere me; but to make
The man in him acknowledge me and give
Me glimpses of the way he means to live
And why—his dreams, his hopes, ambitions, creed—
How can I make him know me not a mother
Alone, but comrade, friend, like any other?
I must win the friendship of this man anew.

Patiently tactful, wait, as mothers do,
Not smother him with what he does not need;
Not burden him with my anxiety,
My worry for him; but have faith that he
Can order his life well apart from me
Then, equals, we may strive to understand
Life's puzzles, not a part, but hand in hand.

—Mary Carolyn Davies.

HOW DICK SHOOK DOWN THE JAIL

"Why, of course, my dear boy! What else could be done? If the front has sunk down, it stands to reason that it must be raised in order to get the whole building level."

"And the cost of all this " asked Steve, who until this moment had not uttered a word.

"Five thousand dollars at least, according to Corrigan's estimate, and of course the old building isn't worth spending that much money on. Shucks!" he aded after some moments of thought. "I suppose in some ways it would be better to tear the old hulk down tomorrow, before somebody is hurt. Yet I hate to see it go, for it was in that building I started in business."

"Col. Smiley," said Dick earnestly, rising to his feet, "if—if—you'll trust me so far as to give me the chance, I will straighten the old jail for you as well as Corrigan could straighten it, and it won't cost you anything like five thousand dollars."

Col. Smiley stared in astonishment at his young visitor, and even Steve, who had had some inkling of the scheme, gazed open-mouthed at his friend.

"Impossible—impossible!" the colonel said, with a tolerant smile. "I admire your courage, Dick, but of course a young boy like you could not accomplish what a trained expert cannot accomplish. Besides, even if you had hit upon a new method for raising a building, you haven't the capital. Why, when I was interviewing Mr. Corrigan—it was at the time he was moving the university building—I was amazed at the great number of beams, blocks, jackscrews and engines he had on the work. I asked him their value, and he said, 'Forty thousand dollars,' as if he were talking about forty cents. No, no; you couldn't do it."

"Col. Smiley," said Dick, "you gave a talk at school last winter about the main ideas of great inventors and about the value of thinking in an original way."

The colonel smiled. He enjoyed his lectures as much as his audiences did —sometimes more. He was well pleased that Dick should have remembered this one.

"You told us about Hargreaves, the inventor of the spinning jenny," Dick went on. "You said, I remember, that his family spun so much thread with the new machine—with the spindles vertical—that his neighbors declared him to be in league with the Devil and threatened to tear his home down. The idea was too radical for them."

"But what has all that to do with straightening the old jail?" asked the colonel, puzzled.

"Your idea and Mr. Corrigan's is that the only way to straighten the old jail is to raise the lower side. I'm going to be as radical as Hargreaves. I propose to lower the high side. I'm certain that it will work. I shall use weight to lower the building, and that weight will be in the building itself."

"Bless my heart!" the old gentleman exclaimed. "I never thought of that!"

"Neither did I," remarked Steve.

Col. Smiley ruminated deeply for a while; he seemed to have forgotten the presence of the two boys who sat before him. Presently he turned to Dick.

"But the building might crack in doing it that way, and the old rattletrap would tumble to the ground."

Dick smiled. "Didn't you say only a few moments ago, colonel, that it might be better to tear the old hulk down tomorrow, before somebody is hurt?"

The colonel laughed. "What a boy you are for calling up a person's words to him. Nevertheless, my purpose was to prevent anyone's being hurt, and I don't propose to let you go into any foolhardy experiment that might result in your being buried beneath tons of bricks."

"But if I give you my word of honor that no possible harm could come to me or to any helper, would you let me try? I don't promise, though, that the building will not be injured or even ruined."

"How do you propose to go about all this?"

"I'd rather not tell you, sir, if you don't mind. Come and look at the work as it goes along. How much time have you before the question of the new factory must be settled?"

"Two months, I figure."

"Before the end of those two months, colonel, your building will be straightened up."

"Or,," suggested the colonel, smiling.

"Or," added Dick, "you'll find the old jail sleeping in its own ruins."

"Good enough!" exclaimed the colonel heartily. "Go ahead, Dick. If you accomplish your task, Ill give you twenty-five shares of the Silverthorn factory stock and pay you five hundred dollars in money. And I wish you luck, my boy."

Early the next morning — it was Saturday—the boys set off for the old jail. Steve did not question his friend; for he knew from past experience that until Dick was ready to reveal his plans it was useless to press him to do so. When they reached the building, Dick unwrapped the bundle that he had carried and disclosed several wide-mouthed fruit jars. Four inches deep in each was a whitish sediment and on top of that a little water.

"These are the samples of earth you took out of the borings yesterday," he remarked.

"Yes, and I don't know yet what you wanted those few gobs of dirt for."

"If I hadn't found out what I did about those 'gobs of dirt,' I couldn't have offered to straighten the building." Dick thrust his hand into one of the jars, lifted out almost all of the white deposit and put it on the floor. "Now, Steve," he said, "double up your fist and press as hard as you can on this little mound of white mud. I want you to see how hard a cake you can make by pressing on it."

Steve pressed down upon it with his fist. "It won't cake," he said disgustedly. "The mud just squashes out between my fingers. What kind of game is this?"

"Just this kind of game," Dick replied. "We are going to make use of the squashing-out process. We're going to make mud of the ground on the high sides of this building, and the weight of the house is going to squash out the mud until the whole building stands erect—just as it stood a hundred years ago."

"Say, Dick!" cried Steve, "I'll have to hand it to you. I never imagined you had anything like that in your head."

After making some further preparations, the boys went home, bolted their breakfasts and, stopping only long enough to get their garden spades and to sharpen the edges on a grindstone, returned to the jail. Besides the spades, they brought a spirit level and a long straight-edge.

"Now, Steve, listen," said Dick." "We're going to dig a trench three feet wide all round the edges of this basement except along the front wall, which has sunk the deepest."

"How deep do we make this trench?"

"Exactly as deep as the lower edge

The Cultivator Patterns

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PATTERN DEPARTMENT
California Cultivator
Los Angeles

of the lowest course of bricks in each of the three sides. The bottom of our trench will run uphill as it goes toward the back wall, and you'll find the foot of the back wall about eight and four-sevenths inches higher than the foot of the front wall. This building is just like a box that's tilted up at the rear end."

"How do you know that the back wall is eight and four-sevenths inches too high? You can't tell until you dig down and find out, I'm thinking."

Dick gave a comical sigh. "And yet they say that in this great country education is as free as air."

"I'll punch your head," replied Steve, with a grin. "Straightening old buildings is a subject I don't happen to have studied in school."

"Well, you can begin now. The front of the building—or box — is twenty-eight feet tall and overhangs six inches. Now, the side walls are forty feet long. It's perfectly plain that, as twenty-eight feet are to six inches, so are forty feet to X, or the answer. That answer is eight and four-sevenths inches."

"Simple enough," remarked Steve. "And we are going to let in water to a trench that runs downhill, in the hope that it will set the old jail on her feet. Maybe it will, and maybe it won't."

"No, we're going to make another trench for the water; and then we shall see the rear wall go down a little more than eight and a half inches and bring the side walls down proportionately along their entire length. Steve, it's as easy as eating."

The boys worked hard all that Saturday, and by dusk had finished their trench. To find the bottom course of bricks they had to go down eighteen and a half inches near the front wall, showing that, if Dick's figures were correct, the walls had originally been built ten inches below the level of the basement. The trench along the rear wall was almost exactly ten inches deep.

On Monday evening Steve came over to Dick's house, and the boys laid their plans for their work during that week. Flush with the side and rear walls of the building, they were to dig, in the floor of their three-foot-wide trench, another trench. The objects of this king trench, as Dick called it, were three: first, to expose the exact depth of earth to which they wished the three walls to settle; second, to form a gutter to hold the water that was to turn the earth under the wall into mud; third, to give that mud some place to go after it had "squashed" out.

Along the back wall the king trench was to be eight and four-sevenths inches deep — the exact number of inches that this part of the structure needed to be lowered. It was to be eighteen inches wide and as level from end to end as the boys could possibly make it.

"Why make it so wide?" asked Steve.

"Because we must have room to work braces and bits," Dick replied. "You see, we'll bore one inch holes every six inches along the outside of the king trench. The holes will give the water a better chance to turn the earth under the brick walls into mud."

The king trenches along the side walls were to be, of course, eight and four-sevenths inches deep also, where they left the rear trench; but since the bottoms of all the king trenches were to be level, those at the side

TEN DOLLARS WILL SAVE A CHILD

SIX days each week, three million five hundred thousand children suffering from intense hunger, bitter cold and disease, gather around the 17,000 asylums, hospitals, clinics and public kitchens maintained by the European Relief Council in Eastern and Central Europe to receive what in many cases is the only food they ever get.

These children are given one meal a day, six days a week. The feeding does not take place on Sunday as six days constitutes a "feeding week" and life can be sustained on that basis.

The children get hungry on Sunday but they do not eat on Sunday, and unless the necessary money is secured to continue the present child feeding program they will not eat on Monday, or Tuesday or any other day of the week, but will be left to die of starvation.

To give the 3,500,000 children a ration which is balanced to make up the fat and starch content which their bodies require, it is necessary to furnish them every week about 82 tons of cocoa, 232 tons of sugar, 770 tons of condensed milk, 1,716 tons of flour, 537 tons of beans, 420 tons of rice and 187 tons of lard. Every week for 34 weeks these amounts of food must go to these children or they die. The total cost, for the 34 weeks of feeding, during which period 134,096 tons of plain food will be distributed, will be $23,000,000 and an additional $10,000,000 will be required for medical service.

For the purpose of providing funds for the relief of the 3,500,000 starving and diseased children and to administer the relief economically, the European Relief Council, consisting of the American Relief Administration, American Red Cross, American Friends' Service Committee, Jewish Joint Distribution Committee, Federal Council of the Churches of Christ in America, Knights of Columbus, Y. M. C. A. and the Y. W. C. A. was recently organized in New York and comprises the largest cooperative benevolent organization ever attempted in the United States. Herbert Hoover is chairman and Franklin K. Lane is treasurer of the council.

One American dollar will keep life in one of the starving children for a period of 30 days for the entire dollar is spent in the purchase of food, as the European countries receiving the benefits of this relief furnish free labor, free transportation, and all the other things that usually cost money.

In the feeding of these children there is no waste and no food falls into hands from which it was not intended as no food can be carried away. Each hungry child is furnished with a tin cup and a spoon and once a day they come to the feeding station, receive their food, eat it on the premises and then go away with a half filled stomach and wait for the next day. Only the most needy cases receive help for after a child has been fed for a short time and gains sufficient strength to enable it to live a little longer its place must be taken by another child whose necessities are even greater.

If these children were to suddenly appear on our own streets and country roads, bare-footed, bare-headed, skin blue with cold showing everywhere through scanty rags, eyes big with famine, cheeks sunken, hands and arms but skin and bone, we would run to pick them up and clothe and feed and comfort them.

Well, they are not on our streets, not in our own country and we cannot personally minister to them, but the European Relief Council, directed by Mr. Hoover, can minister to them if we but furnish the means, and so the eight great benevolent organizations have united in an appeal to America for funds to save nothing less than a whole generation of children, who, unless we come to their rescue must inevitably perish of cold and hunger.

Thirty three million dollars is the amount required. There will be no "drive" to raise that sum. It will just be a nation-wide collection. Every dollar contributed means the saving of one child's life for 30 days. Every $10 means the saving of one child's life through the winter and until the next European harvest.

Don't wait to be solicited, but send your contribution to Franklin K. Lane, Treasurer European Relief Council, 42 Broadway, New York City.

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A DAUGHTER OF PRINCE GELSCHE WALKER, with 722.68 lbs. butter from 16,142.9 lbs. milk in one year as a junior 2 year old. Her daughter by King Morco Alcartra, son of Tilly Alcartra sells.

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A DAUGHTER OF KING MEAD OF RIVERSIDE, out of the above daughter of Prince Gelsche Walker.

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King Korndyke Pontiac Mead

Average of his Dam and Sire's Dam (Both Former World Record Holders)

At Average Age of 4 yrs. 2 mo. 10 dys. Semi-Official, 365 Days { 1062.64 lb. Butter, 21173.75 lb. Milk

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Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

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A choice collection of open heifers.

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We also have some choice young bulls of herd-header caliber that we will sell well worth the money.

We invite your inspection.

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walls would grow shallower and shallower as they approached the front of the house, until, in fact, they had no depth at all and merged with the three-foot-wide trench that they had first dug.

"Oh, I see!" said Steve, when Dick had outlined the plan. "On the two sides we shall see a wedge-shaped exposure of earth with the thick end of the wedge at the back, where we want the side walls to sink most, while the point of the wedge will be at the front, where we want the walls to sink the least. Am I right, Dick?"

"Entirely," said Dick.

By the following Saturday the boys were ready to turn in the water from the old canning house tank. Col. Smiley, who had been watching the preparations, seemed even more sanguine over the outcome than the boys were. Dick swung his plumb line over the cornice of the roof and attached it so that they could see on the ruler below how much the building was righting itself from day to day. Then they turned in the water.

On Monday they found that the earth had absorbed all the water in the trench. When the boys reached the old jail after school they found Col. Smiley already there; he looked disappointed. He had been watching the plumb bob all day Sunday and all of Monday, and it had not budged by the thickness of a hair. Steve was heartbroken.

"Say, Dick," he said as they turned in a fresh supply of water, "suppose the whole scheme comes to nothing?"

"Steve," replied Dick, "if that front wall was fifty years in going down, we can wait fifty days for the others to settle."

On Wednesday the wall was straighter by one-sixteenth of an inch. The next day the plumb bob showed them an eighth of an inch gain. Saturday night the boys found that the building was a quarter of an inch straighter.

"Dick, she's moving some," said the colonel as he met the boys on Monday evening on Main Street. At that moment a succession of unearthly shrieks came from the lane that led to the old jail.

"What in the world has broken loose?" cried the Colonel.

The screams grew louder, and added to them were the sounds of running feet. A moment later Col. Smiley and the two chums were surrounded by a dozen of the most abjectly frightened village boys they had ever seen.

"What's the matter?" demanded the Colonel. "Have you been seeing ghosts?"

"Yassir—yassir!" cried five or six at once. "We've been down by the old jail. It's ha'nted. We heard the awfulest groanin' and hollerin' in there. They was men's voices a-groanin' and women's voices a-screamin' and—"

"Hooray!" shouted Dick. "The old jail is on her feet. I was sure she'd come round. The sounds were the noises of the joists and other timbers settling themselves into their old places. Come on, let's get lanterns and find what the plumb bob has to say."

It was an anxious trio that ten minutes later bent over the rule and plumb. They found that the building had so far righted itself that it was only half an inch out of the perpendicular.

"If the house hasn't cracked," cried Dick, "it will go the rest of the way in no time! Now we must get the water out and fill the trench in order to take up the extra moisture. The job is done."

The next day showed no flaw in any wall.

One week later workmen were transforming the old jail into a modern factory. On that day Dick and Steve called at Col. Smiley's office.

"It was a fine job, boys," he said. "Mr. Chief Engineer, here are $500 for you in money and 25 shares of factory stock."

"Here's a hundred dollar bill for you, Mr. Assistant," said Dick to Steve. "And, Col. Smiley, I'd be obliged if you'd take this $50 and make out a stock certificate for five more shares in the name of Stephen Harris."

"Ha! Going to give Steve five shares, are you? Well, I'll make out the certificate for ten shares. I want to give Steve five on my own account. Say, boys, what do you say about your growing up with this good old town? We need you right here."

TIME TO REPLENISH THE LINEN CLOSET

The long talked of reduction in the price of living has actually appeared in one spot, at least. Sheets and pillow cases and towels and domestics generally are cheaper.

The housewife who has been cherishing her threadbare household linen through the days of sky high prices and watching store windows and advertisements for some hopeful signs, heaves a sigh of relief and replenishes her supply—likewise her self respect. For the housewife may wear shabby coats and hats and shoes with the uplifted spirit of a martyr for high principle, but when her sheets get down to "a threadbare three" she feels downright shiftless "poor trash"—she can't help it. And happily, domestics now seem to be lower than other textiles in comparison, though all are hopefully coming into reach.

Table linens and blankets are also showing the same tendency, as well as linoleums and other household supplies. It will pay to keep watch of announcements of retailers and furbish up the house.

AVOCADO RECIPES

Secretary McNally of the California Avocado Association announces that the association has issued an attractive little booklet, giving a number of recipes for serving avocados in various ways, with a preface explaining when an avocado is in proper condition for use. The booklet is cut in the shape of an avocado. Copies will be distributed free to members and sold to others at ten cents to cover cost.

HINTS FROM HOUSEKEEPERS

Cheese Custard Pie

Here is a cheese custard pie recipe which some of the housewives may like to read:

One small onion cut fine, 1 cup grated California cheese, 2 eggs beaten, pinch salt, ¼ cup sugar, 1 teaspoon corn starch, 2 cups cream and milk mixed, nutmeg flavor. Mix well. Bake in bottom crust.—Mrs. Joe Scheiber, Lincoln.

NECESSARY

Don't get the notion in your head
That you can be a shirk.
The world won't give you meat and bread
Unless you give it work.

"The Home of Fine Linens"

For forty-two years Coulter's has been known as the Home of Fine Linens.

We sell only brands we can recommend for high quality and durability; yet we price them so fairly that they cost little, if any, more than inferior sorts.

January Sales of Fine Linens

are now in progress; reductions of twenty-five per cent. are not uncommon.

Coulter's

Seventh at Olive
Los Angeles, Cal.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

February 3, James J. Jeffries, Burbank.
February 5, W. A. Thompson, Hynes.

Shorthorns

February 22, California Shorthorn Breeders Association, University Farm, Davis.

Hampshires

February 8, Ortega-Underhill Ranch, Santa Barbara.

Poland Chinas

February 15, Bassett, Ross & Crawshaw, Hanford.

February 26, Kings County Poland China Breeders Association, Hanford.

Berkshires

February 1, Italian Vineyard Company, Guasti.

Durocs

February 16, Diamond Bar Ranch, Spadra.
February 17, Falfadale Farm, Perris.
January 24, Glenn County Duroc-Jersey Swine Breeders Association, Glenn.

Percheron Horses

February 17, M. Bassett, Hanford.

Hollow Hill Farm has sold a grade Guernsey heifer, sired by King of Hollow Hill, to B. F. Bowen of Riverside for $500. This is a record price for grade Guernseys. The same man also bought three other grade females and a pure bred bull. B. H. Fish of Santa Barbara bought four females and a pure bred bull. B. M. Lederer of Chino took six females and a bull and Walter Young of Artesia bought six yearling heifers and a bull. The demand for Guernseys is very brisk and Hollow Hill expects to close deals for a number of the top pure breds in a few days.

Laurel Prince V, a Berkshire boar raised and developed by the Italian Vineyard and sold to the Ashlane Farms at Pleasant Grove, Utah, certainly burned up the Northwest show circuit last fall, being grand champion at Lewiston, Idaho, Spokane and at the International in Portland. The Northwest states are particularly strong in Berkshires and it speaks very well for a California product to make such a showing there.

The Eagle Ranch at Atascadero, which is owned by F. F. Peabody of Arrow Collar fame, has just received a three year old Angus bull, Proud Eric of Aberlour, who has been a blue ribbon winner in the Highland and Aberdeen agricultural shows in Scotland. Mr. Peabody, who has a small herd of Angus which he purchased from the Brook Hollow Farm at Hollister, bought the young bull while on a trip to Scotland last summer.

J. Courtland Scott of Scottwood Farm has sold to Belle F. Miller of La Crescenta his well known pure bred Nubian buck, Scottwood Redcliff, whose sire is Holly Lodge Shingle, one of the imported Nubian bucks in the country. Redcliff's dam is Wigmore Pansy, one of the does imported at the same time. She is still at Scottwood Farm.

Chas. Anderson of Burbank, whose sale of Holsteins last spring was a record breaker, has decided to renew his Holstein affiliation. He has purchased 67 females from 29 federal accredited herds in the Middle West and will soon be milking cows galore as all are either dry cows or springing youngsters.

T. H. Brice, manager of the California Milk Producers Association, has started a pure bred Holstein farm in conjunction with Mr. McGee of Whittier. They have purchased ten fine pure bred cows, including Maybelle Pontiac 2nd, a 640 pound three year old, and Belpil, a 23 pound cow, from Burr Farm.

Mollie Creamelle, a Burr Farm Holstein, has just finished a 23 month record of 33,107.2 pounds of milk and 1,397.6 pounds butter. She dropped twins to start with, at the end of the first year dropped another calf and at the end of the 23 months dropped twins again, making five calves in all. The calves are all sired by Sir Veeman Korndyke Pontiac, the senior herd sire of the Burr Farm. One of the bull calves is in service in the herd of J. M. Mayo at Compton.

J. I. Cazier of the Nevada Hereford Ranch, Wells, Nevada, reports the sale of the ten months old bull, Bright Anxiety, to E. A. Noyes and Sons, Sutter. This youngster was bred by Mousel Brothers of Nebraska. He was sired by a son of Bright Stanway and is out of a granddaughter of Beau Brummel. His dam, Bright Duchess 48th, now owned by Messrs. Cazier, is the dam of the $8,000 cow, Bright Duchess 77th. The price has not been made public but it is understood to be in the four figure division. The Caziers had a show herd at the Ogden Livestock Show the first week in January.

Russell Richardson, secretary of the Finnell Stock Farms Company, Galt, announces that his firm has received the Hereford bull, Cardinal, recently purchased from a Kansas breeder. This bull, now ten years old, is a son of Domino.

Plans for the annual spring sale of Hereford cattle will be perfected at a meeting of the Pacific Coast Hereford Breeders Association this week. The sale will be held at the university farm, Davis, February 23. It is expected that a special effort will be made to assemble an offering that will appeal strongly to range operators.

C. L. Hughes, manager of the California Breeders Sales and Pedigree Company, Sacramento, is now in the Northwest for the purpose of selecting entries for the annual Guaranty Sale to be held at Sacramento in March. Hughes states that the committee in charge of the arrangements has proceeded far enough in its work to assure that the 1921 offering will be up to the high standard of former sales and that some very high production will be represented.

One of the most remarkable Holstein records ever made in this state was recently established when Josh L. Wilson, a 15 year old boy of Lomand Park, succeeded in giving the 16 year old cow, Candida of Sleepy Hollow, a seven day record of 23.30 pounds of butter from 604.3 pounds of milk. This young breeder succeeded in getting his charge up to 91 pounds of milk on her best day. Of even greater interest is the fact that this record is a world's record for a cow of that age.

The Berkshire sales to be held the first week in February, Italian Vineyard Company, Guasti, February 1, and A. B. Humphrey, Escalon, February 3, are attracting wide attention, and a number of Eastern breeders have signified their intention of attending both events. L. E. Frost, publisher of the Berkshire World; E. J. Barker, director of the American Berkshire Association, and Chas. M. Talmadge of Salem, Oregon, are among those expected.

Mrs. Ruth Hardy, manager of the Anchorage herd of Berkshires, Orland, has sold five gilts to a pig club at Overton, Nevada. Mrs. Hardy states that Nevada ranchers are manifesting considerable interest in Berkshires and that Anchorage Farm has shipped 19 pigs to that state during the past two weeks.

The American Hereford Journal reports that during the year just closed a total of 15,432 Herefords were sold at public auction for $6,425,855, an average price per head of $416; 2,989 bulls averaged $474 and 12,443 females averaged $403. In 1919 19,095 Herefords averaged $491.

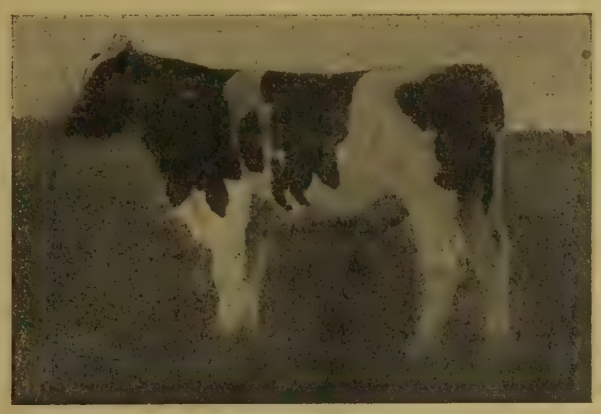
The top price paid on the Chicago market during 1920 for steers was $18.50, that top being recorded for 46 yearling range bred Herefords.

In 1920, 121 auction sales of Jersey cattle were held in which 5,533 animals were sold for $1,958,428, an average of $353.95.

The Chamber of Commerce of Kansas City, Missouri, has offered prizes aggregating $2,000 in the "Missouri Better Bull Campaign" under control and supervision of the agricultural extension service of the Missouri college of agriculture. The first prize is $1,000, the second $500, the third $300 and the fourth $200. Awards will be made on the basis of scrub bulls replaced by registered bulls. A scrub bull is replaced when the scrub is castrated or sold out of the county and a registered bull purchased. A scrub bull is defined as one not registered or eligible to registry. Any county which, at any time during the year, completed its work with 100 per cent pure bred bulls will be entitled to the first prize. If more than one county shows 100 per cent registered bulls they will be entitled to first, second, third and fourth prizes respectively, in the order in which the work was completed. Not less than 20 counties must compete before prize money is available and all entries must be made by January 31, 1921.

Consider the Future

The man who starts now to achieve success needs to consider more carefully than ever the foundation and methods of his venture, and nowhere does this apply more forcibly than in the breeding of registered Holsteins.



PRINCE AAGGIE MEAD

We regard this as one of the outstanding bulls that we have yet been able to breed, combining as he does extraordinary type with breeding in which we have the utmost confidence.

His sire, KING AAGGIE MEAD, is a full brother to Aaggie Acme of Riverside 2nd, whose record of 1,331.78 lbs. butter in one year is the world's strictly official record. She is also the dam of Miss Aaggie Acme Burke, whose record of 24,338.8 lbs. milk in one year as a first calf junior 2 year old is a world's record in class, and her record of 1,034.44 lbs. butter in the same lactation period is third highest in class. She is now again on test and in her first 7 days has over 31 lbs. butter to her credit. This heifer in turn is the dam of the $41,000.00 bull King Korndyke Pontiac Acme.

His dam, MISS VALLEY MEAD DE KOL WALKER, with three world's records to her credit as a heifer, and with 1,113.57 lbs. butter in 342 days as a junior 3 year old, is one of the great females it has been our good fortune to breed and develop. Her dam, De Kol of Valley Mead 2nd, with 906 lbs. butter in one year as a 3 year old, and 1,011.71 lbs. in one year as a 4 year old, world's record for two years production at age when made, is a daughter of the great foundation cow, De Kol of Valley Mead. Miss Valley Mead De Kol Walker is also the dam of Sir Aaggie De Kol Mead, now in active service in our herd, and of King Korndyke Pontiac 20th, the $12,000.00 bull that sired the $41,000.00 bull King Korndyke Pontiac Acme.

We declined to sell PRINCE AAGGIE MEAD outright, as we wish to give him a great deal of service in our own herd, but we have sold a half interest in him to a breeder who has assembled one of the highest class herds of females in California.

FRED HARTSOOK

LANKERSHIM CAL.

A hit-or-miss selection of foundation breeding Holsteins has foredoomed many a breeder to failure right at the beginning, in spite of diligent effort to develop and breed from such a foundation afterward.

Few men have the time or means to poineer unknown families in breeding Holsteins, and such a course is admittedly poor business when the opportunity is afforded to secure animals from families of known production and worth.

We have developed a number of families within our herd whose production is proved, and whose ability to transmit production is also proved. With these families the stage of pioneering is long past, and their present offering can with reasonable certainty be depended upon to carry on the tremendous production records already established.

From these proven families we are able to offer a choice selection of bulls, from high class sires to head registered herds, to first class bulls to head grade dairy herds.

Our prices have always been considered most reasonable for the quality of bulls offered, and we invite you to put your herd bull question up to us. We may have just the bull you need to head your herd.

A. W. Morris & Sons Corporation

Woodland, California

54 REGISTERED GUERNSEYS 54

Absolute Dispersal **At Public Auction**

Revada Ranch, Yountville, Cal.
Thursday, January 20, 1921

Imported Cows!
Bred and Open Heifers!
Bulls of Service Age!

HEIFERS comprise a large percentage of the offering, ranging from bred heifers down to calves, mostly out of imported dams, and by such bulls as Itchen Daisy May King of Langwater, Imp. Ricardo of Edgemoor, Auricle's Cherub of Edgemoor, and other sires of rich breeding.

COWS of splendid breeding, most of them imported, and including daughters of such sires as Governor of the Chene, Raymond of the Preel XIII, Robert's Secret, and others of corresponding merit.

BULLS in wide selection and considerable numbers (affording an opportunity unparalleled in California to secure bulls of this breed at your own price at public auction. Dairymen and breeders alike will find individuals to interest them in this offering.

Every animal positively guaranteed to be a breeder every animal tuberculin tested and sold subject to retest by the buyer, except as announced in sale ring.

REVADA RANCH is nine mies north of Napa, Calif. Headquarters of sale will be Palace Hotel, Napa, from which point arrangements for transportation will be made morning of sale for buyers coming in by train. SALE STARTS PROMPTLY AT 10:00 A. M.

Catalog Free on Request to Management

Owners: MISSION LAND AND CATTLE COMPANY Yountville, Cal.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.

Auctioneer: Col. Ben A. Rhoades, Los Angeles

Guernsey Females

Our herd reduction sale still continues and there is a lot of fine Imported and A. R. cows with high production records and show ring honors left to be sold. We are also offering the choicest lot of young stock ever in one herd in the West. A number of bulls of all ages from the above sired by King of Hollow-Hill and Effie's King.

Also 30 head of females 15/16 Guernsey that will make wonderful family cows.

All T. B. tested and guaranteed breeders.

Everything Priced Reasonably.

Hollow-Hill Farm

Colton, California

Maxwell Farms' Holsteins

Sir Ormsby Skylark
Sire of the World's Champion Cow

The fountain head of the Ormsbys with over 50 daughters of Sir Ormsby Skylark in the herd which has two sons of Sir Pietertje Ormsby Mercedes at its head. Write for our sales catalog of service bulls.

D. G. Maxwell, Owner

Garden Court, Hollywood, Cal.

When Writing Advertisers Mention California Cultivator

They Die Hard

By A. L. Spellmeyer

CATS have nine lives. I have known of a grizzly bear taking 11 well placed 30-30's around the heart and going 12 miles. Old Peg-leg, whose career was terminated by Officer Johnson at the Wild Bill place in northern Arizona, lived two hours with a bullet placed directly between the eyes. We are told that in the ages past many of the great beasts and great lizards held on to life in muscular offensive long after their vital organs had been destroyed or paralyzed.

Menaced by instability which has made farming and livestock growing the sport of gamblers, due to uncertain markets for products, those who have bled white essential production, injured the value of the bulk of land of this country, and forced great loss upon the nation, die hard. They are not agreeing to better conditions without a struggle.

We note the propaganda to show that any protection of the farmer is "class legislation." Many claim they don't like the tariff proposed recently to help the lemon men, farmers and cattle raisers. They are for tariff, but not the kind that helps the backbone of the country.

We are catching the brunt of the last struggle against the certainty of shortage. It won't last much longer, but it shows power.

The cattlemen of California formed an active medium to ship surplus cattle out of the state. Within a few weeks they are receiving cattle from outside of the state for local killing. Is this a threat or is it due to the fact that the market is supposedly better here than in Kansas City, that Kansas and Texas cattle should come here, with the known shortage of supply and numbers on feed in the Middle West?

Beef, carcass beef, is being marketed by the refrigerator cars through the adjacent districts of near by states at prices to equal six cents live beef. While steers are bringing ten to 11 in California, delivered packers, the cheap carcass meat is being sold in Arizona and elsewhere at an equivalent price dressed after paying the freights. We presume refrigerator cars must pay freight. It makes those fellows sit up who are feeding beef or raising feeders to ship to Los Angeles, on the ten to eleven cent market, to find that an Eastern packer can buy meat in Kansas City, kill it and pay the freight and sell it less dressed than Western packers pay live weight, or about the same.

Is it a market development, or is it a hammer to force prices down, to force more loss upon cattle raisers? What can be the sense of depressing livestock further unless there is the intention to actively own the cattle and ranges as well as the marketing facilities?

In December when it looked as if the war corporation measure and the tariff measure would pass in a rush by a great majority, I wrote that it looked as if insiders did not think it would pass. Opposition has developed. Relief needed at once for farmers and livestock growing is delayed. The market is the best indication of what will be done, as the producers seem but pawns in a game thoroughly controlled by those overlords of marketing and finance. Great is their power. The eagle soars to heights, but the eagle returns to earth. The higher the place the greater the fall. It may be safe to do anything else but it is not safe to keep on injuring the source of food production. A growing proportion of the people and of the politicians are commencing to understand what blows at farming and livestock mean in the end at all business. Now the cry is that a temporary tariff will mean reprisal by other nations who will consider such tariff an embargo. Is this nation so weak that it can loan its billions and be afraid of what some other country thinks when it merely regulates its internal affairs to protect vital production? That refrain sounds a lot like the tune we heard when Mexico killed our citizens and just before we humbled the German eagle. They tell us the war corporation measure will merely benefit the harvester trust and the steel folks, etc., and not the farmers. It must depend upon the way it's worked. If the intention is to benefit farmers, and our employed servants do their duty, the farmers will get the money; if our servants in public office misappropriate and disregard the object of the loaned money, the farmers won't get it.

It is the same old policy of dividing up opposition. Get those fighting split up and they are easy to beat.

Another class that is slow to see what is coming and accept the inevitable is the retailer of food, principally the butcher. Forty-five cent steak and 60 cent T-bones are still sold in the markets. Although carcass meat is being sold at 12 to 20 cents, the retailer hangs on to the high price with tenacity. The old cow steak is sold at the same price that would be profiteering profit for the finest steer beef. These retailers must be primordial in their greed, as they certainly die hard in accepting a pre-war adjustment which has long ago forced the source producing the supply of food they handle far below cost of its production.

They all tell us that the Los Angeles cattle market is at present the highest market in this United States, with its seven to eight cent cows and its ten to 11 cent steers. We know that the men selling these animals are losing money at the price. Many a fed cow sold in Los Angeles will not bring the producer of that cow $20 when he pays his fattening bills. Now the federal trade commission investigation shows that a cow costs over $75 to produce.

The Los Angeles market has not dropped to the depths of other markets because our packer loan folks haven't got to a great control of finance, with many loan sources, but do a fairly competitive business in these parts. Then the crux and secret of it all is that independents are killing the bulk of the Los Angeles meat supply. The line packers have been losing proportion of kill for a year or two here. One independent here kills more than the largest line man. It is said he prefers a half carcass daily customer to a 20 carcass customer. It takes 40 times the effort of competitors to cut his volume that 20 carcasses.

The outlook for grass is good in California. Except in the southern end of the state there has been ample rain and fine weather. In the southern end there has been fine weather but more rain is needed. The northern end should have some April beef and much May beef.

Men who contract any beef to killers at less than ten cents are foolish. Don't let the threat of these incoming shipments from Kansas and Texas and this cheap carcass beef discourage. It can't last. All these plays were formerly deep mystery. The practices proven by investigation and now of common knowledge to most people as to domination and control of livestock, finance, marketing and price were thought a few years ago too unworthy and criminal for any decent men to be guilty of.

Now these people manipulating meat and food finance and marketing are up against just what an individual would be in fighting a federal lawsuit earnestly conducted. They are bound to lose, as millions of producers and tens of millions of informed men and a hundred million consumers realize the menace to the country when its farmers cannot secure a living profit. Our grain is unsold, our markets clogged with meat, and the world across the water starving—help implored for millions of dying children and we have no money as we cannot sell our food.

Surely we could supply the food from our surplus to these starving peoples and take some security therefor. They would live and we would have prices on a living basis. In the face of all this apparent beef surplus right now we are menaced by certain cattle shortage in national supply. We are only clogging our markets with our principal, our breeding stock,

which must produce our future supply. Our cattle business in this nation and much of our farming business is virtually in a receivership. It could not pay up today on values as they are, and with its expense it has no hope of profit unless conditions change. And while this all is going on the world is starving and every paper we take up shows appeals for money from foreign sources for aid to save human life. Every paper shows advertised l nds of other nations, bearing high interest rates.

Our banks and great houses of finance take these bonds and sell them at handsome profits but will not take our products and supply the starving countries that we are told need so much help.

There isn't any farmer or livestock man around who would refuse to take part cash and part interest bearing bonds of good character for his products on a fair price basis.

California has the best cattle market so far and whatever the cause of it, we can be thankful for that much. California also has green grass, rain and a fine season apparently ahead at a time when other parts of this country are just getting into winter and just commencing to have their snow and blizzards and cold weather which will tie them up.

When the inventory is taken after the liquidation and chaos of the last year in cattle we are going to realize what a great loss we have suffered in our breeding stock, and we are going to wake up. When we find that less barley and less grain is being planted and less farming done we will wake up. Because we have a surplus on hand now it won't continue unless we keep on producing, and the tendency is to cut that.

Dairy Farm Crops

By Ernest Braunton

THE "First Annual Dairy Course" under the auspices of the agricultural extension service of the University of California, the California Dairy Council and the dairy department of the Los Angeles County farm bureau held a three day meet at Downey and Van Nuys, January 3-6. At the latter place Prof. B. A. Madson of the agronomy division of the state university was introduced by Assistant Farm Adviser G. E. Gordon to a small but interested audience and spoke substantially as follows on the subject "Dairy Farm Crops":

"All agriculture is based on crops, and their amount and character are dependent upon fertility of the soil being maintained, rotation being the key to success. It is not possible to constantly maintain a single crop upon the same acreage for years except through excessive cost of fertilization, and even then the maximum will not be attained. Too little attention has been paid to systematic rotation so that a definite program for all crops, soils and conditions has not yet been determined in any state or country. In some parts irrigation is necessary to reasonably successful rotation. Throughout California the principal dairy farm crop is alfalfa and it is of greatest value for it fits into any system of rotation, in fact is generally the basic crop of such operations, so we will consider it in detail.

Alfalfa Culture

"It is a well known fact that in California alfalfa starts to decline in from four to seven years and rotation alone brings maximum results. In some other states, where winters are very cold, good crops are maintained without change for 15 years. Freezing of the soils tends to keep them open. With us they become compacted because of mild winters, and the plants do not become totally dormant. Weeds also gain ascendency during winter, for many of them make their best growth during the period when alfalfa is nearly at a standstill. They dry out the soil and crowd out the weaker alfalfa plants.

"One of the prime causes of failure or partial success lies in lack of preparation of the soil. A good mellow seed bed should be prepared and leveling and checking done so that water may be easily and uniformly applied. The best time to work the land, especially if it be of heavy texture, is late summer or early autumn. The soil is then lightest in weight and will not pack or puddle, an important consideration, for if packed it will be several years before this fault is overcome. Light soils may of course be worked at any time. In actual practice seed may be sown at any time except during hottest weather, but spring is generally best. It is then that crops start best and weeds may first be started and destroyed so that this menace is controlled or removed. Fall seeding requires more water, both for soil preparation and to start germination. Because of lack of uniform moisture more seed is also needed. For spring seeding 18 or 20 pounds per acre is sown, while for fall seeding 25 to 30 pounds should be used. Fall seeding also brings winter weeds for competition. The advantage of fall seeding, especially where winters are warm, is that an early start is made, for if top growth is slow, root growth is good and when favorable weather comes the growth is rapid.

Inoculation

"All legumes make best growth when inoculated. If soil is ideal, with plenty of organic matter present, bacterial action is not so essential for alfalfa but the crop is pulling on the soil for nitrogen when it should be getting it from the air. There are many cases of spontaneous inoculation but it is uncertain and therefore one should inoculate. The old method of removing soil and scattering it over the field is too expensive and too cumbersome. The best method is to take two or three pailfuls of soil from a well inoculated field, put it in a barrel of water, scatter this over the seed and sow as soon as convenient. Where soil is difficult to obtain the commercial cultures sold by dealers are best and are always good if fresh. The advantages are that you know what you are getting and the cultures are pure, without contents you do not want.

"In rotating crops your catch crops or all except alfalfa will be annuals. A seven year scheme is best, leaving alfalfa undisturbed for five years and other forage, hay or silage crops for the two other years. Thus, if we had a 70 acre ranch we would plow under ten acres of alfalfa each year and also sow ten acres to alfalfa, so we would at all times have 50 acres of producing alfalfa. Every fall, when alfalfa is turned under, replant at once for a winter crop. Barley is good and will ripen in early spring. Some sow barley or oats mixed with vetch and if put in early it will be good hay in May and will yield three or four tons an acre, or it may be used as silage for summer feeding.

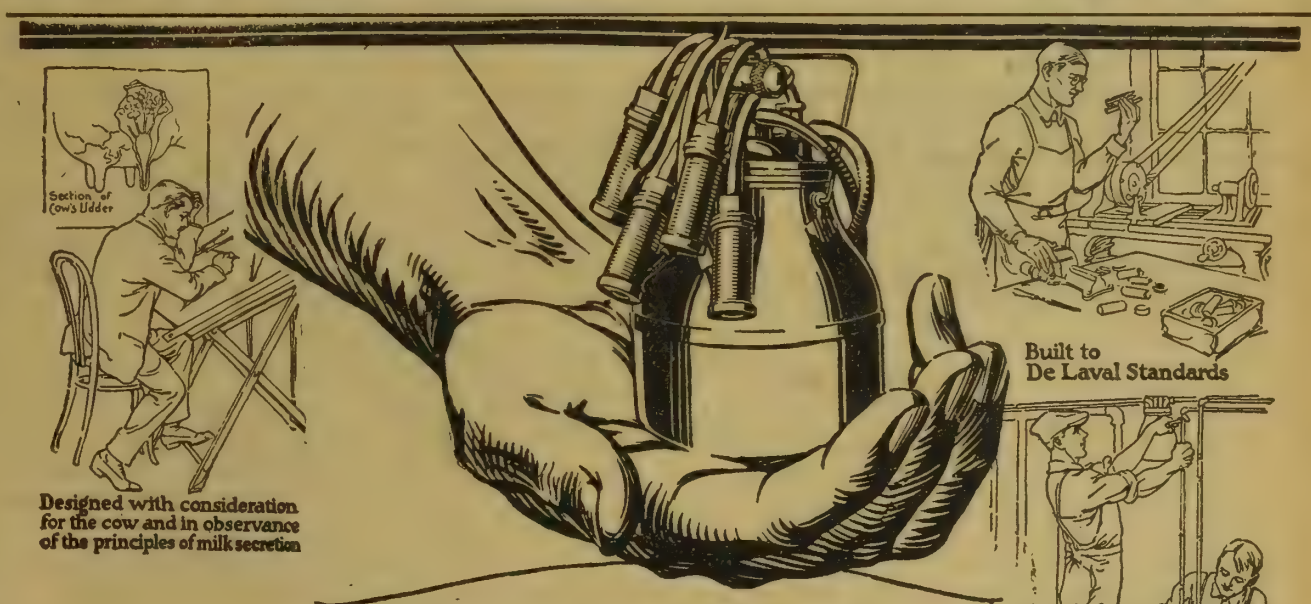
Beets, Corn and Sorghum

"Others plant root crops such as stock beets or mangels in October or November; they mature in early spring and make good feed for summer. But root crops are costly at all stages, though they grow well in winter, producing heavily—25 to 40 tons an acre. One grower at Downey claims a crop of 60 tons, an unusual return. Harvest early for summer forage crop—in May. Irrigate and cultivate shallow. Indian corn is as good as anything for a summer crop. But if water is scarce and the section hot and dry, sorghums are better. But plant them early for they should be mature, the seed ripe before harvesting or they make poor silage. Some use Sudan grass, but unlike the sorghums this crop should be cut early—before heading out. Sudan is also a good summer pasture for it yields enormously of a light feed. On a two acre trial plat we turned in 30 sheep when grass was a foot high, yet we had to cut it for hay in two weeks. (The Fontana Land Company found that large numbers of young pigs feeding on it did not remove the necessity of regular cuttings for hay. E. B.) The sheep were then put back and fed upon it throughout the summer. There is no danger from prussic acid content except grass is frozen or of very stunted growth. There is no danger in Sudan if growing well. One may even grow kale or a catch crop. Alfalfa makes the finest pasture of all but pasturing is poor practice and maximum results cannot be obtained; therefore cut for hay."

IMPOSSIBLE

"From now on," sternly said Squire Ramsbottom, the well known jurist of Petunia, "I am going to conduct the business of this office strictly according to law and common sense."

"But looky here, Squire," returned Constable Sam T. Slackputter, "you can't run it in two different ways at once. You've either got to conduct it according to law or to common sense, one or t'other, but not both. It can't be did."—Kansas City Star.


Section of Cow's Udder
Designed with consideration for the cow and in observance of the principles of milk secretion
Built to De Laval Standards
Backed by De Laval Service
Its Uniform Pulsations Please the Cow

Designed Right

Built Right

Installed Right

It is Right

A Better Way of Milking

LONG ago the De Laval Company realized there is no more reason for hand milking than for harvesting a grain crop by hand. But designing a milker was not simply a problem in mechanics. A successful mechanical milker must work in harmony with the delicate organism of a living cow.

After many years of thorough research and test, and after four years of commercial use, the De Laval Milker has proved itself to be a better way of milking.

Now the many De Laval users are practically unanimous in their agreement that it not only saves time and eliminates drudgery, but actually increases the flow of milk.

The De Laval will make your dairy business more profitable and pleasant. Write for full information.

DE LAVAL DAIRY SUPPLY COMPANY

61 Beale Street San Francisco

Sooner or later you will use a De Laval Milker or Cream Separator

HOW TO RAISE A CALF

By E. L. Koethen

A young calf is a good deal like a human baby; it must have clean food and of the right consistency, that is, it must have a balanced ration.

If the owner can afford to allow the calf to suck its mother, it will need no special care as to feeding, the only requirement being to see that tne mother is milked clean twice a day. But this is not usually the case. The milk is too valuable to allow the calf to get it all. In this case, it is best to take the calf away immediately after it is born. We allow it to suck once or twice, but the night after it is born the calf is spirited away in the dark and the cow does not notice its absence if it is carefully done, and though she may bawl some about it, she soon forgets, perhaps thinks it was only a bright dream about that calf. If there is plenty of skimmilk this is best. Be sure to see that it is clean and sweet. Scours can be produced very quickly by carelessness in this regard. In order to replace the cream that has been removed it is good practice to add a handful of good clean dried blood to each feeding. Strange as it may seem, we know of no better way to raise a calf, and never have any trouble with scours or other troubles. We have raised many calves in this way and with invariable success.

If the skimmilk is not available, other feeds must be resorted to, such as calf meals advertised by manufacturers, or it is feasible to make a meal mush for calf feed of your own mixing. The last calf we raised was raised on feed made from corn meal boiled in water and some skimmilk added, and a little blood. The calf did not get real fat on it, but is now a fine, vigorous heifer and has never had a setback.

As said at the start, cleanliness is the first requisite, and next, a balanced ration. A young calf will want some water to drink, especially if fed on mixed feeds. She will soon begin to eat hay and can be weaned in about two or three months.

JERSEY CLUB TO OFFER PRIZES FOR CALVES

Mario Fortini, owner of the Tintagel herd of prize winning Jerseys, was elected president of the Orland Jersey Cattle Club at the annual meeting of the organization last Tuesday afternoon in the Water Users' Hall. The cattle club, which has proven one of the strongest organizations in the project, enters the new season with every prospect of a successful year and a full program is being mapped out for the coming 12 months. The other officers elected were: Chas. A. Whitsett, vice president; Kirby Clark, secretary, and W. G. Gurnett, treasurer.

Kirby Clark and W. G. Gurnett were named a committee of two to consult and cooperate with Connty Club Leader Frasher in the formation of a calf club during the spring. The work of this club, which will be along the same lines as the pig clubs, will start the first of March. As an inducement to the members of the new organization, the Jersey Cattle Club has offered prizes asounting to $30 for the prize winners, the calves to be exhibited at the Glenn County fair next fall.

The resolution urging the renewal of the plan of loaning money on good cows by the bank was adopted. The next meeting of the club will be held at the H. W. Howard Ranch.

THE R. J. YATES POLAND CHINA SALE

The Poland China sale held by R. J. Yates, Orland, was held under very discouraging circumstances. Shortage of feed, credit and backing from the local banks all had a tendency to depress values. However, a few who either had feed or faith in the future were very good bidders and the total results were beter than many expected. The sows and gilts of breeding age sold at from $50 to $125 each, five head bringing $100 or better. Jack Cook, Fred Clark, W. E. Johnson, Kirby Clark and The Diamond Ranch Company, all of Orland, and Frank Harriger, Gridley, were the heaviest buyers. An average of nearly $60 per head was realized on the 37 head sold.

ORTEGA UNDERHILL SALE

The Ortega Underhill Ranch at Santa Barbara has chosen a fine lot of Hampshire sows and gilts for sale at the ranch on February 8. When Mr. Underhill embarked in the Hampshire business he acquired a foundation herd of 250 sows. These have been culled and culled until only 30 are left. These sows have produced the type of Hampshires Mr. Underhill believes to be right. He is retaining their pigs and offering the sows bred again to the great boars Exalted Ruler, Masterpiece and Chief Lookout. The litters they are carrying should be equally as good as the fine pigs they have dropped before this. There will also be a number of fine gilts bred along the lines Mr. Underhill has chosen as the ideal.

MILKING

There are at least four considerations to be observed in milking. They are cleanliness, thoroughness, gentleness, regularity.

As to cleanliness. This is a first requisite in order to produce sanitary milk. It is the practice of some dairymen to wash the cows with a hose and dry off with a rag just before milking. To us this seems harsh during cold weather. We prefer to use extreme care in keeping the stable clean so that the cows can not lie down in the dirt. Curry them before milking and wipe the udder and flanks with a damp rag so as to remove all loose dust and foreign material. The hands should not be wet while milking. It is the practice of some to wet the hands with milk and allow it to run down even into the milk pail. The hands should be dry. A narrow mouthed milking pail is best. Some dairymen make a practice of discarding the first two strokes from each teat in order to avoid any germs that may have accumulated at the orifice of the teat, also cover the mouth of the pail in order to prevent dust and other foreign matter from getting into the milk. Cheesecloth is used for this purpose.

The milking should be thorough, that is, no milk should be left in the teats. If this is not observed it will slowly dry the cow up. Some cows have a habit of withholding the milk so that it is necessary to have patience in order to get the last drop. It is said to be best to milk the teats empty at one stretch instead of switching off from one to another during milking.

Gentleness is always necessary in handling the cow for milk production. She should never be scolded loudly, never punched or beaten. If it becomes necessary to reprove her, do it by a slap with the palm of the hand. She knows the distinction between a slap and a caress. It is possible to be too strenuous in pinching or bruising the udder while milking. This has been known to produce serious disturbances. Be gentle in all possible ways with a milk cow.

The time of milking is of importance. The cow is a beast of habit and expects her feed and her milking regularly. The latter is of great importance. She likes feed out of the regular hours and in fact does well if she is fed small quantities whenever the feeder comes around, but the milking should be done at regular hours. Some cows carry so much milk that it is necessary to milk them three times a day, but it should be done regularly. Most cows do well with two milkings a day, and it is best to have these at equal intervals, rather than to milk at seven in the morning and five in the evening. It will be seen that this leaves an interval of ten hours in the day time and 14 hours at night, or a difference of four hours between the intervals. In the winter there is a great inducement to allow this irregularity, and where the cows are not fresh it may be permissable and the time lengthened as the day lengthens, but with a cow that is giving a large amount of milk it is hurtful.

WHO WILL OWN HIM?

King Segis Pontiac Jannek

KING SEGIS PONTIAC JANNEK will have a new owner on February 3, and he has every qualification to earn a fortune for the breeder or group of breeders fortunate enough to secure him.
His first daughters to freshen indicate that he is transmitting in a marked degree the production he inherits through his sire, whose dam was the first 37 lb. cow and the first to make over 1,200 lbs. butter in one year, and through his dam, one of the highest record daughters of Korndyke Queen De Kol's Prince.

As a sire of outstanding individuals he occupies a leading place among the present day sires of the breed, and he is only six years old. At the 1920 Los Angeles Livestock Show, in one of the strongest Holstein shows yet seen in California, his get won as follows:

SECOND JUNIOR YEARLING BULL
FIRST 2 YEAR OLD HEIFER
FIRST JUNIOR YEARLING HEIFER
SECOND JUNIOR BULL CALF
THIRD SENIOR YEARLING HEIFER
SECOND AND FOURTH SENIOR HEIFER CALVES
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GRAND CHAMPION FEMALE
SENIOR CHAMPION FEMALE
RESERVE JUNIOR CHAMPION FEMALE
FIRST IN BREEDER'S YOUNG HERD
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He will be one of the features in the complete dispersal of the

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Lorraine: A Plea for the Family Goat

By Jean A. Koethen

SHE was six weeks old when she came to us, a dainty, lively little doe kid, and in the lonely days that followed, when she lifted up her voice and cried for the mother and sister she had left, it was my pleasant daily task, when other duties permitted, to cuddle her on my lap and feed her tender bits of green as well as the regular ration of barley porridge and dry barley. In this way a bond was cemented which has never been broken. Lorraine is ready to butt any other member of the family on the slightest infringement of her rights or disregard for her dignity, but her head is rarely lowered at "mother."

We had heard a good deal from our neighbors of the cheapness and excellence of goat's milk, and when the opportunity came to purchase the daughter of a long distance milker for $15, it seemed our duty, in the interests of economy, to make the plunge and find out if all we heard were true. "We can't lose," I told paterfamilias, "for any sort of milk goat is worth $50." To which he replied, manlike, "You will do as you please, of course, but I won't milk her." I had never milked anything in my life, but I felt sure I could do what so many other women were doing, and we bought the kid.

The first few months, as it was summer and there was no green feed, we bought bran and rolled barley for her. I was never able to keep account of her feed because we fed her and the chickens out of the same bag. When the vacant lots adjoining us were green again she was staked out, and while she always had her bran and barley when she was brought in at night, she ate but little of it. Shortly before she kidded, at the age of 15 months, I began feeding her dried beet pulp, and that has been part of her ration ever since.

On the advice of neighbors whose experience I respected, I at first gave her a wet mash of bran, barley and beet pulp at milking time, but she never ate it as readily as she ate the same feed dry, and there was so much left over at every meal that I finally gave up the moist mash entirely. During the summer we bought alfalfa for her, and now that she is staked out all day she still has dry alfalfa and beet pulp in her shed, beside the basin of bran, barley and beet pulp at milking time. At first I bought salt cake for her, but she did not care for it, and it is some time since she has been salted.

She came in a four quart milker, to our great delight, and is still, in her seventh month, giving two quarts. Her kid we sold for $25, which nearly paid for Lorraine and her keep up to the time she kidded.

I have often been asked, "What do you do with so much milk?" That is easy. When Lorraine came in, Little Sister was just recovering from diphtheria, and could not drink too much good fresh milk. A month later Big Sister came home from the hospital, where she is in training, for a long rest, and she too developed an appetite for goat's milk. The day she went back to the hospital an invalid neighbor called up to ask if we had milk to spare, and she is still taking a pint a day at 15 cents, which pays for Lorraine's feed, while the family has three pints absolutely free of expense.

There should be no more rivalry between goat and cow than between flivver and Cadillac. The goat is the poor man's cow. She eats the grass on parkways and vacant lots, which would otherwise be wasted. She eats lettuce leaves, pea bods, cucumber peel, even banana skins, if she is trained to it. She is particularly fond of branches of trees and can be put to good use in clearing brush land. Oak is her favorite delicacy and rosebush clippings her delight. Of course she cannot be turned loose in the garden or orchard, for there would soon be no garden or orchard left. She is better off with the barest shelter from rain or sun—no expensive house, just a shed suits her. Lorraine lived with the chickens for a year on the most amicable terms,, and it was only for the sake of keeping the hens out of the goat's feed that the two were finally separated. Thousands of families which could not possibly keep a cow and which find it hard to afford cow's milk are finding that the same outlay, with a little trouble thrown in, will provide two or three quarts of goat's milk.

The estimates given of the cost of keeping a goat are not always accurate. I doubt if any milk goat can be fed for five cents a day, or even ten, but if it costs 20, the family is getting its milk at ten cents a quart or less, which is cheap enough these days.

The little family goat requires no more defense or apology than the little family hen. They are two of a kind, and they are here to stay. Goat's milk is not cow's milk. The cream does not rise readily, and the family that requires thick cream for its coffee will be disappointed unless it is able to keep the milk for forty-eight hours or longer. But in place of cream you get milk that is just as palatable after it has been skimmed as before. The cream stays in the milk instead of rising. Because the cream or butterfat is so slow in separating, the goat is no competitor of the cow as a butter producer, though a good many families do make butter from goat's milk.

If the milk is kept in a warm place it will usually sour in 48 hours, and if fresh milk is put in the bottle which has held sour milk it sours in 24 hours. Goat's milk cottage cheese is said to be a very delicious product, but we are so fond of the fresh milk and so glad to have a little sour milk occasionally for pancakes and gingerbread that ours has never reached the cottage cheese stage.

Lorraine's vocabulary is limited, but she speaks a language that cannot be misunderstood. When she is staked in sight of the house and is comfortably chewing her cud or browsing, she greets me whenever I appear with a low call, more like the whinny of a horse than the bleat of a goat. That means "Hello, mother!" When she lacks something necessary to her comfort, such as water, feed or shade, and when milking time approaches, her call is gentle no longer, but becomes a well defined bawl. Then there is another call, which I call her complaining call. A goat, you know, is a fussy creature, and mischievous as well. That old story we used to tell the children about the goat that complained to her master of the boy who tended her in order to get him into trouble is well founded. When Lorraine is not perfectly satisfied, though she may have everything she needs, she greets me with a call not so loud as her hungry bawl nor so gentle as her friendly greeting, a sort of complaining whine, which means, "Don't you see how miserable and unhappy I am with nobody to do anything for me?"

Spoiled? I am afraid she is, but the goat is used to being one of the family. She has been that for 5,000 years in the Orient, and the family that keeps a goat and does not make a pet of her is missing the best part of it all. With the exception of the dog, I know of no domestic animal so intelligent. She does not quite laugh, but she has an obvious sense of humor. When Lorraine was a little thing she used sometimes to break her rope. Then we never could catch her. Round and round the oak tree she would go and up and down the yard, as long as we chased her. When we sat down and waited for her she came up to be caught. And she does the same thing now on the rare occasions when she gets out without her chain. She will dance and prance and pretend to run away to tease us, but always after a few minutes play puts up her head for the collar.

Then no other animal can match her in cleanliness. Hay that has fallen on the ground is lost, as far as she is concerned. Moist mash that has once been placed before her must never appear again. She won't look at it. Feed the hens have got at is not for her. Everything must be perfectly clean and fresh. A cow will

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lie down in the filthiest place in the yard. Not so a goat. Her body must be as clean as her feed. I cannot help thinking the extraordinary hardiness of the goat and the purity of her milk are due in no small part to her dainty habits, and because of these habits the care of her becomes a very simple matter. Many a woman on the farm or in the suburban home who would never think of undertaking the care of a cow, or even of chickens, finds the care of a goat a pleasure. To be sure, somebody in the family must be there to milk her morning and night, and she ought to be milked at about the same hours every day. Fresh water and feed should always be within reach, and her yard must be cleaned occasionally, depending on the size of the yard and the hours she spends in it. That is all there is to the care of a goat after she is raised. A kid requires more attention, but that is another story.

GERMANY'S OUTCRY AGAINST RESTITUTION

Recently in the German press there has appeared an outcry against the delivery by Germany of the number of milk cows demanded by the Versailles treaty. "In the name of humanity" Germany protests against a measure which binds her to deliver 810,000 milk cows to the Allies, because she states this will deprive the women and children of Germany of six million litres of milk per annum.

The German press forgets to say anything, however, about the cattle taken from the Allies, and it omits to say that the milk equivalent now being demanded from Germany by the Allies is the equivalent of the milk which for five long years was lost to the children of France and Belgium.

The Germans took from France alone 845,000 head of cattle, of which 517,000 were milk cows. By the terms of the treaty she was ordered to restore, within three months of the ratification, some 90,000 milk cows; she actually handed over only 65,560.

The French government presented to the reparation commission, in conformity with paragraph 11-A of Apendix IV of the treaty, a demand for 510,000 head, including 400,000 cows and heifers, a figure well below the number of beasts taken from France by Germany.

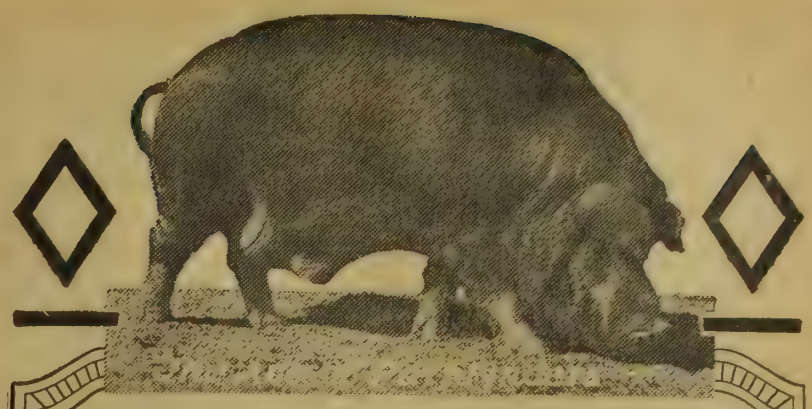
In all, the total of cattle claimed from Germany by the Allies, on the sole ground of restitution, is 890,000 head (including the 510,000 for France), and only a part of these are cows. Of this number, Germany still has to deliver 722,000 head. The question to be raised in the name of humanity is, therefore, "Is Germany going to retain these cattle or is she going to hand them over in place of those which she stole?"—From paper published by the Army of Occupation.

SHORTHORN SALE AT UNIVERSITY FARM

The cattleman looking for bulls will be able to supply his need at the fifth sale of Shorthorns to be held at the university farm, Davis, on Tuesday, February 22, 1921, during Stockmen's Week. So far over 50 bulls have been entered in that sale. Some heifers of outstanding quality, too, have been entered, and the embryo Shorthorn breeder will have an opportunity to secure a foundation for a herd. This sale is being held under the auspices of the California Shorthorn Breeders Association, which is an assurance of the quality of the animals entered. The usual guarantees as to breeding and freedom from disease will apply to all of the animals sold. Auctioneer Clyde Moore of Montana will conduct the sale. Mr. Moore has gained a splendid reputation for his work in the ring and it is his plan to remian in California.

HELPING PEOPLE OWN FARMS

Those interested in securing a greater number of small farm homes for California will find most valuable Circular 221 of the experiment station of California College of Agriculture, "How California is Helping People Own Farms and Rural Homes." It is by Dr. Elwood Mead and has illustrations and text mostly made possible by the state land settlements at Durham and Delhi.



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MAMMOTH SENSATION, JR., a giant Grand Champion boar that sires the extreme big type.

DIAMOND SENSATION, a typical son of the World's Grand Champion, Great Orion Sensation, and out of a Pathfinder dam.

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We absolutely stand back of every sale. All sows and gilts are bred to these famous boars.

Geo. W. Bell
Auctioneer

Write for Catalog

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Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

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where efficiency is our watchword and the production of extra heavy milking Holsteins and big type Poland Chinas is our specialty. A few choice animals of either breed or sex for sale at all times at reasonable figures. Write for information.

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A BUSINESS AUCTIONEER

When in need of high class auctioneering service I would be glad to have breeders and farmers correspond with me. I have had years of experience, know values and know pedigrees. I am selling for many of the leading breeders of California and am prepared to deliver the same results that have attracted this custom. Terms reasonable. Write, wire or phone.

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POULTRY

Buy 200 Egg Strain Chick, Pullet Breeders! Customers say: "Pullets raised from your chicks averaged 209 eggs last year;" "114 hens cleared $612 in 12 months;" "lost but 2 chicks of 100;" "get more winter eggs from 50 your hens than from 200 formerly." 140,000 electrically hatched 180-290 egg Leghorns, Reds, Anconas, Rock, Minorcas, Wyandottes, Andalusians, (ducklings, turks) reasonable. Half booked. Hundreds satisfied customers. Repeat orders often. Write (am rarely home). Profitable Poultry, 151 North Fair Oaks, Pasadena.

Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

For Sale—One million S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock for spring 1921 delivery. January prices $5.00 per 25, $10.00 per 50, $18.00 per 100. Special prices 500 and 1,000 lots. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Order early chicks now and realize big broiler profits. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., 438 Seventh Street, Petaluma, California.

BABY CHICKS
25 to 5,000
PARCEL POST or EXPRESS
FULL COUNT—SAFE DELIVERY
GUARANTEED Selected heavy laying
HOGANIZED
Mcfarlane, Tom Barron, WHITE LEGHORNS, Anconas, Barred Rocks, Rhode Islands, Minorcas, Buff, Brown Leghorns, ORDER EARLY. Write for prices.
Doke Hatchery, Established 1908
625 So. Spring St., Los Angeles, Calif.

We Can Supply strong, vigorous chicks guaranteed Tancred Strain from trapnest parent stock, 290 egg male birds, 240 and better female birds. These birds will grade up your flock. Price $20.00 per hundred f. o. b. Seattle. QUEEN HATCHERY, Seattle, Washington.

Baby Chix—S. C. White Leghorns from open range standard bred parent stock of utmost utility. Protect yourself in having your order booked early. Prices, etc., on application. I. X. L. Hatchery, 619 Upham Street, Petaluma, Sonoma County, California.

Baby Chicks from good layers. Booking orders now for 1921 delivery. R. I. Reds, Barred Rocks, White Rocks, White Legnorns, Brown Leghorns. Safe arrival guaranteed. Write for circular. Stubbe Poultry Ranch and Hatchery, P. O. Box 57, Palo Alto, California.

S. C. White Leghorn Baby Chicks from my carefully selected, pure-bred stock of S. C. White Leghorns. Orders for spring delivery booked now at $15.00 per 100, $140.00 per 1000. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Sly's Old Mission Strain Rhode Island Reds. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. SLY, 1642 (D) Middleton Place, Los Angeles, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

POULTRYMEN — POULTRYMEN
Both the novice and the experienced poultryman should have a copy of "Poultry for Profit" in order to prevent mistakes commonly made in the poultry business. This cloth bound book of 225 pages and 18 illustrations is written by Jean Koethen, a practical authority on all branches of the poultry business in California. Price $1.00 postpaid. Cultivator Publishing Co., 115½ N. Broadway, Los Angeles.

X L Hatchery, 351 Soquel Avenue, Santa Cruz, California now booking orders for electrically hatched X L Chicks; trapnested Tancreds and Tom Barrons; also other varieties and breeds. This year the demand is greater than the supply. Place your order now.

Baby Chicks—S. C. White Leghorn and R. I. Reds. Bred from paying flocks. Hatch each week. Chicks shipped by parcel post. Order now for early delivery. Write for prices. San Diego County Hatchery, San Diego, California.

Chicks hatched in Petaluma Electric Incubators are a superior class; strong, vigorous, sturdy, grow rapidly, lay early. Our free catalogue tells the reason. Petaluma Electric Incubator Co., Petaluma, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Chlen, Campbell, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jesch, Fallon, Nevada.

Baby Chicks—White Leghorn S. C. from heavy laying well selected stock. Mrs. E. Decker, 130 Broadway, San Gabriel.

POULTRY

Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made such a remarkable record in the state laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

Buy Early Chicks—Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, California.

Baby Chicks—We have 8,000 selected Hoganized hens, all on free range on different ranches, all mated to Tom Barron roosters. We guarantee full count of strong, healthy chicks. Book your orders with us now and avoid disappointment, as orders are coming in fast. 30 years in the business. Lasher's Hatchery, Petaluma, California.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

White Leghorns—hatching eggs our specialty, produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the West. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R. 1 Box 29, Gardena, California.

For Sale — Several varieties, Mammoth Bronze, Bourbon Red, White Holland turkeys. White Guineas, White Muscovy (quackless) drakes $4.00 each. Houdan pullets $2.00 each. Order all eggs early. Mrs. B. Hocking, 541 E. 33rd Street, Los Angeles, California.

Quality Barred Plymouth Rock and Ferris S. C. White Leghorn guaranteed hatching eggs. Also Barred Plymouth Rock breeding cockerels for sale. We have good stuff at honest value for you this season. GOLDEN RULE POULTRY FARM, Porterville, California.

Chicks — Eggs — Hoganized White Leghorns, Brown and Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, Calif.

For Sale—S. C. White Leghorn Baby Chicks and Hatching Eggs from 227 egg strain of winter layers. Book your order now for early delivery. Meyer Poultry Farm, Route A, Box 17-C, Modesto, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Cornell, California.

Baby Chicks hatched from our utility S. C. White Leghorns, a result of many years selecton and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Hatching Eggs from trapnested, line-bred, pedigreed S. C. White Leghorns, trapnested 17 years for high production, vitality and consistency. Best foundation stock on the Coast. Our circular tells you why. Waldeck Ranch, Burbank, Calif.

For Sale — Blue Andalusian roosters and trios; for 15 years my Blues have won most of the first prizes. Write for prices. J. R. Huddleston, 342 Edgeware Road, Los Angeles, California.

For Sale — Thoroughbred White Minorca roosters, 1½ year old. Extra fine birds. Price $5.00 each. Geo. M. Ketscher, 1101 E. 4th Street, Santa Ana, California. Phone 572W.

"Eastman's Bred-to-Lay" Trapnested Barred Rocks. JANUARY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks—Can book a few more orders for early S. C. White Leghorn and S. C. Rhode Island Red chicks. Tupman Poultry Farm, Box 7C, Ceres, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Hoganized Rhode Island Red Eggs for hatching $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Parmentier's Barred Plymouth Rocks—Have the laying and winning qualities combined. Both light and dark matings. Eggs and stock for sale. W. P. Parmentier, Chatsworth, California.

Baby Chicks — Barred Rocks and Reds from bred-to-lay stock. 25-$5.00; 50-$10.00; 100-$20.00. Hargett & Son, Compton, California.

Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES
Orland, California.
BRED GILTS FOR SALE.

Grape Wild Farm—Berkshires, Guernseys. Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

DUROC-JERSEYS

For Sale—Extra fine Duroc gilts sired by Orion Cherry King boar 800 lbs. and from dams 2 years old 500 lbs. still growing. Bred to fine Defender boar, is good for 1,000 lbs. when grown but smooth. I have a bunch of November pigs, are showing up fine, sell when weaned $25-$35 guaranteed to please. Mayflower Thoroughbred Stock Farm, John Kincaid, Prop., E. Bakersfield, California.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bred Sows and Gilts and young stock. Pathfinder and Great Wonder I Am breeding. Monthly payments if you wish. Derryfield Farm, Capital National Bank Building, Sacramento.

Boyanna Big Type Durocs—Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

Duroc Hogs and Guernsey Cattle—Pure bred stock for sale at all times. Hollow Hill Farm. B. W. Shaper, Manager, Colton.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

Registered Duroc Gilts and Boars. Also Poland Chinas. Eleventh and Verdugo Streets, Burbank, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

POLAND-CHINAS

Bargains in Polands—600 pure bred Polands—sows, gilts, boars, feeders, must be disposed of to make room. Take one or more at your own price. Santa Anita Rancho, Santa Anita, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

HAMPSHIRES

For Sale—Registered Hampshires of all ages, excellent individuals. Also grade Ayrshire cows. H. G. Ranch, Solvang, California.

MACHINERY

Rebuilt Windmills, irrigating pipe, tanks, pumps, cylinders, rods, fittings.
WHY PAY MORE?
WE SELL FOR LESS.
New 1,000 gal. galv. tanks $47.25; 2,000, $67.25; 10,000 gal. redwood $115; 25,000, $195. Ship wood tanks knocked down. Many other bargains. 350 ft. 8 in. galv. irrigating pipe 35c, SNAP. SPECIAL in complete pumping plant consisting of 15 h. p. Western engine, deep well double acting Ames pump with pipe, rods, cylinder for 90 ft. lift $950. This is only what pump head alone would cost new. Give us call, see who's cheapest. DEMMITT CO., Upstairs, 120 N. Main, Los Angeles.

For Sale—One 12 h. p. Sterling gas engine. 1 6-inch Sterling pump complete with belt, suction pipe and discharge pipe, only used two months, $500.00. 1 6-inch Byron Jackson centrifugal pump, used three days, $285.00. Address Box 40, Livingston, California.

For Sale—Orchard power sprayer, 1½ h. p. engine, Myers pump and tank, mounted on truck. Price $100. Inquire of Lester Barber, Ford Garage, Gardena, California or address R. Matson, R. D. 1, Redondo Beach, California.

For Sale-Samson Tractor, model S25 used small acreage part of two seasons. Good order. Three bottom power lift plow, 8 ft. chisel, 10 ft. cyclone, 10 ft. drag trap wagon all complete for $1,000. F. D. Hudson, Van Nuys, California.

For Sale — Either one of my two Yuba tractors, just overhauled, one 18 and one 20-35. Sold part of ranch and have use for but one. Going at ½ cost of new tractor. Hugh Montgomery, 59 W. Palm Ave., Redlands. Phone Black 756.

For Sale—New Model M Samson tractor with two bottom Samson plow slightly used, in perfect working order. Price and tractor perfect. Henry Harwood, Van Nuys. Phone 117R4.

For Sale—One 14-28 Avery tractor. Used three weeks. Good as new. No further use for it. Will sacrifice for quick sale. E. Clyde Allen, Big Pine, California.

For Sale—Merry Garden Tractors. Circulars and demonstration free. Dwight E. Smith, L. A. County Agent, 1645 North Normandie Avenue, Los Angeles.

For Sale—Slightly used Holt 45 tractor as good as new at a greatly reduced price. Address: Henry Harwood, Van Nuys. Phone 117R4.

For Sale—Yuba 12-20 tractor, John Deere, two-gang plow, 8 foot Cyclone harrow, good condition, price right. Ralph Esaley, 126 Rose Street, Compton. Phone 483.

DUCKS

Mammoth White Pekin Duck eggs for hatching, $1.00 per dozen. A Surtman, Petaluma, California.

FARM LAND FOR SALE

Agriculture—the Mother of Civilization, but who is going to do the work when the hired man quits or the boys go to the city? Don't try to farm so much land that you make life a burden. We have an ideal one man proposition to offer you. Soil and climate where you can grow anything that grows in California. Water piped under high pressure to your door for irrigation and domestic purposes. Good schools and churches in a 100% AMERICAN colony. A limited amount of cleared land for $200 per acre. PARADISE RANCHITA, Paradise, California.

For Sale by Owner—50 acres choice river bottom alfalfa land, gradually changing to prunes, apricots, pears, peaches, vines, etc.; 2½ miles from growing railroad town 30 miles from Fresno, California. No alkali or hardpan, abundance of water. Priced at half value to insure quick sale and half down. Price $9400. Box S W R. CULTIVATOR, Los Angeles.

For Sale by Owner—Price $600.00 per acre, 50 acres choice budded English walnuts planted 28 trees to acre. Located in frostless district of San Fernando Valley near Zelzah on Receda Ave. Abundance of cheap water. Henry Harwood, Van Nuys, California.

Big Money Makers. Grapes, Kadota preserving figs and pomegranates. Forty acres of choice land adapted to above fruits. Ample water. Exeter district, Tulare County. The Phalanx Company, 516 Chamber of Commerce, Los Angeles, California.

For Sale by Owner—20 acres in alfalfa. Orchard, vines in best fruit and dairy section of San Joaquin. Building, stock implements. Box 192 Cultivator, Los Angeles.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192, Indio, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

TURKEYS

GIANT BRONZE TURKEYS
Large turkeys can be raised at practically the same cost as small ones. It is in the strain. One of my toms will give you five more pounds of meat to market in all of his get the first year, besides vitality and beauty.
GOLD NUGGET STRAIN
Again win at California's two greatest shows, Gold Special Sweepstakes for best turkeys at California State Fair, 1920, against sixty-six of the state's best turkeys. Also every first, second and third prize and Gold Special Sweepstakes at Los Angeles Live Stock Show, 1920.

The Gold Nugget strain have continually proved their superiority by winning Gold Special Sweepstakes at every show exhibited in the last six years including six state fairs and all the largest shows in the West.
AN UNEQUALED RECORD
Toms and eggs for sale, also a few high class exhibition toms to win in any show. Circular after first of year.
J. WILL BLACKMAN
Originator of Gold Nugget Strain
607 East Third Street,
Los Angeles, California.

Turkeys—"Goldbank"—"Copper King V" strain. Selected Giant Bronze toms. Sired by son of famous "Copper King V," First Prize Yearling, N. B. T. Club Show, Madison Square, N. Y., January, 1919. Bred to 20 lb. hens. Egg orders taken. Prices reasonable. Address: BRONZE KING MOUNTAIN FARM, P. O. Box 308, Calistoga, California.

Mammoth Bronze Turkeys, Stafford strain, Eastern stock, beautiful plumage, extra large frame and bone. Money back guarantee. Send for circular. R. M. Dodge & Son, R. D. 2 Box 129, Bakersfield, California. Phone 31F4.

Earl E. Sanders, Modesto, breeder of Mammoth Bronze turkeys and Single Comb White Minorcas, is booking orders for eggs, chicks and breeding stock. Route D, Box 1880.

Mammoth White Holland Turkeys for Sale—Choice hens and toms from our famous breed of large vigorous turkeys. Earl V. Smith, Loma Vista Ranch, Willows, Calif.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Mammoth Bronze Eggs from prize winning stock. Order now for early delivery. $30.00 per 100. T. T. Middleton, Tankersbim, California.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, S. Reservoir, Pomona, California.

WANTED

Wanted—Experienced citrus nurseryman. One who understands the growing of citrus trees, including budding and balling. T. J. Walker, First National Bank Building, San Fernando, California.

Wanted To Hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

Wanted to Buy—Bean power sprayer. Duplex or triplex type. R. Matson, R. D. 1, Redondo Beach, California.

Wanted—To hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin.

Wanted—Walnut Meats. Fred L. Mitchell & Son, 214 French Street, Santa Ana. Phone 551-M.

ROOFING MATERIALS

ROOFING PAPER
One ply $1.50, 2 ply $2.00, 3 ply $2.50 complete with fixtures. Rubber roof paint 50c per gallon in 5 gal. lots.
ANGELUS ROOFING & PAPER CO.,
766-768 So. San Pedro St., Los Angeles
Broadway 5401

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

SEEDS AND PLANTS

Berrydale Berries and Roses—"De Roo's Mary Lewis" New Everbearing Raspberry. The finest, largest and best flavored berry grown. Can ship 500 miles in perfect condition. Plants strong and need no supports. Plants ready for delivery now. Price per 12, $3.00; 100, $20.00; 1,000, $150.00. Sample plant 30 cents, parcel post. Write for catalogue, sent on receipt of 5 cents in stamps. Salesmen wanted. Our salesmen are making good up to $600.00 per month. BERRYDALE GARDENS, Dept. D, 1715 Webster Street, San Francisco, California.

Strawberries—1,000,000 plants, leading varieties; 200,000 Cuthbert raspberry; 100,000 Black Cap Tips; 100,000 Loganberry Tips. Order now; low prices. Also 100,000 choice peach seedlings — will graft in plums or prunes on contract for fall delivery 1921. Lafayette Nursery Company, Lafayette, Oregon.

For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

Increase Your Potato Yield by planting clean healthy seed. I have some Great Divide seed potatoes of excellent quality at 3 cents. Present crop 200 sacks per acre. Come and see. W. G. Brumund, Cucamonga, California, on Foothill Boulevard.

Alfalfa Seed, best Chilean stock, from famous Perris Valley district; 1,500 lbs., in 100 pound lots, 22 cents per pound, f. o. b. Los Angeles. Cash with order. Consumers Supply Company, 6060 Pasadena Avenue, Los Angeles. Tel. Garvanza 599.

Berry Plants — Strawberries, Loganberries, Currants, Gooseberries, Blackberries and Raspberries, for immediate delivery. All stock first class and strictly true to name. Write for prices. M. J. MONIZ, Berry Specialist, Sebastopol, California.

Selected Wine Grape Cuttings for field and nursery planting. All varieties. Price $10.00 per 1,000. Let us quote you our low prices on fruit trees. We ship any quantity anywhere on approval. J. F. Miller & Son, Healdsburg, California.

For Sale—Grape cuttings, Tokay, Mission, or Zinfendel per thousand $4.50 f. o. b. Acampo. Orders taken for next year's vines at $32.00 per 1,000 if accompanied with 25 per cent cash. Vines guaranteed. W. H. Street, Acampo, California.

Ethelburg No. 80. Grand new strawberry, wonderfully productive, $2.00 per hundred, postpaid. PACIFIC BULB COMPANY, No. 137 Pacific Ave., Santa Cruz, California.

Tomato Seed—Improved Stone, San Jose Canner. 25 cents oz., $3 pound, postpaid. Stamps or Money Order. Thomas Murray, 3209 West Washington St., Los Angeles, California.

Brandywine Strawberry Plants from stock which produced $3,000 worth of berries from acre this season. Price reasonable. Lon King, 1158 West Fourth, Riverside, California.

Rhubarb Plants—Wagner's Giant 1 year, per dozen 50c; per hundred $4.00. Wagner's Giant, 2 year, per dozen $1.00; per hundred $8.00. Seed per pound $5.00. Currier Bulb Co., Santa Cruz, California.

Strawberries six months in the year. Plant Everbearers, Superb, Progressive, Americus, $2.50 per hundred prepaid. Catalogue. Fred Leissler, R. 6, Box 429, Seattle, Washington.

For Sale — Mountain grown strawberry plants. Brandywine $1.50 and Banner $2.00 per hundred by mail postpaid. B. Bryan, Camp Baldy, California.

For Sale—Genuine Red Kidney beans for seed. These beans are bringing the highest price in the market. Norman Johnson, Chatsworth, California.

Pumpkin Seed — Mixed Pumpkin Seed, good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

For Sale—Good clean common variety alfalfa seed at 22 cents per pound. Chas. A. Haug, Star Route, Corona, California.

300,000 Grape Rootings $30.00 a 1,000 while they last. Four kinds. Box 501, Fowler, California.

My Price List contains interesting reading. Send for it. Bishop's Nursery, Highland, California.

Fine Klondyke and Brandywine plants for sale, $12.00 per M. L. E. Hall, R. D. No. 2, Box 61, Pasadena, California.

California Wonder Corn for seed. Write now. James McKee, Riverside, Calif.

CATTLE

Pure Bred Guernsey Bulls at farmers prices. Three are ready for service. Also a number of calves sired by a son of Rex of Rich Nech.
Adohr Stock Farm
Ventura Blvd. near Van Nuys. Phone Van Nuys 119R2. Mail address — Van Nuys, California.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

35 Excellent Jersey Cows—1 reg. bull, 12 calves for sale reasonable. Address: H. E. Watson, Rt. D, Box 91, Modesto, Calif.

For Sale—Jersey bull 6 months old out of imported bull Helen's Oxford Son. Price $75.00. J. R. Carhart, Fullerton, Calif.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

TREES

French Prune on Myrobolan, Peach and Almond root.
Imperial and Robe de Sargeant on Myrobolan and Peach root.
Clingstone Peaches, June buds. Fine, stocky, well rooted trees.
Plums in all varieties on Peach and Myrobolan root.
Cherries, full assortment on Mazzard root.
Pears, all varieties on Jap root.
Franquette and Mayette Walnut on Black.
Thompson Seedless Grapes.
General assortment of all fruit varieties for Home Orchard or Commercial planting.
For hardiness, well branched roots and freedom from disease, our foothill grown trees have no equal.
Submit to us a list of your wants for prices.
SILVA-BERGTHOLDT CO.,
BOX 377, NEWCASTLE, CALIF.

Nursery Stock—We are offering commercial lots in Bartlett pear trees, at prices which will save you planters big money. Have apple, pears, prunes, cherry, strawberry, berries, etc. NO AGENTS. Try our Mail Order System. Send for planters List. 30 years in business. CARLTON NURSERY COMPANY, CARLTON, OREGON.

For Sale—10,000 Valencias one and two year buds; 2,000 Eureka lemon two year buds; Navels, M. S. Pomelos; 1000 Wonderful Pomegranates; 3000 Texas Umbrellas; 100 Kadota figs; 2000 Mission Olives; Sweet and Sour orange seed-bed stock. Southland Nurseries, 1941 East Colorado Street, Pasadena, California.

Royal Apricots, Tuscan, Sims and McClure Clings, Elberta and J. H. Hale Freestone Peaches, Santa Rosa and Beauty Plums, Pear, Apple and Walnut Trees. Grapevines, Berries, etc. Order now; leading varieties scarce. Los Nietos Valley Nursery, Downey, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

Budded Avocado Trees. Leading varieties. Order early to secure best selection. Dr. Stonebrook's Avocado Nursery, 15 N. Raymond Ave., Pasadena. Phone Colorado 208.

For Sale—Walnut trees, fine stock Eurekas grafted on black root. Prices, 4-6 feet in height $2.00; 6-8 $2.25; 8-10 $2.50; 10-12 $2.75. La Puente Walnut Nursery, Puente, California. Phone 103.

For Sale — Peaches, Cherries and other fruit trees. Full line of shrubbery and roses, also flowering plants. Write City Nurseries, 109A Orange St., Redlands, California.

For Sale—Citrus trees and grape vines, two years old on Sour root. Valencia, Navel, Pomelo, lemon trees, and rooting vines. J. S. Ogawa, Rt. A, Box 114A, Sanger, California.

For Sale — Elberta, Phillips, Tuscan peaches, French and Sugar prunes, Franquette walnut, almonds, berries, etc. Send for price list. Ben Putnam Nursery, Winters, California.

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SOIL TREATMENT AND FOOD SUPPLY

The future food supply of the United States in relation to population was the theme of the presidential address delivered before the American Society of Agronomy at Springfield, Massachusetts, October 18, by Dr. Frank S. Harris. He called attention to the well known fact that the increase in population tends to outrun food production, and discussed some of the measures available for increasing our food supply, namely: increase of our tillable area, through breaking up and bringing under cultivation all new and virgin lands; reclamation of arid lands by irrigation; reclamation of swamp lands, both fresh and salt water, by means of drainage; reclamation of alkali lands; increase of tillable area by bringing into tillage cutover lands and abandoned farm lands; increasing the acre production of crops on existing farm lands by means of better tillage, the better selection and adaptation of crops, and by better use of fertilizers, lime, and similar soil treatments.

Acre Yield Must Increase

There can be no question about the increase in demand for the products of the soil, and while the area of tillable land can be increased we must recognize the broad necessity of increasing production primarily by increasing the yields on existing area by better selection and adaptation of crops, and by improved soil treatment. This becomes necessary from another point of view, which was not touched upon by Dr. Harris, namely, the increased cost of labor and the equipment necessary to produce crops. It has been pointed out that 65 per cent of the cost of growing a crop is necessarily incurred whether any yield is secured or not. It goes into such fixed charges as interest on land, cost of plowing and fitting, cost of seed. The tendency is for increased yields produced by the use of fertilizers and lime to increase the profits out of all proportion to the cost, especially for the lighter application which produces the largest unit increase.

Lime and Fertilizer Decrease Cost of Production

Since so large a portion of the cultivated land of the country needs lime it is vital that this need be appreciated and the methods understood for its proper application in cooperation with fertilizer materials and good general soil management. It was said recently by a well known agronomist that all of the most prosperous farmers in his state used fertilizers and it may be said with equal truth for many sections of the country that the most prosperous and most progressive farmers also use agricultural lime. It should also be noted that the farmers on the poorer lands, even less than those on the better lands, cannot afford to dispense with the use of such materials as lime and fertilizers in reasonable quantities.

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Jobson, driving along a lonely road one morning, managed in some way or other to ditch his car. Fortunately, a farmer hove in sight behind a pair of stout horses and Jobson appealed to him for help.

"Why, ya-as, I guess I kin help ye out, mister," said the farmer. "Let's see what it'll come to—one day's use of the team, $5—"

"One day?" retorted Jobson. "'Tisn't going to take a day to haul that machine out, is it?"

"Why, no," returned the farmer, "but arter I get the $5 I don't calc'late to do any more work till tomorrow."—Boston Transcript.

The enviable reputation built up by Dixon & Griswold during their career as jobbers of farm implements in Southern California is a prominent factor in the decision of W. L. Dixon and J. F. Griswold to re-enter the field under the old firm name. It has also caused an elaboration of the policy formerly pursued by this enterprising firm, into an expansion of territory covering the entire Southwest, particularly California and Arizona. Such well known and established lines as those put out by J. I. Case Plows Works Co., La Crosse Plow Co., Sandwich Manufacturing Co., The Bean Wagon Co., will form a nucleus about which will be built the most complete jobbing stock ever distributed in the Southwest.

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Adventuring With Chickens

By Jean A. Koethen

DEAR Dad:—Here it is two whole weeks since I wrote you a line. If you could only guess what busy weeks they have been and how I have slipped into bed night after night, figuratively if not literally, "with the chickens," almost too sleepy to say my prayers, you wouldn't think me neglectful. What is it about this California climate that makes us tenderfeet so sleepy, even when we are not working 14 hours a day?

Bob has gone to association meeting tonight with Mr. Sayers, our next door neighbor. We have found Mr. and Mrs. Sayers a wonderful help in getting things started. Hardly a day passes that they are not in with some suggestion, and we are humble enough to accept it all gratefully. They are not big chicken people, only keep a few hundred hens, "on the side" as they say, for Mr. Sayers works in an office in the city and has only Saturday afternoons and summer evenings for his poultry. Being sideliners, they have worked out every possible labor saving device, and their backyard plant is a wonder of neatness and economy.

And what do you suppose I have been doing today? You'd never guess. Mrs. Sayers put me up to it. She says you can hardly make a vine grow on a chicken fence after the chickens are inside, so the time to plant vines is now, before we have any chickens to eat them off. She gave me some honeysuckle roots, and I bought Cecil Bruner roses and Australian pea seeds. Planted now, before the rains come, they ought to be well started by the time my little chicks are old enough to eat the leaves off. Indeed, they will not be in much danger till a year from now. I wanted to plant morning glories or moonflowers, but Mrs. Sayers discouraged me. She says when once they get started you can never get rid of them. I have planted the honeysuckle along the fence that encloses the layers' runs. The house is to front south, and its westermost fence will catch a good deal of wind. As the honeysuckle makes such a thick growth it will make a good windbreak, and it ought to be well grown by next fall. Mrs. Sayers' hens are comfortable against their honeysuckle hedge in the windiest weather.

The roses are on the brooder yard fence nearest the house. They will not only be a windbreak but will hide whatever is best concealed. I must quote Mrs. Sayers again: "Why should our back yards be ugly when we have all nature to help beautify them?" Somewhere lately I read that her back yard is the truest index to a woman's character. Isn't that a thought to keep a woman on her mettle?

The Australian peas I have planted beside the fence which encloses what is to be the colony house yard. I feel a little doubtful about them. They have a reputation for not being easy to start. For fear they should disappoint me I have planted a pink tecoma vine right in the middle of the south side. If worst comes to worst, it will cover that fence by itself, Mrs. S. says.

We had not planned to build all our fences ahead of the houses, but the vine and tree consideration ruled. From now on is tree planting time, and the trees we plant for shade, like the vines which cover the fences, must get the start of the chickens. From all we can learn walnuts are proving the best trees for poultry runs. They grow slowly, to be sure, but in the end they give glorious shade during the summer and none at all in the winter, and the income is considerable. We are going to plant them 40 feet apart through our yards and put peaches between. By the time the nuts need all the room the peaches will have paid for themselves, and some more, and they will give us some shade next summer.

The need of shade and green feed seems to be acute in Southern California. Everybody plans for shade for his hens, just as everybody is thinking about greens. That is a thing that strikes one queerly, that in the fall, when the Kansas farmer is getting his crops in and thinking about the long rest he is going to have, the Californian is planting grain and vegetables and fixing up his winter garden.

We are going to plant barley in our runs and in every other place where we are not ready to plant something else. It will be fine for the chicks to run on, and if there is any we do not need for them we can put it away for scratching litter for the pullets next fall. Mr. Sayers already has barley up in several runs he is not using. He plants it early and then waters it with the hose. When it is six inches high he cuts it and runs it through a clover cutter for his layers. He says one secret of successful poultry culture is never to leave well fertilized soil idle. The barley uses up the accumulation of manure in the soil and turns it into feed. If it has been contaminated by worms or any intestinal disease the barley purifies it. When he has cut one crop of barley he waters again and another crop begins to grow from the same roots.

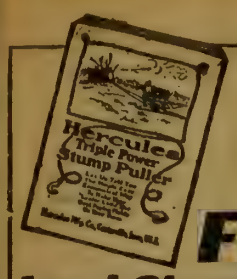
Speaking of barley reminds me of the trip we took the other day, Mr. and Mrs. Sayers and Bob and I, in our new flivver. We drove 50 miles and back just to visit a man who is said to have one of the most complete poultry plants anywhere around. This man, Mr. Warren, has two large yards for every house, one in front and one behind, with a door opening from the house into each. In the summer he plants Sudan grass in the rear yards and lets the hens run in the front yards. In the winter he plants barley in the front yards and keeps the hens in the rear yards. Now, I do not mean, as you might suppose, that he plants the barley, and as soon as it is grown turns the hens in on it. I thought that was what was meant by "double-yarding," but I know better now. As soon as the barley is well grown he begins to cut, cutting enough each day to make a feeding for all his hens when it is run through the clover cutter. As soon as he has cut clear across the yard he turns the water in on the roots, gives them a thorough irrigation, and starts them growing again. After three crops have been grown and cut he turns the hens in to eat up the roots.

"But surely it would be easier to turn the hens in and let them eat their green off the stem," I objected,

POULTRYMAN'S CALENDAR—JANUARY, STARTING THE HATCH

Whether he actually begins hatching or not, hatching is the subject that is uppermost in the poultryman's mind after New Year. If he does his own hatching he will see that his incubators are in order, thoroughly cleaned and disinfected, thermometers and thermostats in order, and everything ready to go by the middle of the month. If he wants February chicks, his eggs should be in the machine sometime between the middle and the end of January. If he buys his chicks ready hatched he has ordered them long ago, and half of them at least are to be delivered in February.

The farmer who depends on hens for his hatching is handicapped this month by lack of broodies. He may have to take a few dozen eggs to some hatchery which does custom hatching. If there is such a hatchery within reach the early pullets he gets by this means will be more than worth the trouble and expense involved. The backlotter who plans to purchase eggs should have them ordered before this. As a rule eggs can be ordered subject to call, that is, to be delivered when the hen is ready. Everybody should plan for some February chicks, and January is the time to set things in motion.



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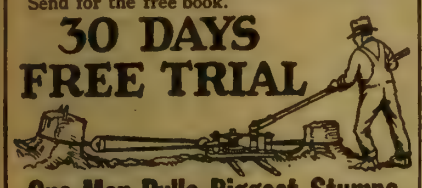

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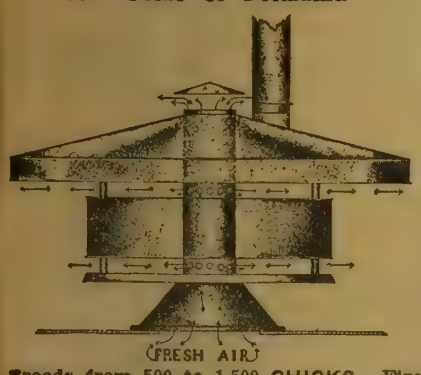

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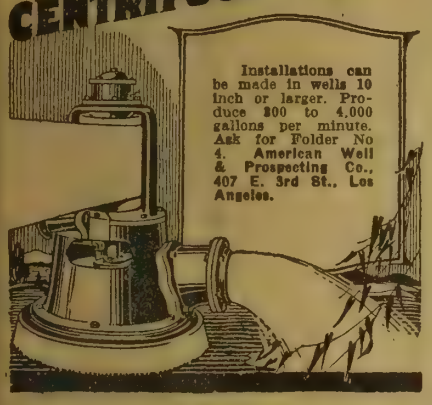

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little silly that I am. Mr. Warren didn't even smile. "Yes, it would be easier, but the hens would only tramp down the barley. They wouldn't get much, and all our work would go for nothing. As it is, we get a lot of good green feed, and the hens, when they are finally turned in, get as much as they would if we let them in the first thing." Mr. Warren had Sudan grass half as tall as I am. He has a patch of alfalfa besides, but considers the Sudan and barley better propositions for utilizing the manure in the runs. Next summer I think we must try the Sudan. Now, as it isn't quite time for planting alfalfa, and as alfalfa is a permanent crop when it is planted, we must put our minds on barley.

Now, Dad, if you'll just be patient, I'll try to tell you everything we do. We shouldn't be here at all, in this land of much sun and little rain, if you hadn't given us a helping hand, and we are not forgetting how much we owe you. We want your Bessie's chickens to be the best ever, and when we get rich—oh, well, no use building castles yet.

As ever, with love to the folks,—Bessie.

Poultry Queries

Conducted by J. A. Koethen

Fryers or Broilers

We have been thinking of buying some baby chicks and raising them for market. What kind would you suggest as best suited for this purpose and how should they be fed? At what size can they be most profitably marketed?—R. E. D., Perris.

If you buy chickens be sure that they come from heavy, vigorous stock. There is great difference between chicks of different strains of the same breed, and you must have stock that will grow rapidly or there is nothing in it. They should be early, too, in order to bring the best prices. January chicks are more profitable than those hatched later, and fall hatched fryers are more profitable still. There is a little difference of opinion about the most profitable age for marketing, or rather, I should say, it depends on breed or strain and time of hatching. Leghorns are best sold as broilers from 1¼ to 1¾ pounds. The earlier the better for them. On the other hand, heavier birds, like Orpingtons and Reds, bring a better price if they are kept to over two pounds, provided they can be made to put on the additional weight quickly enough. I met a man last year who was doing well raising R. I. Reds to fryer size, but he brought them to two pounds in about ten weeks, and one has to have good stock to do that. This man fed his chicks mainly on coarse corn meal and beef scrap in separate hoppers. Others feed all chicks alike till they are six weeks old, then put the market cockerels on a moist mash of corn meal, middlings and grounds oats with about ten per cent beef scrap added, and enough cracked corn and milo to keep their digestion in order. R. I. Reds, Orpingtons, Barred or White Rocks and White Wyandottes are all good table birds. As I said in the beginning, weight and vigor are more important than breed.

Marketing Broilers

We have been reading your articles with much interest and all have been of great help to us. We are trying to raise broilers for market and think there must be some better way to sell them than just to the buyer who comes out here, who pays two cents below market price. We will have 50 or more broilers a week and would like to get in touch with some good place to market them. — M. P. F., Rivera.

The best way to dispose of broilers, when you can contract for a given number weekly, is to some big hotel or restaurant. Any of the larger hotels, I understand, or clubs, are good customers. The only way to do is to write to or see the steward or buyer at the various places. The Poultry Producers of Southern California is marketing Leghorn broilers for its members, but you cannot be a member unless you have a certain number

(Continued on Page 95.)

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Everbearing and Standard. We have a fine lot of Marshall, the kind the canneries demand. Also Banner plants. Americus and Superb everbearing. We pack so plants arrive in good condition. Send for catalog.

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BUTTRESS & McCLELLAN

205-7 N. Los Angeles St., Los Angeles

Los Angeles Markets

Los Angeles, January 12, 1921.

BUTTER

Butter, creamery extras, Produce Exchange price 47 cents.

Jan.	5	6	7	8	10	11
'21 ...	52	51	51	51	45	47

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 63 per dozen case count. Produce Exchange closing price 61 per dozen; pullets, Produce Exchange closing price 57 per dozen.

Dairy Exchange price last week on extras:

Jan.	5	6	7	8	10	11
'21 ...	61	62	62	62	63	63

POULTRY

Price to producers: Hens, lt., 33; heavy 33; colored, 36; broilers, 40@45; roasters, 35; old roosters, 14; fryers, 40; ducks, old, 23; ducklings, Pekin, 3½ up, 25; others, 23; geese, 25; turkeys, live, young tom, 45; dr., 50; old, live, 40; dr., 41; hens, live, 45; dr., 50; squabs, 45@47.

Belgian hares, live, 16@21; old, 9.

LIVESTOCK

Los Angeles, Jan. 11.—Weighed and delivered off cars without food or water:

Hogs, (hard grain): 125 to 175 lbs., 11.00; 175 to 225 lbs., 11.50.

Cattle (on foot, gross weight): Steers, good, 8.50@9.00; medium, 8.00@8.50; cows, good, 7.50@8.00; medium, 7.00@7.50; bulls and stags, 6.00; calves, 125 to 150 lbs., 11.00; 175 to 225 lbs., 10.50.

Sheep: Ewes, 7.50@8.00; lambs, 12.50@13.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, January 11, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market dull, quality generally poor. Stocktons: Burbanks, 1.85@2.25 according to quality; few high as 2.40. Idahos: Russets mostly 2.00@2.25. Local: Mostly 85@90 per lug. Sweets, best, mostly 1.50@1.60.

Onions: Supplies heavy, market dull. Stockton: Whites, cold storage, 2.50@2.75; Browns mostly 1.00@1.25 per 100 lbs. sacked.

Garlic, lb., 14@17.

VEGETABLES

These are the actual prices obtained January 11, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Beets: Doz., 40@50; sk., 1.50@1.75.

Cabbage: Supplies heavy, market steady. Best mostly 1@1½ per lb.; per field crate, mostly 1.00@1.25.

Carrots: Doz., 30@40; sk., 1.00@1.25. best, 1.50@1.75.

Cauliflower: Supply liberal, field cr., best, 1.25@1.75.

Celery: Cr., best 2.25@2.50; poorer low as 1.75.

Cucumber: Market firm; local, best, lug, 3.00@3.50.

Egg Plant: Lb., 9@11.

Lettuce: Field crate, mostly 1.00@1.10.

Peas: Lb., 9@12.

Peppers: Bells, 8@10; Chilis, 15@17.

Radishes: 15 doz.

Rhubarb: Crimson Winter, best bx., 75@1.00.

Spinach: Doz., 20@25.

Squash: Local Hubbard, lb., 1½.

Tomatoes: Local lugs, mostly 85@1.25 lug; best high as 1.50.

Turnips: Per doz., 25@35; sk., 1.00@1.25.

DECIDUOUS FRUITS

These are the actual prices obtained January 11, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Apples: Supplies liberal, movement slow, market steady. Californias: Bushel boxes Bellefleurs, fancy, 4 tier mostly 2.10@2.25; 4½ tier, 1.75@1.85; Jonathans fancy, 3.00@3.25; Delicious fancy, 3.25@3.50. Rome Beauty, fy., 2.50@3.25. Idahos and Utahs: Loose Jonathans and Winesaps mostly 6@7 per lb. Oregon and Washingtons: Bushel boxes, extra fancy 2.75@3.50; Arizonas, bx., 4.00@4.50.

Bananas: Lb., 10½@11.

Cranberries: Bbl., Late Howe, 21.00@22.00; Oregon, bx., 6.00.

Pears: Various varieties, 7@11.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 2.00@2.50; special packed brands, 3.75@3.50.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.25 $2.00 few high as 2.75; loose, bx 75@1.25; lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack 1.75@2.25; special brands mostly 3.00@4.00 according to size and quality, grove run 75@1.25 loose. Tangerines, best, 7@8 lb.

HONEY

Movement slow: Carloads f. o. b. usual terms: Per lb. 5-gallon cans White Orange and White Sage, 16½@20; extra Light Amber Orange, and Sage, 19; Light Amber Orange, 18½; Light Amber Sage, 12@18½; Light Amber Alfalfa, 11@17. Beeswax: Sacked, in less than car lots 40@42 per lb. Prices given represent quotations; practically no sales being made. Wide range due to extremely unsettled market conditions; low prices are considered possible in near future.

NUTS

California Walnut Growers' Association announces prices on 1920 walnuts: No. 1, soft shell, 12½; No. 2, 18½; Budded, 25½; standard budded, 22½ per lb.

GRAIN AND FEEDS

Grain Exch. price bid January 11:

Milo: Carlots, 1.92½; Eastern, bulk, 1.71¼.

Kafir: Eastern, 1.75.

Corn: Bulk, Yellow, 1.75@1.87½; White, 1.86¼.

Wheat: Mixed feed, Mont., 34.00.

Barley: 1.72½@1.78¾.

HAY

Alfalfa Growers of California, report under date of January 12:

The market for alfalfa hay developed a steadier tone during the week, after the decline caused by the heavy shipments from Nevada, mentioned in our previous letter; while prices did not change materially, they show a marked stiffening up at the end of the week. The most encouraging event of the week in the general situation was the passing over the President's veto of the war finance corporation measure.

There were 720 tons received on the January 8, 1921, with 100 tons held over as against 880 tons the week before.

Rabbit	41.00
No. 1 dairy	28.00
Standard alfalfa	24.00
Stock	20.00

Quotations by Nichols - Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@24.00
Barley	18.00@22.00
Alfalfa	20.00@28.00
Barley straw	6.00@10.00

PENFIELD
The new starched collar model
SLIDEWELL HARD COLLARS
Save Your Tie, Time and Temper
Hall, Hartwell & Co., Makers, Troy, N. Y.

TIM ANSPACH
Livestock Auctioneer
30th & R Streets Sacramento, Cal.
Write or Wire for Sales Dates

San Francisco Markets

San Francisco, January 11, 1921.

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras	44½

Dairy Exchange prices extras this week and year ago:

Jan.	4	5	6	7	8	10
'21 ...	48	47½	47	47	..	44½
'20 ...	..	67	67½	68	..	67

Rcts. 5 days ending Jan. 10, 2,812 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Cal. Y. A.	31
Oregon Trips	29½
Cal. Y. A.	33
Cal. Flats	25

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	65
Extra Pullets	57½
Undersized	56

Dairy Exchange prices, extras this week and year ago:

Jan.	4	5	6	7	8	10
'21 ...	63	64½	62½	65½	..	65
'20 ...	..	65	69½	70	..	70

Rcts. 5 days ending Jan. 10, 270,039 doz.

POULTRY

Wholesale prices are:

Broilers, 15 pounds per dozen, 45@50.

Colored fryers—2 to 3 lbs., 37@38.

Colored young roosters (smooth), 3 to 4 lbs., 32@33.

Old roosters (colored), 20@23.

Leghorns, young, 15 lbs. to 24 lbs. per dozen, 32@33.

Leghorn hens, 3 lbs., 32@33; under, 25; Eastern, 31@35.

Large colored hens, 33@35.

Young Pekin ducks, 30; old ducks, 23@25; young geese, 32@35; market easy.

Live Belgian hare, 23@25; dressed, 28@30.

Squabs: Large, 65@70 per lb.

Pigeons: 3.00@4.00 per dozen.

LIVESTOCK

Cattle: Steers, No. 1, 9½@10; do, second quality, 8½@9; do, thin, 6@6½.

Cows and Heifers: No. 1, 7@7½; do, second quality, 5½@6½; do, thin, 3@4.

Calves: Light weight, 10½@11½; medium, 8½@9½; heavy, 7½@8½.

Lambs: Milk, 10@11; yearlings, 8@8½.

Sheep: Wethers, 7½@8; ewes, 4@5.

Hogs: Hard, fat, grain-fed, weighing 100 to 150 pounds, 10½; 150 to 225 pounds, 11½; 225 to 300 pounds, 11; 300 to 400 pounds, 10.

California Farm Bureau Marketing Association reports:

No. Hogs.	Av. Wt.	Dock	Price
Tegner, January 5			
58	206	...	$10.60
54	150	...	9.25
5	328	50	8.25
Two cars, 17 consignors.			
Chowchilla, January 6			
76	206	...	12.25
82	177	...	12.00
1	320	...	11.00
6	314	120	9.70
70	127	...	9.70
Two cars, 22 consignors.			
Fresno, January 7			
44	210	...	13.25
20	185	...	12.75
6	128	...	11.00
11	349	160	10.75
1	420	170	8.00
One car, 17 consignors.			
Wasco, January 8			
7	201	...	12.00
15	196	...	11.00
13	364	180	10.00
One-half car, 6 consignors.			

Total for the week, 5½ cars, 62 consignors with a total amount of $10,073.72.

HIDES

No. 1 heavy, 60 pounds up, 6; do, medium, 45 to 60 pounds, 6; light hides, 30 to 45 pounds, 7½; do, native bulls, 5. No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less.

No. 1 wet salt kip, 15 to 30 pounds, 8; No. 2, do, 7; No. 1, wet salt calf, trimmed, 10; do, untrimmed, 5; No. 2 calf, 2 per pound less. The price of No. 2 hides will be 1c less than the price of No. 1. Hides having any of the following defects will be classed as a No. 2: Any cut over six inches from the edge, over five bad scores, five grubs, one grain slip, one rubbed spot where grain is gone, one dragged spot where grain is gone, one sore spot where grain is gone.

Dry hide, 16 pounds and up, No. 1, 12; dry kip, 7 to 15 pounds, No. 1, 15; dry calf, under 7 pounds, No. 1, 16. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint. Prices for short haired hides only. Long haired winter hides, 1 less.

POTATOES AND ONIONS

Wholesale prices on street:

River, 1.60@1.75 for No. 1; do, Oregon Burbanks, 2.60@2.75; Salinas, 3.50; Idaho Gems, 2.60@2.75. Sweet potatoes, 4¾@5 lb.

Onions: Yellow, 65@85 per cental; Australian brown, 90@1.25; do, white 1.50@1.75.

Garlic: New, 8@9.

VEGETABLES

Wholesale selling price:

Beans, lb., Garden, 10@12; fy., 15@17; Limas, 12@13.

Brussel Sprouts: 5@7 lb.

Beets: Sk., 75@1.00.

Carrots: 75@1.00 sk.

Cauliflower: Doz., 1.00.

Cucumbers: Cr., 2.50@3.00.

Cabbage: Lb., 1.

Celery: Cr., 1.75@2.50.

Egg Plant: Southern, 8@10 lb.

Lettuce: Cr., 1.75@2.25.

Mushrooms: 25@1.25 bx.

Onions: Green, per bx., 75@1.00.

Peas: Lb., 12½@15; fy., 12@16.

Peppers: Bells, lb., 12½@15; Chili, lb., 5@6.

Rhubarb: 1.75@2.00 lug.

Spinach: Lb., 6.

Squash: Hubbard, 75@1.00 sk.; Marrowfat, sk., 75@1.00.

Tomatoes: Bx. fy., 1.25@1.50.

Turnips: Sk., 75@1.00.

FRESH FRUITS

Apples: Bellflowers, 1.50@2.00 for cold storage; Newtons, 3½ and 4 tier, 1.90@2.15; 4½ tier, 1.75; Hood River Spitzenberg, extra fancy, 3.00@3.25; fancy, 2.50@2.75; choice, 2.00@2.25 Lady apples, 3.00@3.50 box; Roman Beauties, 1.50@2.50; Delicious, 2.50@3.50.

Avocado: Fla., 5.00@6.00; Tahiti, 4.00@5.00 doz.; Cal., 1.75@2.25.

Bananas: Lb., 8@10.

Cranberries: Per bbl., 25.00@27.00, Oregon, 6.00 box.

Dates: Lb., 10@22.

Mangoes: Doz., 6.00@10.00.

Olives: Lb., 3@6.

Pears: Winter Nelis, 3.50@4.00; other varieties, 3.00@3.75.

Persimmons: Bx., 1.00@1.75.

Pineapple: Doz., 4.00@5.50.

Pomegranates: 1.50@2.25 per half orange box.

Strawberries: Dr., 1.25@1.50; cr., 3.50.

CITRUS

Navel oranges, 3.50@4.15. Lemons, 2.50@3.75 per box; lemonettes, 1.50@2.00. Grapefruit, new crop, 2.50@3.00; do, Arizona, 3.50@4.50. Limes, 1.50@2.25 per half orange box; Tangerines, bx., 2.50@3.25.

DRIED FRUITS

Raisins: Sunmaid, seeded, 36 15 oz. package, 24c lb.; seedless Sultanas, 25c lb. boxes, 23c lb.; Thompson seedless, 25-lb. boxes, 23½c lb.; Thompson seedless, 48 15 oz. packages, 24c; 3 cr L. M. raisins, 25 lb. boxes, 24c lb.; 2 cr L. M. raisins, 25 lb. boxes, 23c; 1 lb. clusters, 20 lb. boxes, $5.50 box.

Peaches: Blue Ribbon brand, 48 11 oz. to cs, $10 cs; Blue Ribbon brand, 24 2 lb. bxs to cs, $11; fancy, 25 lb. bxs, 19c; extra choice, 25 lb. bxs, 17c; choice, 25 lb. bxs, 15c.

Pears: Fancy, 25 lb. bxs, 20c; extra choice, 25 lb. bxs, 16c; choice, 25 lb. bxs, 13c.

Figs: Fancy black, 25 lb. bxs, 11c lb.; extra choice black, 25 lb. bxs, 9c lb.; choice black, 25 lb. bxs, 8c lb.; fancy white, 25 lb bxs, 15c.

Apricots: Fancy, 25 lb. bxs, 29c; extra choice, 25 lb. bxs, 24c; choice, 25 lb. bxs, 23c; standards, 25 lb. boxes, 18½c.

Prunes: 30-40s, 25 lb. bxs, 17c lb.; 40-50s, 25 lb. bxs, 14c; 50-60s, 25 lb. bxs, 12½c 60-70s, 25 lb. bxs, 9½c; 70-80s, 25 lb. bxs, 8½c; 80-90s, 25 lb. bxs., 7½c; 90-100s, 25 lb. bxs, 7c.

Apples: Fancy, 50 lb. bxs, 11c lb.; extra choice, 50 lb. bxs, 9c; choice, 50 lb. bxs, 8c.

NUTS

Peanuts: Japanese, 9.

Pecans, 25.

Almonds: California Almond Growers Exchange quote:

Nonpareil	26
I. X. L.	26
Neplus	25
Drake	18

BEANS

Jobbers' prices; for prices to producers deduct ½ to 1 cent per pound.

Small white, 4¾ per lb.; large white, 5; pinks, 6¼; Limas, 6¾; cranberry, 6¾; Mexican Garvanzas, 7; Lentils, 12½; Blackeye, 6½; Mexican Reds, 6¾; Popcorn, 6½; California Bayo, 11½; Kidney, 11¾; split peas, 7; green peas, 4.

RICE

Receipts for two days ending January 10, 5,256 centals.

Fancy California Japan rice offered f. o. b. San Francisco, immediate, $4.40; prompt, $4.25; first half January, $4.10; January, $4; February, $3.90; March, $3.80.

GRAIN

Sales grain exchange, January 11:

Wheat: Mill run, 2.85@3.05; feed, 2.75 3.05.

Corn: 2.00.

Oats: Red feed, new crop, 1.50@1.75.

Barley: New feed, 1.50@1.60; shipping, 1.75@1.90.

Shorts, 33@44.

Middlings: 52@55.

HAY

Alfalfa Growers of California under date of January 12:

There were 595 tons received in San Francisco the week ending January 8.

No. 1 Dairy Alfalfa	22.00
Standard	20.00

Under date of January 10, A. W. Scott Co. says:

With various fluctuations the hay market rests today with prices generally from $4 to $5 per ton lower than those ruling a couple of weeks ago and early in December. Receipts continued to be light last week. Pasture conditions are ideal and the depression in the meat markets has so far reduced the demand among

Washington Navel Valencia Late Oranges
Eureka Lemon Marsh Seedless Grapefruit
Exchange Buds
100,000 Florida Sour Stock Orange Seedlings
Absolutely Clean of All Scale
FUERTE AVOCADOS
T. J. Walker Nurseries
(Established 1895)
First National Bank Building San Fernando, California

FRUIT TREES
CITRUS and DECIDUOUS
STOCK SCARCE. Order Now for January Delivery
ORNAMENTAL TREES and SHRUBS
Winsell-Gibbs Seed Co.
The Old Reliable Seed House. Main Store 211 S. Main St. Nursery, 49th and Main Sts.
3576 Figueroa St. Open all day Sunday Los Angeles, Cal.

the stockmen, while the frequent rains have interfered with farm work and cut down forage consumption. All grades of hay appear to have suffered alike, with possibly alfalfa getting a little the worst of it by reason of competition form Nevada.

We quote today wholesale prices in carload lots as appear from dealers' transactions upon the hay market in San Francisco (for prices to consumers charge of cartage, commission and handling expenses must be added, according to conditions).

Wheat Hay, Fancy	20.00@21.00
Wheat Hay, light 5 wire bales	17.00@19.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00

Citrus Markets

Los Angeles, January 12, 1921.

The orange market is showing nothing spectacular, but is fairly well cleaned up and the shipments well received. F. o. b. prices are ranging around $3.00 and $3.25. Fruit is running heavily to small sizes, so much so as to prove embarrassing in some sections. It is now estimated that the Navel crop will total close to 25,000 cars, or about 25 per cent greater than last year.

The lemon market is slightly improved, but with long distance yet to travel before great satisfaction will be felt by the grower. Occasional f. o. b. sales have been made as high as $12.50. Only about 15,000 boxes of foreigns are on the docks or in sight.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 1,987 cars; lemons, 872; total, 2,859. To same date last season: Oranges, 4,143; lemons, 676; total, 4,819. From Central California to date, this season: Oranges, 3,808; lemons, 40; total, 3,848. To same date last season: Oranges, 3,328; lemons, 132; total, 3,460. From Northern California to date this season: Oranges, 293 lemons, 3; total, 296. To same date last season: Oranges, 260; lemons, 20; total, 280.

AT THE AUCTIONS

January 5

New York: 10 or., 1 lem: Nav. 3.45-5.55, Val. 2.55, lem. 3.15-3.40.

Boston: 3 or., 2 lem. Nav. 3.00-4.80, lem. 2.35-3.00.

St. Louis: 3 or., 1 lem. Nav. 2.25-3.25, lem. 3.25-3.50.

January 6

New York: 9 or., 5 lem. Nav. 3.40-5.50, lem. 2.75-3.30.

Boston: 7 or., 1 lem. Nav. 3.40-4.45, lem. 3.20-3.50.

January 7

New York: 5 or., 3 lem. Nav. 3.60-5.40, lem. 3.10-3.55.

Boston: 5 or., 1 lem. Nav. 4.05-4.90, lem. 3.30.

Cleveland: 2 or., 1 lem. Nav. 3.20-4.45, lem. 3.55.

Pittsburg: 2 or., 1 lem. Nav. 3.75-3.85, lem. 3.45-3.70.

Philadelphia: 1 or., 1 lem. Nav. 2.65-3.75, lem. 3.00-3.30.

St. Louis: 4 or., 2 lem. Nav. 3.45-4.45, lem. 2.95-3.30.

Baltimore: 1 or., 1 lem. Nav. 2.90, lem. 2.65-2.95.

January 10

New York: 14 or., 3 lem. Nav. 3.55-5.40, lem. 3.00-3.50.

Boston: 4 or., 1 lem. Nav. 4.55-5.20, lem. 3.10-3.55.

Cleveland: 4 or., 1 lem. Nav. 2.45-4.65, lem. 4.05.

Pittsburg: 5 or., 1 lem. Nav. 3.30-4.60, lem. 3.50-3.95.

Philadelphia: 1 or., 1 lem: Nav. 2.40-3.00, lem. 3.05.

St. Louis: 4 or. Nav. 3.25-4.25.

January 11

New York: 12 or., 2 lem. Nav. 3.45-4.85, lem. 2.35-3.25.

Boston: 4 or., 1 lem. Nav. 4.25-5.45, lem. 2.20.

Philadelphia: 1 Nav. 3.70-4.55.

POULTRY QUERIES

(Continued from Page 93.)

of eggs to market every week, at least I think that is necessary, but you might write to 1560 Industrial Street and ask. There are also several big commission and wholesale markets that take broilers, but I doubt if you would get more than two cents under the market, and you would have the expense and trouble of shipping.

Ration for Breeding Turkeys

I have a flock of turkeys for breeding stock and will have rice to feed them on. What other grain or material should I feed them?—G. A. W., Corning.

Breeding turkeys will thrive on any mixture of grains. Corn, wheat, barley, milo, oats, in any combination, provided it is a mixture and not one grain alone. I do not know how large a part of the ration you can make rice. You can tell by experimenting a little. It would be best to use at least two other grains with it, say wheat and corn, or barley and corn. Oats are valuable for all breeding stock. If you have not the whole grain, try giving bulk rolled oats as often as you feel you can afford them. Rolled oats are expensive feed, but there is nothing better for fertility. Be sure they have plenty of green all the time. Range is almost essential for breeding stock.

Pepper Pills for Pale Hens

Mrs. Miles Standish of Twin Gaps sends the following prescription for ailing hens, which we are very glad to have:

"If Mrs. C. P. C. of Fillmore will give her ailing hens a red pepper (cayenne) pill I do not think she will have any more trouble. This is an old formula, but I have never seen it in print. When I discover a hen that acts droopy and listless, refuses to eat and often stands with the wings slightly drooping I just give her a red pepper pill and the next day she is as well as ever. Ducks and pigeons will respond to the same treatment. I take about as much red pepper (the kind that comes in small cans for table use) as will rest on the point of the small blade of a pocket knife, and work it into a bit of fresh bread, making a pill about the size of a pea, and put it down the hen's throat, a little to one side, so as not to choke her. I have never had to give a second pill, nor have I ever lost a bird affected with this ailment. A teaspoonful of cayenne pepper in a glass of warm milk will cure a cold over night in a human being. It is not as difficult to swallow as one might imagine, and I have never known it to fail."

Pork a Poison?

I have heard and have also read that pork is poison to chickens. Now I would like to know if pork crackling is harmful to feed.—Subscriber, Redlands.

As far as I know, no food that is wholesome for human beings is poisonous to chickens. There are some condiments which cannot properly be called foods, which cannot be eaten safely by either man or fowls except in very small quantities. Salt, for instance, while a little is generally used in the dry mash, is deadly poison to fowls if they are able to help themselves freely. I read recently of a lady who by mistake used salt in a cake in place of sugar. The cake was thrown to the hens and killed them. Another threw the rock salt used in making ice cream out on the hens range and lost most of the flock. I have never been rich enough to feed bacon to fowls, but I should not wonder if it contained salt enough to be injurious. Certainly there is nothing harmful in pork any more than in any other meat, and the only objection to pork crackling is that if used too freely it would make fat rather than eggs. For birds that are to be fattened it would be excellent.

NEVILLE ON GOPHERS

During the last weeks of last year the Los Angeles farm bureau gave many talks and demonstrations on gopher control, with the aid of Lorne S. Neville, in charge of rodent control for the county horticultural commission. These differed little from those previously written of in the Cultivator. One new point noted was the increased size of poisoned bait. It has been the practice to cut up carrots, sweet potatoes, etc., into cubes one-half inch square and about one inch long. It has been found that large gophers can store these in their cheek pouches and so carry them to the storehouses. Larger baits are eaten, therefore never make cubes less than an inch long and not more than one and a half inches.

The first wool sale of the season in New Zealand resulted in selling only 2,500 bales of fairly representative classes of wool. The highest price paid was 14d (28 cents), most of the wool selling around 12½ and 13d. Some poor stuff sold as low as 6½.

WEATHER REPORT

San Francisco, Cal., January 8, 1921.

Stations.	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	.98	25.81	18.44	56	36
Red Bluff	.20	14.40	10.99	54	34
Sacramento	.02	9.02	7.81	54	34
San Francisco	.36	12.45	9.20	60	43
San Jose	.12	7.40	6.80	66	30
Fresno	.00	3.01	4.01	68	34
San Luis Obispo	.00	6.48	7.10	72	40
Los Angeles	.00	2.91	5.81	74	40
San Diego	.00	.98	3.58	70	43

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Millions upon millions of gallons of water are produced every day in the year by Layne & Bowler Pumps. It is interesting to note that the best known ranch and development companies and the most successful ranchers in every pumping district in California and Arizona are now operating these pumps. We here list just a few of the 6,000 or more Layne & Bowler pump owners:

	No. of Pumps
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Boston Land Co., Henrietta	34
Southwest Cotton Co., Avondale, Ariz.	32
R. P. Davie, Marinette, Ariz.	31
Tuscon Farms Co., Sahuarita, Ariz.	22
James Ranch, San Joaquin, Cal.	22
Bastanchury Ranch, Fullerton	15
Inspiration Consolidated Copper Co., Miami, Ariz.	11
Irvine Co., Tustin	11
Lerdo Land Co., Lerdo	8
Los Alamitos Sugar Co., Los Alamitos	8
Alameda Sugar Co., Woodland	7
Salinas Land Co., King City	6
Janss Investment Co., Lankershim	6
Santa Ana Valley Irrig. Co., Santa Ana	6
Chino Land & Water Co., Chino	5
Union Sugar Co., Guadaloupe	5
Paul E. Walker, Hemet	5
C. W. Gates, Los Angeles	5
Western Water Co., Taft	5
San Joaquin Fruit Co., Tustin	5
Central Forest Co., Artois	4
American Beet Sugar Co., Chino	4
H. L. Bissell, Dixon	4
Montana Land Co., Hynes	4
Goodyear Tire & Rubber Co., Los Angeles	4
A. J. Russell, Pond	4
Sunnyslope Water Co., San Gabriel	4
Santa Anita Ranch, Santa Anita	4
So. L. A. Water & Land Co., Vernon	4
J. R. McKinney, Wasco	4
Anaheim Sugar Co., Anaheim	3
Temescal Water Co., Corona	3
El Segundo Land & Impr. Co., El Segundo	3
Laguna Land & Water Co., Laguna	3
Yamada & Tawa, Los Angeles	3
Bicknell Estate, Montebello	3
People's Water Co., Palms	3
J. A. Graves, Pasadena	3
F. C. Fairbanks, Redlands	3
J. B. Van Nuys, San Gabriel	3
J. P. Sweeney, Wasco	3
J. H. Maxey, Yuma, Ariz.	3
Beaumont Land & Water Co., Beaumont	2
Rodeo Land & Water Co., Beverly Hills	2
Miami Copper Co., Burch, Ariz.	2
Standard Oil Co., El Segundo	2
Sacramento Valley Co., Henrietta	2
Southern Pacific Co., Los Angeles	2
Borden Condensed Milk Co., Modesto	2
San Antonio Water Co., Ontario	2
Dawn Land Co., Orange	2
General Petroleum Co., Vernon	2
Standard Oil Co., Waits Station	2

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — January 22, 1921 — No. 4

Summary of Crop Production for 1920

THE king of all crops grown in the United States, at least as determined by farm value, is corn. The farm value of the crop produced in 1920, according to the final report of the bureau of crop estimates, is $2,189,721,000. That is the valuation placed on 3,232,367,000 bushels. It is a bit surprising to learn that the second in the honor list of all crops is hay; its total production in 1919 was 108,233,000 tons. The average farm value for this past year has been placed at $16.72, making a total valuation for the year for all hay of $1,809,162,000. Third in importance comes wheat with 787,000,000 bushels, average value per bushel $1.443, or a total valuation of $1,135,806,000. Potatoes prove a most important crop with a production of 430,458,000 bushels valued at $500,974,000. The country's sugar beet production was 8,545,000 tons with an average valuation of $11.63 or a total of $99,396,000. Rice production aggregated 53,710,000 bushels, at $1.189 per bushel, with a total valuation of $63,837,000. This is practically half the valuation of the 1919 crop. Another crop which shrank nearly half in valuation was beans, the valuation of which in 1919 was $51,051,000, while the past year's crop was valued at $27,114,000. The kafirs or sorghum grains, nearly held their own in the two years, in fact, the production greatly increased, being for the past year 143,939 bushels, this as against 127,000,000 bushels in 1919. The valuation for the 1920 crop was $131,665,000.

Some wonderfully interesting reading as to California's production of field crops is shown in the California crop report compiled by Leon M. Estabrook, G. H. Hecke and E. E. Kaufman of the federal and state departments of agriculture.

The two California crops which have suffered most by the deflation process have been rice and beans, both these crops having been shaded in valuation more than 50 per cent. The bean crop of California is divided up as follows: Limas 1,080,000 bags; Small Whites, 150,000; —(Continued on Page 107.)

FIELD CROPS

Crop		Acreage	Production Total	Unit	Per Unit	Farm value December 1 Total
Corn	1920	90,000	3,150,000	B	$1.20	$3,780,000
	1919	90,000	2,970,000	B	1.79	5,316,000
Oats	1920	175,000	5,425,000	B	.80	4,340,000
	1919	175,000	5,250,000	B	.96	5,040,000
Barley	1920	1,250,000	28,750,000	B	1.00	28,750,000
	1919	1,000,000	30,000,000	B	1.41	42,300,000
Wheat	1920	650,000	9,100,000	B	1.80	16,380,000
	1919	990,000	16,335,000	B	2.04	33,323,000
Potatoes	1920	95,000	13,015,000	B	1.50	19,522,000
	1919	85,000	11,050,000	B	1.71	18,895,000
Sweet potatoes	1920	8,000	1,056,000	B	1.60	1,690,000
	1919	8,000	1,080,000	B	1.79	1,933,000
Rice	1920	162,000	9,720,000	B	1.21	11,761,000
	1919	155,000	9,300,000	B	2.67	24,831,000
Hay (tame)	1920	2,175,000	5,003,000	T	20.00	100,060,000
	1919	2,175,000	4,894,000	T	17.20	83,977,000
Hay (wild)	1920	180,000	180,000	T	12.00	2,160,000
	1919	180,000	198,000	T	12.00	2,376,000
Hops	1920	12,000	21,000,000	P	.35	7,350,000
	1919	11,000	17,875,000	P	.77	13,764,000
Beans	1920	285,000	2,850,000	B	3.30	9,405,000
	1919	400,000	5,000,000	B	4.35	21,750,000
Cotton (lint)	1920	275,000	71,580,000	P	.18	12,884,000
	1919	185,000	49,580,000	P	.43	21,319,000
Cotton (seed)	1920	.....	83,500	T	17.00	1,419,000
	1919	.....	53,000	T	65.00	3,445,000
Grain sorghums	1920	150,000	4,050,000	B	1.05	4,252,000
	1919	170,000	4,386,000	B	1.54	6,755,000
Sugar beets	1920	123,500	1,037,000	T	13.62	14,124,000
	1919	107,174	815,896	T	14.17	11,561,000
Onions	1920	11,700	2,925,000	B	.75	2,194,000
	1919	8,440	2,755,000	B	1.90	5,196,000

B—Bushel, T—Ton, P—Pound.

FRUIT AND NUT CROPS

Crop		Production	Unit	Per Unit	Farm value Dec. 1 Total
Apples	1920	6,003,000	B	$1.60	$9,605,000
	1919	8,640,000	B	1.45	12,528,000
Peaches	1920	345,000	T	76.00	26,220,000
	1919	440,000	T	60.00	26,400,000
Pears	1920	90,000	T	90.00	8,100,000
	1919	113,000	T	72.00	8,136,000
Prunes	1920	95,000	T	200.00	19,000,000
	1919	130,000	T	240.00	31,200,000
Apricots	1920	115,000	T	85.00	9,775,000
	1919	175,000	T	80.00	14,000,000
Oranges	1920	18,700,000	Bx.	2.75	51,425,000
	1919	15,075,000	Bx.	2.75	41,456,000
Lemons	1920	4,500,000	Bx.	.60	2,700,000
	1919	3,900,000	Bx.	2.00	7,800,000
Raisins	1920	180,000	T	310.00	55,800,000
	1919	182,500	T	210.00	38,325,000
Grape (wine)	1920	380,000	T	65.00	24,700,000
	1919	400,000	T	40.00	16,000,000
Grape (table)	1920	160,000	T	75.00	12,000,000
	1919	180,000	T	75.00	13,500,000
Cherries	1920	15,000	T	200.00	3,000,000
	1919	12,400	T	150.00	1,860,000
Plums	1920	35,000	T	90.00	3,150,000
	1919	42,000	T	60.00	2,520,000
Figs	1920	10,000	T	90.00	900,000
	1919	11,000	T	150.00	1,650,000
Almonds	1920	5,500	T	360.00	1,980,000
	1919	7,000	T	440.00	3,080,000
Walnuts	1920	21,500	T	400.00	8,600,000
	1919	28,100	T	550.00	15,455,000
Cantaloupes	1920	14,000	C	.....	6,000,000
	1919	12,500	C	.....	4,500,000
Vegetables	1920	21,027	C	.....	10,000,000
	1919	20,071	C	.....	11,700,000

B—Bushel, Bx.—Box, T—Ton, C—Carload.

Established 1877 Forty-third Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

J. W. Mills — D. F. Reichard
Fred M. Reed — J. B. Neff
G. E. Gordon — Louis B. Stanton
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The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

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Saturday, Jan. 22, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertisers in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

EDITORIALETTES

As may be noted in the information given in the center of this page last week, and continued with more complete tabulated facts on the cover this week, California has produced as a rule slightly less tonnage than last year. The two tables given on cover page have to do only with principal California crops. General statement of a few of the staple crops of the entire country precedes the comment on the California situation. The facts there given speak for themselves better than any comment we can make, but we are going to call attention to one phase of the situation, and that is the matter of the market for this immense output. Under war conditions any food which would support human life was transported as quickly as possible to consuming centers and the producer drew his money—not always as large an amount as he felt it should have been under labor and other conditions existing. That is past history.

* * *

The speed up production program created a situation which calls for some serious thinking on the part of the producers. Many maintain that it is not their province to think on the question of marketing, that the marketing problem calls for experts in its line as does production. But the expert has a failing in not being able to consider the rights of the producer in time when great advertising campaigns and proper distribution are required. Thus the producer, if not qualified to solve his own problem of distribution, should cooperate with his neighbor and employ one who is qualified.

* * *

It is definitely established that the truest cooperative success is secured, not in combining and holding for a certain price, but in uniting in the effort to secure greatest consumption and through proper distribution secure a fair return to the producer.

* * *

Realizing the educational value of advertising, California growers of peaches and figs, prunes and apricots, raisins, walnuts, citrus fruits, even hay, have united and through advertising vastly increased consumption. Nor is the advertising intended to sell exclusively the brand of the advertiser; today it is generally recognized that similar products filling the market must be disposed of as well as the particular advertised brand. In this particular it cannot be gainsaid that advertising of California oranges increased the consumption of Florida grown fruits as well, and for the fruit to enter consumption is far better than for it to act as a dead weight in the market and bear prices because of glut.

* * *

In this particular the canning industry has its problem. A big crop, we hope, is to be given to us next summer. This means a most serious consideration of the situation by the canner, even the cooperative canneries, of which there are many in California. Writing on this point, R. G. Spencer, organization manager of California Cooperative Canneries, says: "It is well to consider the tremendous growth of the canning industry during the war period, reaching its culmination in 1919 when the total pack of fruits amounted to nearly 14,000,000 cases, three and one-half times the average for the five years preceding the war. The short crop of apricots brought lower figures in 1920, amounting to 11,500,000 cases, but the figures for last season showed the highest point ever reached for cherries, pears and cling peaches. With this tremendous increase in production, and facing a constant growth in acreage and tonnage of all canning fruits, we enter the new year with barely half of last year's crops sold." There must be some heavy buying and consuming if this big surplus is to be absorbed.

* * *

We had expected to have quite an extended article on the various kinks in the income tax returns which must be made before March 15. This article will be given next week. Meantime the farm bookkeeping system may be whipped into shape and balance sheet made so as to leave but a few minutes job as soon as the blanks may be had. As was the case last year, the blanks are not available, but will be "manana." There is no material change in the form of the blanks or facts required from last year. The rate will be identical.

* * *

Congress was never watched by the farmers as this year. There will be but few farmers who will be ignorant of the vote of their congressmen. Humboldt County farm bureau is conducting a campaign, in fact, we imagine it is a general campaign the United States over, and one of its measures consists of distribution of a small handbill headed "Congress knows farmers of the nation are united," and ends with "In union there is strength." This strength is manifested in the farm bureau by the banding together of a million and a half of the farmers in 43 states of the nation. Thirty-nine of California's counties are fully organized in this great movement. Acts of congress which are antagonistic to the interests of this great class will be met with a big question mark from this fully organized body.

* * *

Sugar, cotton and other growers of the Solid South are joining in the campaign for protection for American produced agricultural products. This, united with the strength of the Pacific Coast and most Middle West producing sections, made it seem for a time that the Fordney emergency tariff bill might pass. Then importing and exporting interests awakened to their danger and protested. At the present moment it is oil that is protesting. These interests are free to predict retaliatory measures on the part of other governments which rebel at America's protecting agriculture. Unfortunately, this opposition meets with support from many a consumer, and the situation as to the temporary relief seems getting no better fast.

GRAHAM A SECOND TIME WINNER

Last minute word from Woll, superintendent of dairy tests, says: "Earl Graham, Compton, has highest average production for five grades during month of December and is entitled to California Cultivator prize." Particulars next week.

IT RAINED

Finally it has rained; it has rained the entire length and breadth of the state. North of Fresno there have been several deep soaking rains, in fact, the ground has been so wet much of the time that plowing and seeding have been impossible. The southern end of the state has been seriously lacking. The rain which began on Monday morning, and is still falling as we write this, will put all fields in best of condition for plowing, seeding and producing a good crop.

OLIVE DAY

Governor Stephens has proclaimed February 21 "California Ripe Olive Day" and "I urge all loyal Californians to join in this effort to extend the use of this distinctive California product, thus promoting the well being of the industry and the prosperity of the state. From the time of the mission fathers to the present time the culture of the olive in California has been one of the honored and distinctive industries of this state. For years the olive, ripened in California's groves, has been recognized not only as one of the earth's most nutritious foods, but also as one of its choicest delicacies."

Now if the governor will allow the grower who has processed his olives to sell them, a chance to live will be given a portion of the industry. A grower recently remarked: "I have a barrel of finest olives, but do not dare to even give them away."

POOR ETHICS

In the Cultivator of December 18 we referred to the postal savings rate of two per cent paid to the people for funds which are loaned to banks at 2½ per cent, and then referred to the fact that the government turns and borrows money from the banks at six per cent, which it uses in part in buying its own depreciated bonds at around 85. These suggestions were made because of statements seen in other papers. We wished more definite information at first hand, so we asked and have just received from the assistant secretary of the treasury:

"For the secretary of the treasury I acknowledge receipt of your letter of December 21, 1920, addressed to the director of the savings division of the treasury department and inquiring whether the government is buying its own bonds at a discount. I assume that you refer to purchases of Liberty bonds and Victory notes for the bond purchase fund or the cumulative sinking fund. I am therefore enclosing in reply extracts from the annual report of the secretary of the treasury for the year 1920 under the headings, 'Retirements of Liberty Bonds and Victory Notes' and 'Cumulative Sinking Fund,' which describe these purchases and the reasons therefor. I enclose also a copy of the special report of the secretary to congress dated December 6, 1920, as to the details of operations under the bond purchase fund authority.

"You have been misinformed as to both postal savings funds and treasury certificates. The board of postal savings trustees carries the greater part of the postal savings funds, up to the limit authorized under the law, invested in government obligations. Postal savings deposits in the banks are reduced to the minimum. Treasury certificates of indebtedness are now held for the most part by real investors and only to a very limited extent by the banks. The high rates of interest on treasury certificates, far from being the cause of the present money stringency, are merely the result of the same world wide scarcity of capital and credit which affects not only private borrowings but government borrowings as well. For your information in this connection, I hand you herewith a copy of Secretary Houston's letter of December 8, 1920, to the banking institutions of the country."

The statements accompanying the letter refer to the various purchases of Liberty and Victory bonds and give prices paid. From the extended report of the secretary of the treasury it appears:

"It is also interesting to note, in view of the widespread contention that purchases should have been made at par rather than at the market, that this very proposal was rejected by the committee on ways and means, when the matter of granting the authority was under consideration. The secretary of the treasury in his testimony before the committee said in this connection: 'I do not think it would be a wise thing for us to attempt that—that is to say, to purchase the bonds at par—because I think if we were to state that we had $100,000,000 that the government would invest in these bonds at par, for instance, that would simply be an invitation to the people to sell their bonds to the government at par and you would exhaust the fund in short order.'"

Notwithstanding that, and the further claim that purchase of the bonds at market price by the government, and then retiring them, aids in stabilizing, it does not appear to us that our government stands in the best light in the eyes of the people in buying its own bonds at a discount.

California Cultivator

Vol. LVI, No. 4 | Los Angeles, January 22, 1921 | One Dollar Yearly

Walnut Growers Meet

By Ernest Braunton

THE third annual walnut growers institute was held at Whittier, January 14, under joint auspices of the agricultural extension service and Los Angeles County farm bureau. The attendance was more than 300, several coming from as far as Santa Barbara County. The meeting was called to order by Walter W. Wood, director of the Whittier farm bureau center, who introduced the chairman, Robert H. Neely, president Los Angeles County farm bureau.

Robert W. Hodgson, farm adviser, was the first speaker and made an impressive plea for the organization of a county walnut growers department of the farm bureau, recounting what material advantages had accrued to local dairymen through their department. The next speaker was H. C. Sharp, at the head of the field department of the California Walnut Growers Association, on the subject, "Importance of Maintaining a High Standard of Quality in California Walnut Shipments." He prefaced the reading of his paper with the statement that the walnut market was never better than it is today and that all nuts stored in warehouses would be immediately sent out. "We must maintain a high quality, a fine appearance—a good shell, a good meat. If one buys a pound of Brazil nuts and half are bad he buys no more, for there are no brands or grades. But if one buys walnuts, unbranded, and they are poor, he is gradually coming into the full knowledge that there is a brand that is uniformly good, that is at all times dependable. Therefore he returns and buys good nuts. Care on the part of the grower will aid much in maintaining this high standard. Slowly but surely the California nut is becoming recognized as the best. The future is full of promise."

Next on the program was Ralph E. Smith, who spoke on new developments in dust spraying, with particular reference to aphis and red spider. He told of examining culls to determine why they were culls and the factors contributing to their discard. He found culls were due first to blight, for which no remedy has been found. Then come aphis, codlin moth and red spider. It is highly desirable to keep all these pests away that all the leaves may be kept on, and kept on as late in autumn as possible, to build a vigorous, resourceful tree that alone can produce a good crop of good nuts. These pests may be controlled by dust spray. Some years they are bad; some years the numbers are so few as to be of no concern. It is best to get ready to spray each year, at a day's warning, even as the citrus grower is ready with his smudge pots when the need presses, especially in districts generally afflicted. Such provision is good insurance. Nicotine is the active agent for aphis and sulphur for red spider, but the former is not a deterrent, as its effect is potent for but a few hours. "Professor Quayle will tell of codlin moth control, so I will not touch upon the subject." Major Walter Linebarger, candidate for congress from the ninth district, was in the audience to learn of the needs and wishes of the walnut growers in regard to legislation, and was called to the platform to explain his presence, which he did in a very satisfactory and non-political speech of marked brevity. A resolutions committee was appointed and then came adjournment for basket lunch, coffee and cups being provided free by the walnut association.

The Afternoon

The committee on resolutions reported with a wording recommended to be sent to the association's representatives now at Washington and to both of California's United States senators, urging a protective tariff on walnuts, which report was unanimously adopted. Prof. H. J. Quayle of the Riverside experiment station next spoke on control of the codlin moth. This pest was first noticed as attacking walnuts but five or six years ago, and during the past two years, does not appear to have increased much in the sections first infested. But it has appeared in four new and well defined walnut growing sections, giving some growers much concern. During the past year the first brood hatched was very light, but the second hatch was heavy.

The arsenical dust or spray (arsenate of lead) is the only effective means of control, and should be applied (1920 at least) for the first brood the second week in June and for second brood the last of July. It has been found in practice that one spray, either of dust or liquid, is all that is economically justified, as the second application does not sufficiently further reduce the per cent of infested nuts. One plat showing 16 per cent wormy nuts, sprayed in 1919, showed but a 6.3 infestation in 1920, though unsprayed. Many charts were shown and figures quoted to show the great benefits derived from spraying and how easily the pest is controlled by this means. The best time for the work is generally from May 25 to June 20, but this period may have to vary according to prevailing climatic conditions of the season. The cost of both dust and liquid spray has ranged from 60 to 80 cents a tree, but the liquid spray has been twice as effective as the dust spray. To offset this the dust is the cheaper and quicker method and time is often a factor in getting over large holdings or through community sprayings. Neither "wet or dry" program was given preference in recommending treatment. But spray unless the infestation is below three to four per cent.

Dr. L. D. Batchelor, whose name appeared twice on the program, was announced as "down with the measles," and Prof. Vaile was present to read both papers. The first was on "Economic Losses Due to Non-productive Trees," and the second, "Top Grafting Poor Yielding Walnuts." The last subject was fully dealt with in the Cultivator of February 14, 1920, the illustrations showing Dr. Batchelor and Mr. Wylie topworking trees just across the road from where the late meeting was held. "George T. Powell, Ghent, New York, was the pioneer investigator of non-productive trees, working for several decades on apples, and his methods are merely extended for observation of walnuts." It has been found that in blocks of 100 trees, whose crops were separately harvested, that 25 were grown at a loss, 25 just about paid for care, and the other 50 paid the bills and yielded the profits. In another block over two years observance (1919-20), 18 per cent failed to pay; in still another, 19 per cent. It was found that during these two years each tree should have yielded 101 pounds (for the two years) in order to meet expenses. Three methods of procedure are open. 1. Pull out non-productive and give space for remainder to expand. 2. Pull out and replace drones with young trees. 3. Topwork drones. The first is best if trees are close—40-45 feet apart. This is clearly shown in one orchard where in three years one tree produced 249 pounds, the next but eight pounds and the third 217 pounds. If 55 or 60 feet apart, it is perhaps better to replace, or to topwork, if trees are vigorous, but do not topwork stunted or weakly trees, for "a tree is no better than its roots." The J. B. Neff orchard at Anaheim was cited as one greatly improved by topworking. In answer to questions from the audience, it was stated that a mature tree should bear 60 pounds of good nuts each year to be profitable. That the Placentia varies so much in yield and quality of nuts that a better variety is needed, though the best trees are good. That according to President McNeely, George Weinshank and other excellent judges there is none better than the Eureka, though late in coming into bearing. That the Erhardt, Rutherford and El Monte are very promising, the first named especially so. Dr. H. S. Fawcett was unable to be present, but sent a paper on "Foot Rot of the Walnut."

Wet That Subsoil

By Robert W. Hodgson

SOUTHERN California, and for that matter the San Joaquin Valley as well, is today facing its fourth season of either deficient rainfall, greatly delayed rainfall, or rainfall so distributed as to have been largely lost by evaporation between storms. The situation of last year when early rains were enjoyed by the southern end of the state while the north went parched until late spring, is to date almost exactly reversed. The Sacramento Valley has received ample rainfall to insure good crops for next season, while the southern part of the state has received hardly enough to lay the dust.

The fact that for four seasons winter rains have not been sufficient to wet the soil down to the normal depth is one of gravest significance to Southern California orchardists. It bears a very important relation to the success or failure of the coming season's crops and in many cases to the very life of the trees. For quite uniformly over those districts not receiving a normal precipitation during the past four years, subsoils are drier than has been the case in years past, and drier closer to the surface than is conducive to the well bearing of trees and vines.

Apparently there is no substitute for natural precipitation when it comes to establishing satisfactory soil moisture conditions. The slow pattering winter's rain soaks in to a greater depth than is possible to secure with hurried furrow and flooding irrigation. For the signs of drouth have been unmistakably reflected during the season in both the appearance and behavior of practically every variety of tree and vine, and even though supplied with what was considered ample irrigation.

Deciduous fruits failed to bloom and leaf out in the usual normal fashion. The bloom was stretched out over a period of close to two months, with a difference of as much as six weeks between the tops of the trees and the lower branches. Peaches and apricots generally showed all stages from bloom to fruits nearly an inch in diameter at the same time. This condition apparently was worse on dry farmed orchards than on irrigated, but was the rule rather than the exception.

Uneven and spotted setting of the crop was much more prevalent than usual, indicating a condition of weak fruit buds. Fruits dropped late into the season when as large or larger than walnuts, which rendered the early and usual crop forecast almost impossible. Many of the smaller twigs and branches failed to come out altogether, and others showed weak and unsatisfactory growth, frequently rather suddenly dying back. Here and there large branches suddenly died. Shot hole borer, the usual accompaniment of decreased vitality, showed up in aggravated and unwonted numbers.

About the time the fruit began to

(Continued on Page 114.)

Agricultural News Notes of the Pacific Coast

Northern California

The National Pigeon Show was held in Oakland last week.

The California Automobile Club is posting the highways in Butte County.

Glenn County farmers are discussing organizing and affiliating with American Federation of Farmers.

Yolo County people are appealing for improvement of state highway pavement between Woodland and Davis.

Penryn, Placer County, is planning for the construction of a civic center and the remodeling of the present community hall.

The state fish and game commission is suggesting a law which will require us to brand all of our crabs on the back.

Chambers of commerce in various sections of the valley are passing resolutions endorsing the Marshall conservation scheme.

The Marysville-Oroville highway is to be uniformly planted to shade trees. Ten farm centers recently met to consider ways and means.

The California Wool Growers Association in session in Davis recently gave heartiest approval to the Fordney emergency tariff proposal.

The flow of water in the Sacramento River during the past year has been but 40 per cent of normal and in the San Joaquin about 60 per cent.

Mendocino prune growers are discussing the new contract with the prune and apricot growers. It is thought the signing will be general.

Prune growers of Humboldt County have been holding meetings at which they were addressed by H. C. Dunlap and others of the prune and apricot growers.

Superintendent of Rodent Control Jacobsen has word from the biological survey that 25,000 ounces of strychnine has been set aside for feeding to California squirrels and other rodents.

Cattlemen of the state are in conference in Sacramento working for amendments to the Cattle Protection law of 1919. The law has proved beneficial, but certain changes are deemed advisable.

The farm bureau marketing exchange of Eldorado is operating a meat packing plant at Eldorado, where members can bring their own animals for slaughter and have the meat cured for their own use.

The state railroad commission has issued an order reducing transportation charges on rice in carlots 25 per cent. This still leaves the rate for paddy rice on the basis of 125 per cent that of cleaned grain.

Secretary Dudley of the Sacramento County chamber of commerce is going among the farmers to acquaint them with the work of the chamber for the development of the resources of the county and to ask for their cooperation.

The Antioch-Rice Irrigators fight has resulted in a judgment that the town of Antioch is entitled to a fresh water supply and that land owners above must not take out water to such extent as to deprive her of her fresh water. Upper valley irrigators indicate that this is but the beginning of one long fight.

Central California

Raisin Growers are discussing Raisin Day observation.

Reedley vineyardists are attending vine pruning demonstrations.

Mr. Condit is giving fig pruning demonstrations in the Valley.

The Raisin Growers propose to start their campaign for new members February 1.

The Tulare Cooperative Poultry Association will hold its annual meeting January 31.

Dairymen of Stanislaus County are planning for formation of a new cow testing association.

Irrigators are cleaning canals and ditches preparatory to next season's irrigation campaign.

Stanislaus County Holstein Breeders Association is planning for an important meeting early in February.

Stanislaus County Poultry Association proposes to do both cooperative marketing and buying. Its secretary is L. Miles.

Members of the farm center at Dos Palos think membership in the farm bureau should be open to any American citizen.

There was liberal attendance and much interest shown in the discussions at the fig growers meeting recently held in Fresno.

The Lindsay broom factory is a growing institution which is now paying to producers from $100 to $300 per ton for broom corn.

Commissioner Collins of Tulare is giving warning as to the great danger of spread of phylloxera if there is carelessness in setting vines.

Tulare County irrigators who depend upon wells find there is serious fluctuation in levels, some sections showing a lowering of as much as 15 feet.

Fat hog auctions: Tulare, January 25; Visalia, 26; Hanford, 27; McFarland, 28. The association will soon issue its calendar of auctions for the entire year.

Farm bureau directors of Madera, Stanislaus and Merced Counties, meeting at Merced on December 24, protested against present power rates and declared they must be lowered.

The Watsonville section will ship 2,200,000 boxes of apples this season according to F. W. Read of the state standardization service. This is 300,000 boxes less than last year's shipment.

Beekeepers of the San Joaquin Valley are appealing to the board of supervisors of Tulare County to pass ordinance which shall be less stringent than the present one and allow shipping of bees into the county.

Tulare egg producers are not particularly elated over the recent drop of seven cents per dozen. Producers in that county were receiving as high as 80 cents in November. The price is now down close to the 50 cent mark.

Engineers are to make water measurements on the Kings River during the present irrigation season. The work will include gathering engineering data on available water, amount actually used and amount which may be stored on the Pine Flat reservoir.

Southern California

Orange County reports no damage whatever from frost.

There are now 68 irrigation districts operating in California.

Orange County farm bureau is maintaining an employment agency.

Los Angeles County farm bureau annual dues are now fixed at $2.50.

Poultry Expert Eason is addressing poultry people of Imperial Valley.

Potato planters are getting ground in readiness for next season's crop.

50,000 cars of oranges, it is estimated, is the present season's output.

West Riverside farmers declare: "Russian thistle will soon be only a memory."

Blythe, Riverside County, has been shipping its Pima cotton to Phoenix for ginning.

The annual walnut institute was held last week at the walnut packing house, Whittier.

Imperial Valley reports crop acreage for 1921 will be materially under that of the past few years.

Long pruning demonstrations have been held under direction of Los Angeles County farm bureau.

An Australian citrus grower has recently been inspecting citrus orchards of Southern California.

A meeting in the interests of the Prune and Apricot Growers is to be held at Van Nuys, January 26.

San Jacinto, Riverside County, has only a few acres of cotton crop, but the harvest is still progressing.

Dr. Whitten has been holding long pruning demonstrations before the fruit growers of Riverside County.

Lemon growers of Southern California are wiring their representatives in congress to save the lemon situation by securing protective tariff.

A series of dairymen's schools held under auspices of the dairy council and farm bureaus called out large attendance in practically every dairy section.

Deputy State Market Director J. P. Britt is addressing beet growers in the effort to get more perfect organization and an increased acreage planted.

Orange County farm bureau meetings: Buena Park, January 17; Yorba Linda, 18; Capistrano, 20; Harper, 21; West Orange, 25; Villa Park, 27; Garden Grove, 31.

Unless the southern end of the state gets more rain soon it will materially lessen the acreage which will be planted to sugar beets. Sugar prices are also considered discouraging.

Poultrymen of Southern California are finding that the salvation of the industry through the satisfactory prices obtained the past few years is entirely to the credit of cooperation.

Los Angeles County board of supervisors reports: "We have made inspection of the so-called check dams constructed by the flood control department, and we find that where the mountains were burned over after these dams were constructed that the rains of last winter carried the check dams away, in many cases obliterating them entirely."

The Coast and General

Oregon has a campaign to "swat the small prune."

Last year's U. S. pear crop was the greatest ever.

The success of the emergency tariff bill is still most doubtful.

Oregon is working for a tariff on cherries and English walnuts.

Ohio farmers to the extent of 29.5 per cent are operated by tenants.

Oregon has 50,000 acres in apples and 40,000 in prunes, 13,500 in pears.

The Nevada legislature is considering enacting duplicate of the California license law.

Over 6,000 persons registered during Farmers Week program at Columbus, Ohio, recently.

The annual meeting of the New York State Agricultural Society is being held at Albany this week.

The American Farm Bureau Federation is discussing the feasibility of turning our surplus wool into blankets.

Over 4,000 automobiles used the Lincoln highway out of Salt Lake City through to the Coast during the past year.

Peach trees shipped into this state from Utah have been condemned because of peach borer, crown gall and other pests.

Cattle feeders of mountain states are being forced to sell livestock because of continued pressure of banks for liquidation.

Polk County farm bureau, Oregon, has organized a corps of seed inspectors and makes certification of qualities and kinds of seed.

In the effort to relieve the congested rail trasportation the American Farm Bureau is securing a reduction by combining boat and rail shipment.

Michigan wool growers have decided to pool their 1921 clip. Last year's pool, amounting to three and a half million pounds, is still in storage.

Nebraska tourists recently in Sacramento made a tour of the Japanese section of the city and were converted to California's viewpoint of America for Americans.

Four inches of snow in some of the higher pasture lands of Arizona is making for immediate difficulties, but promising sufficient moisture for the summer ranges.

Secretary Lewis of the Oregon Cooperators Association believes that next season Oregon will produce a large crop of apples, while probability of a small Eastern crop offers attractive outlet.

Estimates as to the needs of the national parks in congress indicate that nearly two and a half million will be required. Over three-quarters of a million of this will be needed in California forests.

Oregon Poultry and Pet Stock Show, in connection with which there was an almost continuous program of lectures and demonstrations, exhibited the greatest number of entries ever at the state show.

Oregon livestock ranges, especially in the upper altitudes, have been experiencing some below zero weather and water holes are frozen over so that care has to be exercised to prevent suffering and loss.

Back to Livestock----and Safety

By R. P. Royce

DESPITE a general feeling of uncertainty as to just what the future has in store for producers, the situation is beginning to clarify and those who take the trouble to investigate are beginning to make out certain features on the horizon that will doubtless develop into fairly reliable landmarks by which to guide their operations. On every hand there is a very definite tendency for producers to get down to earth. Men who staked heavily on cash crops the past few seasons and who met up with heavy losses in 1920, due to the drastic deflation of crop values, initiated and overdone by the federal reserve board, have about made up their minds to take their losses and to start again. Unfortunate as conditions have been —and are—there is one hopeful sign developing, viz., many of these one crop men have come to the realization that in the long run a sound system of agricultural practice can only be developed where livestock of some sort is given a place in the operation.

Notwithstanding the fact that livestock is a great basic industry in California, it must be admitted that the average producer of this state has not been a livestock man. The average rancher has been inclined to specialize to a degree not obtaining in other states. He has been a barley grower, a wheat grower, a bean man, a rice man, a fruit man, a grape man or a nut grower. On the other hand, livestock ownership has to a large extent been in the hands of range men, specialized dairymen and, in the case of hogs, specialized hog raisers. None of these plans, save that of range operation, is sufficiently sound to endure. What the state of California needs and must develop is an agricultural system that combines specialized crop production with livestock production —and happily we are beginning to appreciate that fact.

The time has come when we in California must realize that notwithstanding the fact that we are blessed so abundantly with natural resources we cannot continue for all time to operate on a system that has fallen down in every land practiced—a system that ignores the fundamental need of livestock in the maintenance of soil fertility. But having come to such realization it is equally essential that we catch a clear understanding of what part in practice livestock production will or can be expected to play.

The soil is the nation's greatest asset, the value of which, in the end, must be measured by its productivity. Productivity is measured by fertility; fertility is measured by the amount of available plant food; and finally, the amount of available plant food is dependent upon manure from livestock sources.

From the above facts modern agricultural practice has fixed the part that livestock plays in maintaining a successful agriculture, and therein lies the justification for urging that livestock of some sort be incorporated in the cultural practices of California. Even now, with our agriculture in its infancy, so to speak, in communities where specialized production has made large progress the problem of fertility is of most pressing moment. This condition is especially to the fore in the southern citrus district. The resources of hundreds of acres planted to groves have become so depleted as to require heavy applications of animal manure. Indeed, in the vicinity of Los Angeles the shipment and trade in manure has reached large proportions and thousands of tons of manure have been shipped in from the feedlots of Nevada. The rapid using up of that source of supply, together with the increased freight rates and labor costs, are factors that point to the inevitable necessity of securing such fertilizer nearer to the point of application.

Doubtless there are many who will not agree with the statement that the citrus and deciduous industries of California are dependent upon the development of our livestock industry, but the writer feels confident that time will prove the correctness of that assertion notwithstanding the known possibilities of green manure crops. As a matter of fact, back of the marked expansion of the livestock industry in Southern California during the past few years is the growing appreciation on the part of the progressive orchardists of the practical value of livestock.

The folly of a community depending upon a single crop is nowhere better illustrated than by citing the predicament of the cotton growers of the Imperial Valley and Arizona. In those sections, once famous and prosperous because of the dairy industry, the war prices for long staple cotton caused virtually a complete liquidation of dairying. When the slump in cotton values came, hundreds of planters found themselves facing the most serious condition of their lives. They could not sell their crop to pay their loans at the banks—yet they had to live. The writer has it on the word of a prominent financial operator that today the cotton planter has but one way out—he must somehow buy back the cows he liquidated and reengage in some form of dairying.

The writer's informant went on to state that in his judgment the present disaster would prove a real blessing in that it would make plain to the ranchers of that section that in the future their safety lies with livestock, that even though the profits might not be spectacular, they would be certain and over a period of years the average man would be "ahead of the game."

Farther north, over in the San Joaquin and Sacramento Valleys, livestock is coming to occupy a more and more conspicuous place. Each of those great valleys is potentially a great livestock center, and by the very nature of things will develop with livestock. But in order that the industry develops on a sound basis it is important that ranchers understand the real place of livestock. It is not necessary that livestock production be made the main business of each ranch; rather is it advisable that livestock be kept as an adjunct to one's operations. Keep livestock to consume as much of the crops pro-

(Continued on Page 117.)

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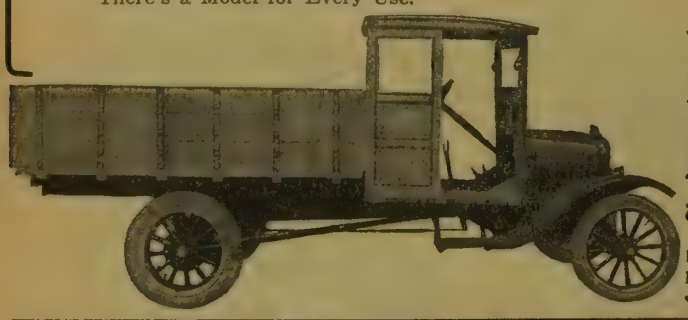

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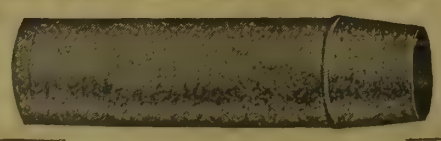

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Planting Tropical Fruit Trees

By Ernest Braunton

AS this article is intended rather for the home orchard than for commercial acreage, we will begin with citrus trees—oranges, lemons and pomelos. From this it must not be inferred that they are the first to be planted, for several other tropical and subtropical fruit trees are hardier than the citrus.

Dig holes deeper and broader than is needed for reception of the balled tree. If soil is heavy, the holes cannot be dug too large. Fill these in until about deep enough to receive the ball, and settle with water. This should be done a few days (or weeks) before planting, and is the better plan for all trees. Mix fully decomposed stable manure or coarse commercial fertilizer well into the soil before replacing.

Handle the balls of earth carefully, for they should not be broken. Leave

Fuerte Avocado

burlap on; it soon rots. Fill in soil two-thirds up on ball of soil, tramp it firmly and then cut cords about stem of tree and carefully lay back burlap so it may be under the remaining one-third of soil. Do not roughly handle the tree so it will be loosened in the ball. Fill in remainder of soil, leaving a basin about the tree, and water thoroughly, filling the basin at least three times. Carefully irrigate and lightly cultivate, every ten days in light soil and 15 days in heavy soil, and continue so for the first season. These directions will do for all balled trees. Plant in March in light soils, later in heavy soils, but never earlier.

Avocados

Avocados need the same general treatment as citrus trees. While it may not be advisable to plant them earlier than we do citrus trees, their behavior would suggest such procedure, as they start new growth earlier in spring. The reason no doubt is that citrus trees are natives to hot lowlands and require heat, while avocados are natives (Guatemalans at least) of cool uplands and will therefore grow in cool weather, in both spring and autumn, and in many varieties grow little or none in late summer.

Where frosts are light or few, plant a month earlier than citrus trees. Avocados need good soil drainage or roots will rot, the wood being softer and more pithy than that of citrus trees and the trees rooting more superficially, therefore will grow on thinner soils. Coming from cooler climates, they sunburn more easily than orange trees. Protect trunks of young trees with yucca shields and place thin burlap or cheesecloth on four stakes on south and west sides and south half of top of enclosure for at least first season, especially if in hot, dry districts. To restate, allow sun to fall on plant until ten o'clock, but never later. Pruning is seldom necessary except to keep trees shapely and well balanced. Nip off tender leaders if inclined to shoot upward, for trees should be low and bushy rather than tall and columnar.

Other Subtropicals

Feijoas or Paraguay guavas are hardy throughout California and require little attention in any soil or situation. If growing too straggly, shorten side branches. Cherimoyas do not thrive so well in heavy as in medium light soils, but are as tender as avocados. Allow outer branches to droop to ground; they fruit heaviest on such growths. Do not water often in soils retentive of moisture or of poor drainage. Sapotes are hardy trees and need little care. When young they are very aspiring and this youthful exuberance should be checked by occasional nipping of terminal growths. With maturity they become umbrageous trees. Mangos should be planted only where there is practically no frost, shaded from sun for first year or two, trunk protected from sunburn and the whole tree protected from the occasional frost that may come, for permanent injury often comes from temperatures close to the frost point, or about 30 degrees. Older trees will endure lower temperatures, but the mango is more tropical in its needs than any other plant herein listed.

AVOCADO ALLURE

Thos. H. Shedden, a former president of the California Avocado Association, recently received the following letter, with enclosure noted, the latter being about one-half the market value of the fruit purloined:

"Proprietor Florimel Orchard, on the Hillside back of Monrovia, Calif.

"Sir—I am back again in the 'glorious climate of California,' and will enjoy it all the better if I square myself with you.

"Sometime last winter, in driving out along the hills back of Monrovia, one day, I slipped into your orchard and got away with four of the biggest alligator pears I ever saw,' when no one but God in the blue sky was looking.

"There was a lady with me, and I'll say, like Adam, 'she put me up to it.' We took them back East, and they were 'fine eats,' but they disagreed with my conscience, and in order to ease it, I am sending you, herein, a good, clean two dollar bill, for the 'conscience fund,' which no doubt you have.

"I remember the pretty name of Florimel, at the gate, and I hope you will get this.

"Sir, I beg to sign myself
"Respectfully,
"JOHN DOE."

Mr. Shedden had a good laugh over the letter. "This poor penitent," he said, "I'm glad to see has the saving sense of humor, and a conscience which seems to work well—outside the glorious climatic influence of California, and although he assessed himself only half rates on the big 'alligators,' I'm satisfied to go fifty-fifty with him on them, because I enjoyed the incident, and should he ever get out from under 'John Doe,' and come up again to Florimel, I'll treat him well, in honor of his having started the 'conscience fund,' which I have now opened."

MANGOES IN CALIFORNIA

Mangoes will doubtless never be produced over much of California, that are good enough for a dessert fruit. But there are several other uses for which immature fruits or those of comparatively poor quality are practically as good. Excellent mango sauce, very similar to that from the apple, may be made from the full grown unripe mango. Other uses are for jelly, marmalade, preserves, pickles, candies, or chutney.

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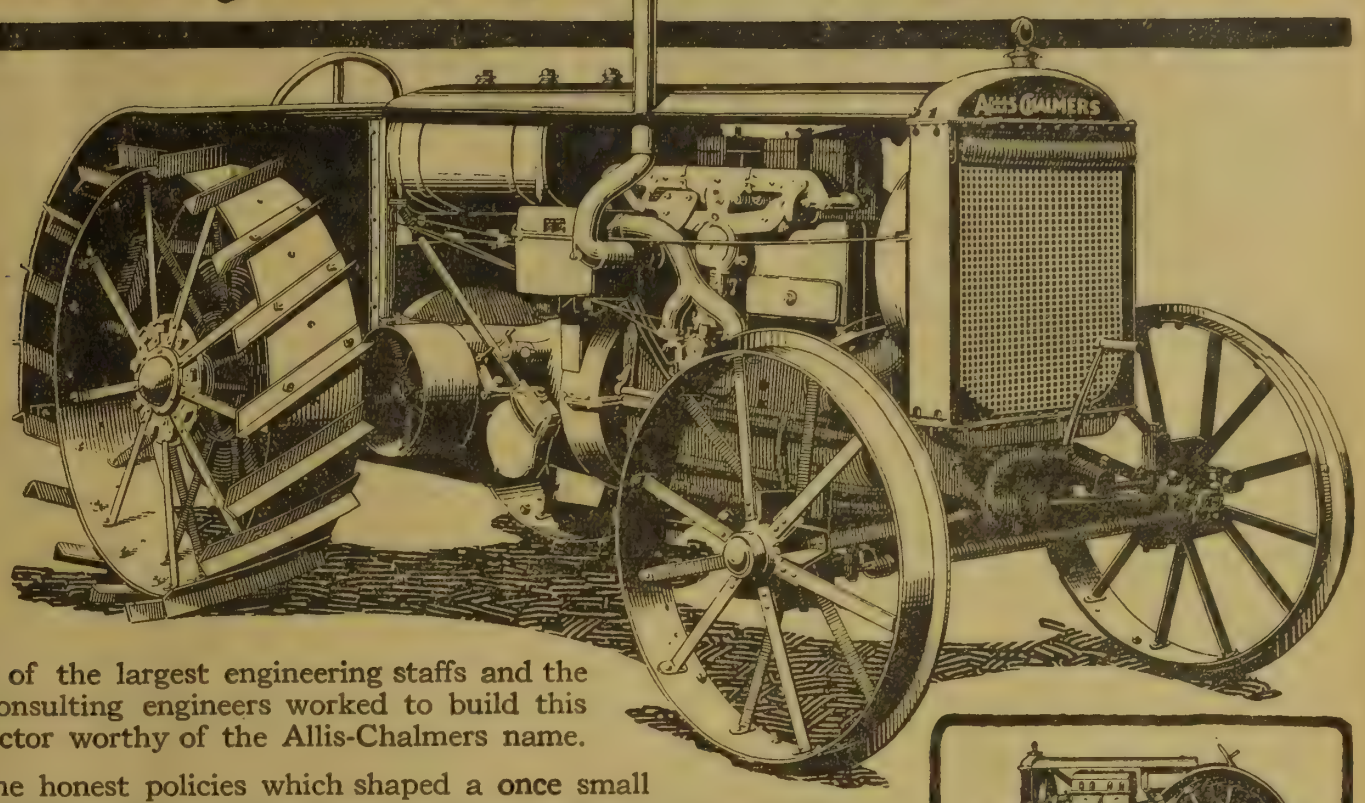

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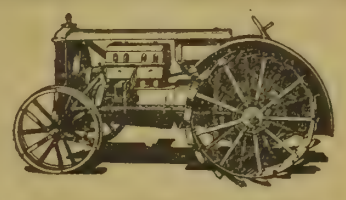

Watch for the A-C 12-20!

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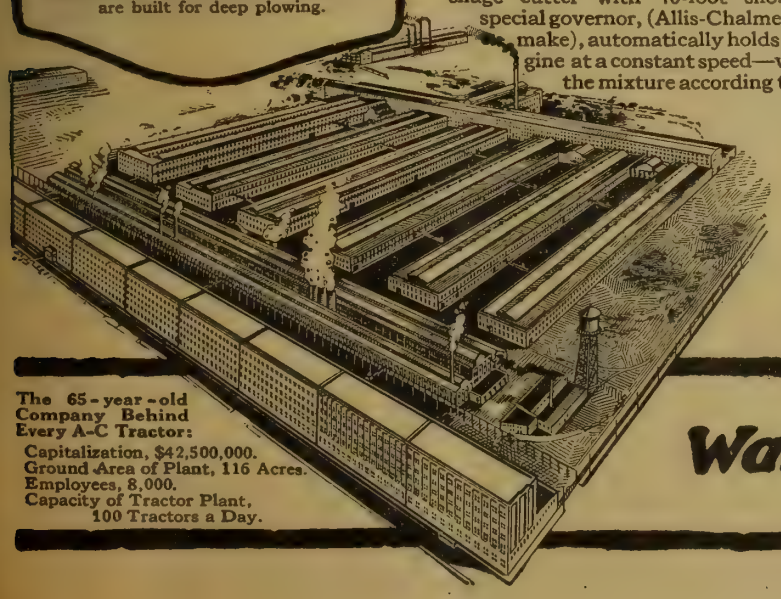

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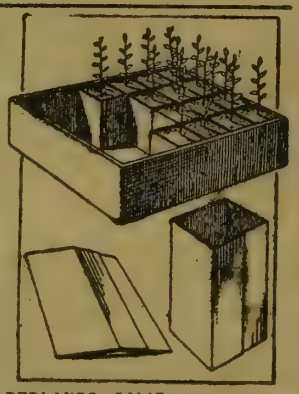

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Dr. Whitten on Long Pruning

By Ernest Braunton

THE agricultural extension department of the state university, under the guidance of the Los Angeles County farm bureau, on January 3 gave pruning demonstrations at Pasadena and Pomona, Dr. J. C. Whitten, professor of pomology at the University of California, being both speaker and pruner.

The first work was on several trees on the A. T. Nichols place at Pasadena, there being about 215 persons present. Dr. Whitten is a most engaging lecturer, a peripatetic orator, who talks, walks and prunes with ease, all at one and the same time. So that as one reads what he said, the clip, clip of the pruning shears should be understood as a necessary accompaniment. "We long prune because we get far better results than under the old method. It consists of thinning rather than heading. Open the center to let in light so leaves will grow there as well as in other parts of the tree. For leaves alone manufacture plant food. Roots would be of no avail without leaves. The former absorb water containing a little mineral matter, in no wise a plant food. This crude sap goes out into the leaves and the green coloring matter there, in the presence of sunlight, elaborates it and converts it into plant food. Therefore get many leaves. The bulk of the tree, about 97 per cent, is built from the atmosphere by the leaves. But three per cent comes from the soil and when the wood is burned the 97 per cent returns to the air; the three per cent is left as ashes, being of the earth earthy. The lower, thick, dark colored leaves are the factory hands; the thin, papery light colored leaves on upright sucker growth are robbers, for they lose the tree much water during hot weather.

"If we head back heavily we induce a heavy crop of robber leaves that takes from everything below, from that which is really the best, most mature, most potent part of the tree. Long leaders left grow no higher than new growth would each year under the old stubbing back process, and after length growth is made stores until October a sap thick with sugar and starch. Then in spring, when the call comes, this sap is thinned out and feeds all subsequent growth with crude material for conversion into plant food. This storing for the following year begins in June. In actual practice crude sap or water freezes at 32 degrees, but if a spoonful of sugar is added to a quart of water, 20 degrees more of cold are required to freeze it. Go over the trees in May and pull off the rank growth of suckers that through its thin papery leaves is robbing the tree of needed moisture. Such foliage wastes 30 times as much water as the thicker, heavy leaves lower down on the tree.

"When the young tree is set out, whitewash it the same day to prevent sunburn or sunscald. For sunburn takes place in winter, not summer. At Berkeley, where warm winter days run up to 65 degrees, we find that the tree temperature under the purplish bark runs up to 100 degrees. Then during the night the temperature drops to freezing point or below, with a weakening effect on the tree. When the same trees were whitewashed the temperature remained three degrees below that of the air, or 62 degrees. In the latter case the tree remains wholly dormant until aroused by the warmth of spring. Compared with short pruned trees standing beside them and treated alike in all other ways, the long pruned trees made double the growth and yielded twice the crop in the second year. In long pruning the whole structure becomes more robust, vigorous, more stocky. Prune any time when the leaves are off. Whitewash with a material that totals ten parts or one pound of salt to two pounds of sulphur and seven pounds of lime. While the water is hot from the lime, stir in the sulphur and salt; it will then most quickly dissolve." Dr. Whitten quoted many statistics to prove the value of long pruning in crop yield, and Assistant Farm Adviser V. F. Blanchard told of one orchard where six rows were short pruned, six long pruned and six intermediate pruned, through a large orchard. The short pruned yielded six tons an acre, the intermediate eight tons and the long pruned 12 tons.

In the afternoon Dr. Whitten pruned several trees of several varieties in the orchard of Howard Hall, near Pomona, there being present about 275 persons. Much of this work was done on trees previously pruned by him in 1919, so that it differed much from that performed on young trees at Pasadena. While nearly all consisted of thinning, a few branches were taken out that last year were left because of the crop they would bear. Dr. Biller made a strong plea for an increased membership of the farm bureau, after which the crowd dispersed.

Black Purple Vetch in Humboldt

By J. M. Thomas

THE raising of black purple vetch, an industry that promises to be third in size of all Humboldt County industries within a few years, is attracting the attention of the local agriculturists just at present, and during the fall and early winter months there has been extraordinary activity in leasing lands suitable for its culture. Where there was in 1919-1920 374 acres planted to purple vetch, there will be in 1920-'21 approximately 2,200 acres in the same product, for the experiences of the planters of this past year have proven that vetch raising in this county is not only successful but profitable.

The purple vetch seed, as used for cover crops in the citrus orchards of the south, has been scarce during the past few years owing to the appearance of aphis in localities where it had been previously grown. Experimental plots were tried out in Humboldt County about four years ago by E. G. East, with such success as to warrant planting of more extensive crops, the first here being planted under Prof. McKee of the United States bureau of plant husbandry.

The rolling land in the valleys surrounding Humboldt Bay has been found most suitable for vetch culture. The seed was planted in November and December, with the exception of one field, which was sediment soil on overflow land, and this was not planted until January. Sixty per cent of this acreage had never before been planted to vetch, but the balance had formerly produced either some variety of vetch or peas. Only in two instances was superphosphate used, and not over 250 pounds to the acre was applied. The vetch land was plowed once and disked and harrowed twice, and in most cases the seed was broadcasted.

In various places from 13 to 60 pounds of seed was planted to the acre. The yield on those fields where less than 25 pounds had been planted was found to be light, but the seed was of excellent quality. An average of 50 pounds to the acre was decided upon as about right for a dependable crop.

Of the entire vetch planting only one field was cut once before being allowed to mature. This field of second growth showed a better condition of seed and cleaner and more mature grain than the others, and for the coming year the planters are being advised to allow the second growth. The vetch was cut early in August with a common mower and dumped into windrows.

The grain was allowed to lie in the fields for from ten days to two weeks before threshing. It was then hauled in wagons direct to the thresher and threshed in the field. In only a few

cases it was stacked and covered with a tarpaulin.

The unlooked for early rains retarded the threshing but apparently did no damage to the seed, at times making it lighter in color but of good quality. In order to insure its value some of this seed was germinated, with good results. Even in one instance where the vetch had grown very rank and had been rained on, the seed moulding in the bins, a germination test produced results 60 per cent successful.

The early rains caused considerable loss in several of the fields, the grain having to be turned several times while drying, and the otherwise tough pods, which had lost some of their resistance through being wet, opened and cracked. One estimate placed the loss as high as 35 per cent of the seed.

The gross average yield, as recorded at the thresher, was between 1,200 and 1,500 pounds of seed per acre. The average yield after being cleaned was approximately 850 pounds through the entire crop. From the 374 acres planted there was 307,217 pounds of seed cleaned, and this tested 90 per cent or better, pure.

The total value of the crop in the county was about $60,000, averaging the planters $125 per acre. Besides this revenue the planter has the benefit of the improvement to his land and the straw which has a value both as feed and as a fertilizer.

None of the Humboldt crop was touched by aphis. This fact is thought to be due to the fall planting which gave a vigorous growth and good root system and carried the plants through the dry season before maturity.

There are 80 growers on the list for the coming year, and they have planned to plant some 2,200 acres. The estimated value of the 1921 crop is between $300,000 and $400,000. The growers are firmly organized as a department of the Humboldt County farm bureau and closely allied with the marketing and exchange department. They are working under 15 cent contracts for the coming two years, which were arranged through the farm bureau and the farm adviser, and at present control practically 90 per cent of the purple vetch seed in the United States. They hope to interest all of the growrs on the Pacific Coast in this organization, and when the present guaranteed market has spent itself, will further market their products through the farm bureau systems. The present arrangement and guarantee allows the growers to experiment at a profit and provides the citrus growers with their green manure crop at a reasonable figure.

Nutritional Worth of Ripe Olives

By M. E. Jaffa

IT IS extremely gratifying to be able to state that canned ripe or mature olives may be placed on the market with absolute safety to the consumer. The mature olive is also protected as to the oil content by the ruling of the United States department of agriculture, bureau of chemistry, which has rendered an opinion in effect that as a tentative standard of maturity for Mission olives and other common varieties except the Manzanillo, Ascolano, Sevillano, an oil content of 17 per cent in the flesh is regarded as a minimum. This will protect the honest packer and safeguard the food value to the consumer.

The great difference between the mature and immature Mission olive will be appreciated by the examination of the table given herewith:

	Water	Protein	Fat	Carbo-hydrate	Ash	Fuel value per lb.
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Olive, ripe or mature	69.60	2.00	21.00	4.00	3.40	958
Olive, immature	78.41	2.43	12.90	1.78	4.48	598
Pickles	93.80	1.10	.40	4.00	.70	110
Bread	35.30	9.20	1.30	53.10	1.10	1215
Meat, round steak	67.80	20.50	10.60	.....	1.10	835
Rice, raw	12.30	8.00	.30	79.00	.40	1630
Rice, boiled	72.50	2.80	.10	24.40	.20	525
Potato, edible portion, raw	78.30	2.20	.10	18.40	1.00	385
Boiled	75.50	2.50	.10	20.90	1.00	440

Comparing the ripe and green olive, it will be noticed that the percentage of fat or oil in the latter is only about 60 per cent of that yielded by the former. This would appear to be, according to the chemical analysis, the main difference between the green and ripe fruit, which difference is further confirmed by the figures indicating the fuel value of calories per pound.

In this connection it should be stated that the figure for oil in the ripe olive is that which the ripe fruit should yield. Unfortunately, however, there are on the market a large number of olives labeled "ripe olives" which contain far too low a percentage of oil.

More Nutriment in Ripe Olive

Furthermore it may be said that the difference in oil does not indicate the whole difference between the two forms of fruit because undoubtedly the nutriment in the ripe fruit is in a much more digestible form than in the green. The green fruit, the common variety, is unripe and therefore to a certain extent immature. It is readily seen that it is to the interest of the consumer to buy the ripe olive rather than the green in, that he receives for his purchase far more nutriment in one case than in the other.

This, however, is not the only interesting point brought out by a study of the table. Bread is generally considered to contain, weight for weight, far more nutriment than is found in the olive, yet as far as the total food value, expressed in calories, is concerned, it will be noted that in one pound of ripe olives there is practically three-fourths of the caloric value noted for bread.

Raw Rice vs. Ripe Olives

Again, if we compare the ripe olive with raw rice, the rice will rank far ahead in total food value; that is, in one pound of raw rice we have much more nutriment than in one pound of olives. If, however, we compare the rice as eaten with the ripe olive which is ready for consumption, it will be noticed that in one pound of ripe olives there is practically twice as much nutriment, if we take the calories as a basis for comparison, in the olive as in the rice. This is a point quite often lost sight of when comparing food values.

For instance, in a pound of dry macaroni there is far more nutriment than in a pound of ripe olives. Again if we compare both foods in an edible condition, the case is different and the comparison is in favor of the olives in that in a pound of cooked macaroni we have about 400 calories while in a pound of olives, edible condition, we have between 900 and 1,000 calories. It is therefore seen that the ripe olive, as far as food value is concerned, compares very favorably with many of the ordinary foods.

Ripe Olive Not a Condiment

It is not always correct, however, to compare food values on the basis of calories alone because the real value of the food to the body depends on the intended purpose more than on the calories. For example, one pound of sugar contains 1,820 calories, one pound of meat less than 1,000, yet one would hardly say that one pound of sugar is equal to a pound of meat when the question of growth is concerned, and similarly with reference to olives. One pound of olives with 1,000 calories, if we are considering

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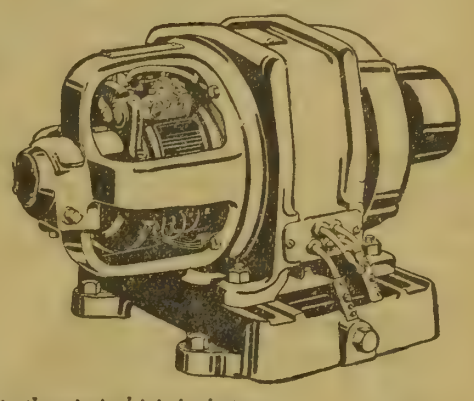

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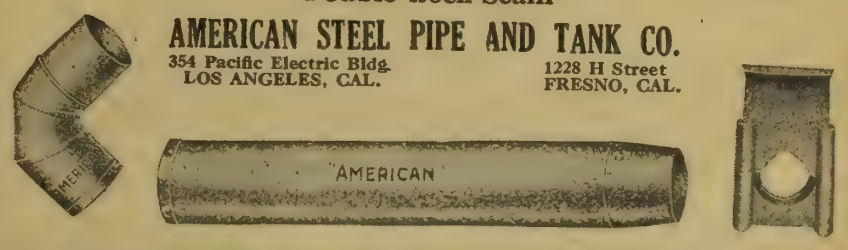

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growth and replacement of wornout nitrogenous tissues, would not be worth to the body as much as a pound of meat with 1,000 calories, but as a source of muscular energy the olives would be a most excellent supplement to foods such as meat or fish and cereals.

Summarizing in brief, then, it may be said that the ripe or mature olive is a very valuable, palatable and easily digestible form of food and should be considered as such and not as an accessory or condiment.

MANUAL OF TROPICAL FRUITS

Wilson Popenoe, to whom avocado fanciers look for what is latest and best in that fruit, has at last put into book form the results of his travels, experiences, studies and observations as agricultural explorer for the United States bureau of plant industry. Even now, as the book issues from the press, the author is in Costa Rica, rambling amidst avocado and other tropical fruits in their native wilds. The work is a large one, containing 475 pages, 24 full page plates and many line drawings, fully covering a list of nearly 100 of the leading fruits. The "Manual of Tropical and Subtropical Fruits," published by The Macmillan Company, New York, should be in the hands of all interested in the world's array of tropical luxuriance in fruits.

Make Income Tax Returns Before March 15

THE war tax gatherer is still with us. There is no relief whatever. The secretary of the treasury has said that there will be required at least four billions to run the country, and while it is possible that congress may relieve us from the soda water tax a little later, four per cent on all of our income, not exempt, must be paid at least this year. Even with last year's disastrous returns to some farmers there will be many whose incomes exceed the $1,000 or $2,000 exempt, and so long as the returns must be made it is well to have the information at hand. Regulations will remain much the same as last year, but for those who may wish to refresh their memories as to the requirements, here is from the latest circular issued by the bureau of internal revenue:

To thousands of farmers who this year are required to file an income tax return and pay a tax on their net income for the year 1920, the problem of correctly making out the forms is less intricate than in former years. The income tax law with respect to the filing of returns is unchanged. Every single person—the term including widows, widowers and persons not living with wife or husband—whose net income for the year 1920 was $1,000 or more, and every married person living with husband or wife whose net income was $2,000 or more, must file a return with the collector of internal revenue for the district in which they live. If the aggregate net income of husband and wife equaled or exceeded $2,000 and was less than $5,000, each may make a separate return or the income of each may be included in a single joint return. In the case of husband and wife whose combined net income exceeded $5,000, separate returns should be made showing the respective amount of income. This is for the purpose of computing correctly the surtax, which applies only to incomes in excess of $5,000. The period for filing is from January 1 to March 15, 1921.

In the return of married persons must be included the income of dependent minor children. If, for example, the husband's net income was $1,000, that of his wife $500 and that of two minor sons, whose earnings are appropriated by the parents, $400 each, a return must be made of the total family income of $3,100.

The exemptions and credits also are the same as those for 1919, $1,000 for single persons, $2,000 for married persons and heads of families and $200 for each person dependent upon the taxpayer if under 18 years of age or incapable of self-support because mentally or physically defective. In the above example, if both sons are under 18 years of age, the taxpayer would be entitled to a total exemption of $2,400.

The tax rate is unchanged. The normal tax is four per cent on the first $4,000 of net income in excess of the exemptions and eight per cent on the remaining net income. The surtax rates range from one per cent on income between $5,000 and $6,000 to 65 per cent on income in excess of $1,000,000.

As an aid to farmers, the bureau of internal revenue has had prepared a special form—1040F— for recording sales of livestock, produce and miscellaneous receipts. All farm income from any source whatever must be reported in this schedule.

Treasury regulations provide that in his return of gross income a farmer shall include "all gains, profits and income derived from the sale or exchange of farm products, whether produced on the farm or purchased or resold." When he exchanges his products for groceries, clothing or merchandise, he must include in his gross income the value of the articles received in exchange. A farmer who rents his farm or part of his farm on a crop share basis must report as income the profit from such transaction. Profit from the sale of farm land or livestock must be included. If the land sold was purchased prior to March 1, 1913—the date the first income tax law became effective—the amount to be reported as income is the difference between the fair market value of the land as at that date and the amount received.

Net income, upon which the tax is assessed, is gross income less certain specified deductions. All necessary expenses incurred during the year 1920 in the operation of a farm are deductible items. These include the cost of cultivation, harvesting and marketing of crops, and the cost of seed and fertilizer used. Amounts expended for the cost of feed for livestock may be claimed, but the value of a farmer's own products used for such purpose is not a deductible item. The cost of farm tools used up in the course of the year, wages paid to employes (other than domestic servants), and rent paid for farm lands and buildings (other than the dwelling), cost of repairs to fences, wagons and machinery are deductible items, also bills paid for horseshoeing, stock powders, rock salt, veterinary service, insurance (except on dwelling), gasoline for operating power, and sundry minor expenses.

Cost of purchase of farm machinery of permanent character, such as a threshing machine, and extensive repairs to farm buildings, such as placing a new roof on the barn, are not deductible expenses, but are regarded as capital investments.

The automobile and motor truck now form part of farm equipment. The cost of such vehicles is not an allowable deduction, but cost of operation may be claimed if they are used exclusively for farm purposes and not for pleasure or convenience. Also, in such cases, claim may be made for a reasonable deduction for depreciation of such vehicles.

Losses incurred in the operation of a farm as a business enterprise are deductible from gross income. If, however, farm products are held for a favorable market no deduction on account of shrinkage in weight or physical value by reason of deterioration in storage is allowed. Loss by frost, storm, flood or fire of a prospective crop, or of a crop which has not been sold, is not deductible. The reason for this rule is that unless the crop reaches maturity and is harvested and sold, its value is never included in gross income, and the farmer has so much less income to report. The same is true with regard to the loss of animals raised on the farm. However, if livestock has been purchased and afterwards dies, or is killed by order of federal or state authorities, the actual purchase price, less any depreciation previously claimed, and less any insurance and indemnity recovered, may be claimed. In determining the cost of stock for the purpose of ascertaining the deductible loss there shall be taken into account only the

purchase price and not any cost of feed, pasturage or care which has been deducted by the farmer as a cost of farm operation.

General deductions such as for taxes, interest on personal indebtedness, losses sustained in transactions entered into for profit aside from the farmer's regular business, losses sustained by fire, storm or other casualty, bad debts and contributions are explained in instructions on the forms for filing returns.

The term "farm," as defined by treasury regulations, includes stock farms, dairy farms, poultry, fruit and truck farms, also ranches, plantations and "all land used for farming operations." It should be noted that a business man who operates a farm for recreation or pleasure and not for profit may not, if the farm expenses exceed the receipts, deduct such loss in his individual return of income. In such an instance the cost of farm operation is regarded as a "personal" expense, and therefore is not deductible.

A farmer who keeps his account on the "receipts and disbursements" basis—which means a record of the amount received and the amount paid for expenses—should file his income tax return for the year 1920 on that basis. Another method is the keeping of books of income and expenses on the "accrual" basis, which is required of all persons whose accounts are kept on such basis.

For those keeping their accounts on the accrual basis, inventories are necessary at the beginning and end of each taxable year. The gross profits are obtained by adding to the inventory value of livestock and farm products on hand at the end of the year, amounts received from the sale of stock and products and other miscellaneous receipts during the year, and deducting from this sum the inventory value of stock and produce on hand at the beginning of the year, plus the cost of stock and produce purchased during the year.

Farmers may change the basis of their returns for the year 1920 from that of receipts and disbursements to that of an inventory basis. There should be included in the opening inventory all farm products, including livestock, purchased or raised, which were on hand at the date of the inventory, and there must be submitted with the return for the year 1920 an adjustment sheet for 1917, 1918 and 1919 based on the inventory method. Upon the amount of these adjustments the tax will be assessed and paid (if any is due) at the rate in effect for each respective year.

Where it is impossible to render complete inventories from the beginning of the taxable year 1917, the bureau of internal revenue will accept estimates which substantially reflect the income on the inventory basis for each year. The inventories must not include real estate, buildings, permanent mprovements or other assets subject to depreciation.

Farmers whose net income for 1920 was $5,000 or less, should make their individual return on Form 1040A. Those whose net income was in excess of $5,000 should use Form 1040. To the form used should be attached Form 1040F, the special form for the use of farmers. Full instructions for making out the forms are contained in each.

The tax may be paid in full at the time of filing the return, on or before March 15, 1921, or in four equal installments, due on or before March 15, June 15, September 15 and December 15. Heavy penalties are provided by the revenue act for failure or willful refusal to file a return and pay the tax within the time prescribed.

COMING EVENTS

Sixth National Tractor Show, Columbus, Ohio, February 7-12. Manager, E. E. Whaley.
Eleventh National Orange Show, San Bernardino, February 18-22. General Manager, F. M. Renfro.
American Honey Producers League, Indianapolis, Indiana, February 15-17.
Citrus Institute, San Bernardino, February 25-26.
California State Beekeepers Association, Oakland, March 2-5. Secretary, A. B. Shaffner, 4232 West First St., Los Angeles.

SUMMARY OF CROP PRODUCTION FOR 1920

(Continued from Cover Page.)

Large Whites, 30,000; Pinks, 150,000; Blackeyes, 180,000; Red Kidneys, 36,000; Cranberries, 21,000; Mexican Reds, 36,000; Bayos, 12,000; all others, 15,000, or a total of 1,710,000 bags. It is to be noted that Teparies which in 1918 reported 250,000 bags were during the past year only chronicled with miscellaneous.

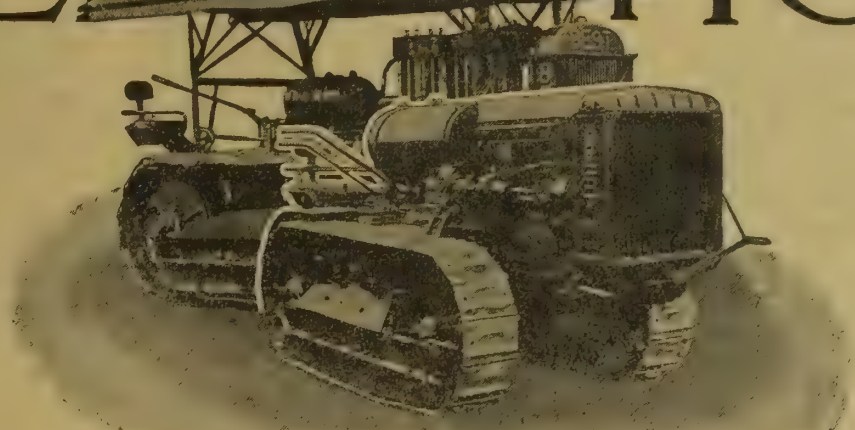
In fruits the citrus is a leader, but if divided into oranges, lemons, grapefruit, etc., then raisins take first place. The total farm value of raisins in 1920 was $55,800,000. This was an increase of about $17,000,000 over the preceding year. Oranges also showed an increase, having a farm value in 1920 of $51,425,000. As may be seen from the table, nearly every other fruit crop suffered a decline, though tonnage was materially greater in 1920 than in 1919. The olive crop is not given in the table because harvest is even yet not finished and very heavy losses were suffered.

AVOCADO DIRECTOR RESIGNS

By reason of ill health, J. M. Elliott, a director of the California Avocado Association, has resigned. William Hertrich of San Marino was appointed to fill the vacancy. Mr. Elliott's offer was accepted to continue his duties as treasurer and to help to the extent of his ability in attending meetings and giving the benefit of his advice and experience. While accepting his resignation, President Sallmon expressed the profound sorrow of all the members of the board of directors that Mr. Elliott found it necessary to sever his official connection and also expressed their appreciation of the valuable service he has rendered as a member of the board and their pleasure in the thought that he will still meet with them at their business sessions. The greater part of an all day session on January 6 was devoted to the discussion of marketing. Several committees were appointed to look further into the possibilities offered by varous suggestions made by members of the board and others, and another meeting will further consider this problem in the near future.

The new nut shelling plant of the Almond Growers Association at Sacramento is practically complete.

REPUTATION



The Best Tracklayer Sixty Tractor has built a reputation for stamina, reliable power and low up-keep. This reputation so closely guarded by the manufacturer has been due to the quality of material used, the proven design and the knowledge of tractor requirements which has been gained through years of experience in the actual building of tractors and the incorporating of modern improvements in each new model.

The "Sixty" was too powerful for all uses; so, upon the demand of farmer, orchardist, contractor, in fact all lines of industry where tractors are employed, the factory has perfected a model to be known as the Best Tracklayer Thirty Tractor, in which has been incorporated all of the experience of the manufacturer as to design, etc., together with all of the reliable improvements of the age. The "Thirty" is years ahead of any other tractor on the market.

Delivery date on this new model "Thirty" About February 1st, 1921. Send for circular.

C. L. BEST TRACTOR CO.
SAN LEANDRO CALIFORNIA

Best TRACKLAYER Tractors

Soy Beans

By G. W. Hendry

Soy beans have been grown experimentally at the university farm at Davis for several years, during which time numerous varieties have been tested. As a general thing we have found that Soy beans do not thrive so well in the interior valleys of California as they do in the central and south Atlantic states and the success they have had in those regions has led many to think that it would be equally well adapted to California.

Experiments at the university farm have demonstrated, however, that certain varieties of cow peas, such as the Whippoorwill and Clay, are much superior to them in this region from the standpoint of forage production, and certain drouth resistant types of beans such as the Blackeye and Tepary will exceed them greatly from the standpoint of seed production. For example, at the university farm on good land, with good cultural practices and an abundance of irrigation, the best varieties of Soy beans have yielded from 500 to 600 pounds of seed per acre, whereas Blackeye beans under similar conditions have yielded from 1,500 to 2,000 pounds per acre. As a forage crop the Whippoorwill and Clay cow pea varieties under irrigation at the university farm have produced from 10 to 12 tons of green forage per acre, whereas the largest types of Soy beans under similar conditions have produced only from five to eight tons of green forage per acre, and this of inferior quality. Certain of the sweet or forage sorghums, such as Honey sorghum, Red Amber and Orange grown under similar conditions have yielded from 18 to 25 tons of forage per acre. Soy beans have made a much more favorable impression in the cooler and more humid coast districts of central California, especially in the Small White bean territories skirting the coast from San Francisco to Santa Barbara, but in these localities Small White and Blue Pod beans are equally or more productive than Soy beans and have a higher market value.

Soy beans may be satisfactorily grown in the cooler mountain valleys at high elevation in California where climatic conditions resemble those found in our Eastern states, but when grown in the dry hot summer climate of the interior valleys they cannot compete with cow peas or sorghums for either grain or forage production.

THE CHOICE OF BARLEY VARIETIES

By G. W. Hendry

The choice of barley varieties should be determined largely by the type of soil upon which one expects to plant and also the season of year at which planting is to be done. Mariout barley is at its best in the warm interior regions of California and has shown the greatest advantage over common barley on soils of light texture, especially in the dry seasons and when planting has been practiced after the first of January. To secure the best results with Mariout barley, however, it should be planted early in the season. On heavy soil types, especially those which are inclined to be cold and poorly drained during the winter months, Mariout barley has not made a good showing and would be inferior to Beldi or common barley. Our first choice upon such lands would be Tennessee Winter, providing planting could be done prior to the first of the year.

Beldi barley was formerly grown extensively at the university farm and given a wide distribution several years ago throughout the state.

We have now developed a new variety, however, called Four Thousand, which has outyielded Beldi by about ten per cent consistently over a period of years at the experiment station. Four Thousand is a prolific and a better variety than either common or Beldi and will outyield both by about ten per cent on any soil types in any part of the state and under any conditions of culture. It is identical with common barley in appearance and is merely a pedigreed high producing strain of common barley. We would recommend it under all conditions as superior to common barley but would give Mariout the preference for heavy cold, wet soils for early fall plantings in the regions of higher rainfall.

CERTIFIED SEED POTATOES

Californians planted approximately 100,000 acres of potatoes in 1920. The harvest yielded from nearly 300 sacks to the acre in a few small fields to practically none in many large fields. Nearly all the failures were due to conditions beyond control of the grower — unfavorable weather. The largest unharvested fields visited were examples of late planting, earlier planting of the same variety in adjoining fields bringing good results. In a few fields extremely early planting met with disaster. There was a favorable time during last spring, designated as early (about the first half of March) when resultant crops were uniformly good throughout the state. Many failures were due to poor seed.

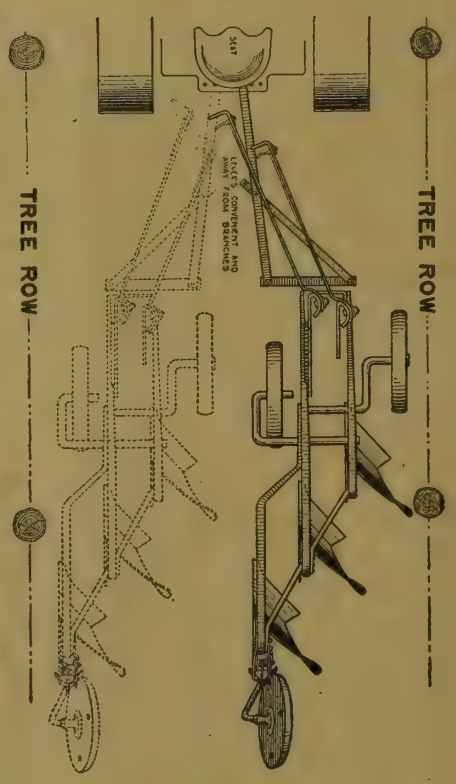
While we cannot control the weather we may have complete and satisfactory control over the seed supply. The state department of agriculture can guarantee good seed insofar as it is possible for human agencies to control. It should be remembered that "seed" potatoes are cuttings, as much so as rose cuttings (some are "Rose" cuttings). They are the matured material of the past season's growth, cut into pieces, each containing several buds or eyes, whether "White Rose" potatoes or "Cherokee" rose bushes. It is quite evident then that selection is of first importance. A close study should be made as to vigor, productivity and freedom from disease. Both kinds of "roses" are subject to insect pests incident to all crops and both are subject to plant diseases. In potatoes the latter are: Curly leaf, leaf roll, mosaic, and spindle-sprout. Added to these is the unexplainable "running out" of varieties. The state department of agriculture will inspect the seed and growing crops three times during the season and if the results warrant will attach a "certified" tag to each sack. Such seed is always a good and safe investment for the intending planter. The department is ever willing and anxious to cooperate with all growers to this end. If in doubt on any point write the state department of agriculture at Sacramento.—E. B.

CHARRING DOES NOT STOP DECAY

The theory that charring the butts of fence posts and telephone poles preserves the wood has been disproved by a series of tests recently conducted by the forest products laboratory of the forest service, United States department of agriculture, on fences with charred and untreated posts of varied species. The charred posts proved to be even less durable than the untreated ones.

Theoretically, an area of charred wood around a post should prevent decay, because charcoal does not decay or encourage the growth of fungi.

A Real Orchard Plow for Small Tractors



A light draft, easily-handled plow that can be worked close to the row without injuring the trees—that's what every fruit grower wants.

The John Deere No. 8 is the tractor plow that meets those requirements.

Reversible Hitch permits setting the plow to either side for close work in throwing either to or from the row. Note the illustration at the right.

Levers can be angled in when the plow is set to either side — they are always within easy reach from the tractor, out of the way of branches and free of the tractor wheels, when turning short.

Levers set low when the plow is at work.

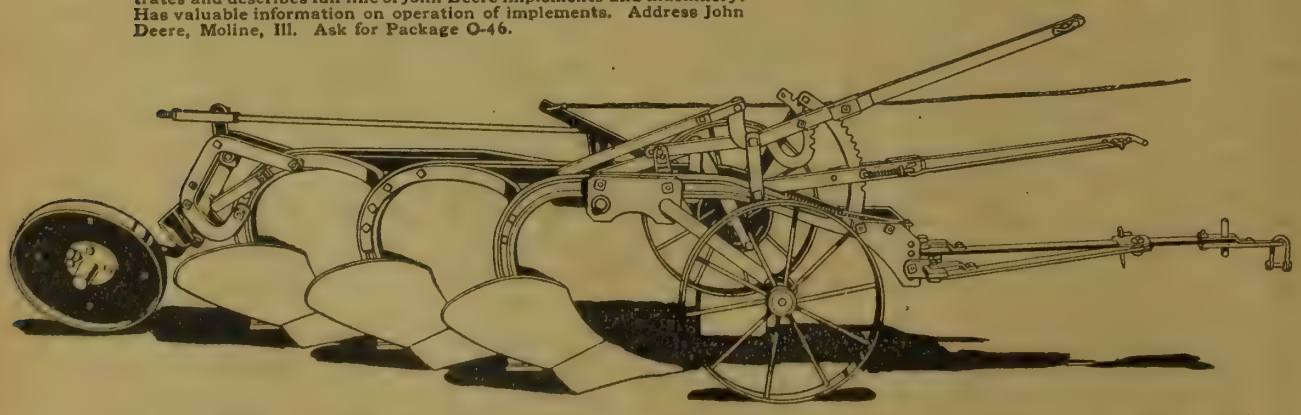
Doesn't Scar Trees — Note the wheel base design that permits close work without scarring trees — land wheel set inside line of third beam; furrow wheel set inside line of inner mold-board wing.

Simple, Positive Power Lift; great range of adjustment for deep or shallow plowing; unusual clearance; bottoms that insure good scouring and pulverizing, and strength throughout to stand the strains.

Just the size for small tractors—three ten-inch bottoms—pulls light. Can be reduced to two bottoms by removing one beam, bottom and brace, and using a short connecting rod furnished as an extra.

For orchard or field plowing, you will find the No. 8 just what you want. Write today for free folder describing it.

Get This Free Book —"Better Farm Implements"— 114 pages. Illustrates and describes full line of John Deere implements and machinery. Has valuable information on operation of implements. Address John Deere, Moline, Ill. Ask for Package O-46.



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One Pump Will Do Your Work

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.

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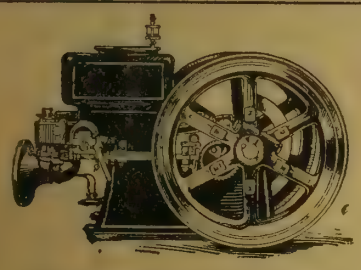

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We still have some fine Bartlett as well as Bosc, Anjou, Comice, Flemish Beauty, Winter Nellis and other leading varieties of pears on Japan Pear roots.

These trees are grown on new soil never before in nursery stock, are well rooted, clean, healthy and hardy.

Hundreds of thousands of our trees in all parts of the West are now bearing profitable crops for their discerning owners.

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"Largest in the State"
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Avocado Trees

Largest stock of field grown trees in the state. Oldest exclusive Avocado Nursery in California. Write for prices, and full information as to care of trees, soil, and climatic requirements.

W. P. SHERLOCK
Box 111, R.D. 2, Puente, Cal.

But the charred area around a post is not usually a solid covering. It is checked through in many places. If posts are seasoned before they are charred, the charring does not reach to the bottom of the season checks which are always present. If green unchecked posts are charred, checks will open through the charred part as the wood seasons. In either case the uncharred center of the post is exposed to fungus infection and will decay as rapidly as untreated wood.

Charring deep enough to resist decay would undoubtedly weaken a post of ordinary size.

THE JACK BEAN AGAIN

At frequent intervals in recent years promoters have resorted to extravagant advertising of the merits of the Jack bean. One of the latest efforts in this direction that has come to the notice of the U. S. department of agriculture is unusually extreme in its praise of this crop: "Mr. Farmer, $8 invested in American coffee beans and planted on one acre will bring you in four months $400."

The American coffee bean is our old friend, the jack bean, says the department. Ever so often it is exploited as a wonderful new crop. Long ago it was advertised as "Pearson bean" and "Wonder bean." In 1913 one advertiser called it Wataka, or Giant Pod Stock bean, claiming it would yield 400 bushels per acre. Last spring it came out as the South American coffee bean, with the information that it would yield 300 to 600 bushels per acre. Last fall it appeared as the American coffee bean, and the seed was offered at $25 a bushel. The extravagance of this price is offset by the promise that each acre of the bean will yield in four months time a crop worth $400.

The jack bean is at most a crop of very small value. It will yield a fairly large crop of green herbage, but this is so extremely bitter that it is very difficult to get animals to eat it, either green or as hay. Possibly it may be better as silage. The seed crop varies from 20 to 35 bushels per acre. The beans are not relished by animals and cattle do not make much gain when forced to eat it, as determined by the work of the Mississippi agricultural experiment station. The bean is to a slight extent used as food by Mexicans and others, but the flavor is very strong and in some cases serious digestive disturbances have been reported. The seeds contain much urease, a substance used in medicine, but a few tons of jack beans supply the world's annual demand for this substance.

Kentucky once led in hemp production, but has turned to more profitable crops and relinquished the lead to Wisconsin, according to the United States department of agriculture. The Badger state cultivated 7,000 acres, half the country's total, this year, followed by Minnesota, Michigan, Ohio and California, with Kentucky sixth.

The Cultivator Pulls

Petaluma, December 24, 1920:

If you do not want anything generally known, don't publish it in the Culitvator.

Some weeks ago I sent you a few lines about some corn that I had grown. The seed was obtained through an advertisement in the Cultivator.

The article you published about the result was not written with any expectation of selling seed, but as an appreciation of benefits received from being a reader of your publication.

Imagine my surprise in a few days after publication receiving letters from all over California, asking for seed or the address of parties having the same for sale. I have no seed for sale; am selling the crop to my herd of Jerseys. I have referred all inquiries to the originator of the corn and if he does not send you an advertisement he is not hep to the opportunity. Yours.—A. P. M.

The Days Between

SPRING work is always rush work. Planting seasons roll around with unalterable certainty, but no matter how few the days between plowing and planting, you can have a good seed-bed by using time-saving, labor-saving, and money-making machines. Do it all in the time you have by using

International Tillage Tools
Sold by International Dealers

Horse Disk Harrows	*Spring-tooth Harrows*
Tractor Disk Harrows	*Open-end Peg Harrows*
Orchard Disk Harrows	*Closed-end Peg Harrows*
Reversible Disk Harrows	*Flexible Peg Harrows*
Dunham Culti-Packers	*"Boss" Peg Harrows*

International Tillage Tools combine the three essentials—good work, long life, and convenience. They are mechanically correct because they are designed right, and built right. Back of every one of these tools are designers who know the business of farming from practical experience. Nearly a century of successful manufacturing experience is built into every International product.

See your International dealer and get our new tillage catalog.

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8,000 ft. 6 inch Riveted 16 Gauge
700 ft. 8 inch Riveted 16 Gauge
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1,000 ft. 18 inch Riveted 12 Gauge
800 ft. 22 inch Riveted 14 Gauge
300 ft. 24 inch Riveted 14 Gauge
500 ft. 36 inch Riveted 12 Gauge
10,000 ft. light wrought iron 8 inch pipe with cast iron collars.

All above pipe thoroughly overhauled and inspected and ready for immediate use.

We also have large quantity standard pipe and screw casing, pressure tested and guaranteed.

Don't delay—write for our prices on your pipe requirements today.

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KEEP BEES

Let them gather honey for your table and make your fruit more fruitful. Free booklet and price cost of beekeepers' supplies for the asking.

The A. I. Root Company of California
1824 East 15th Street
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Everything for the Beekeeper.

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CURRANT CUTTINGS
—also—
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Black Alkali Soil

If your crop production is poor because of black alkali send us a sample of your soil for free analysis.

Very likely we can prescribe an absolute cure for this condition in AGRI Gypsum which is a specific for black alkali.

In practically all cases of this kind AGRI Gypsum completely transforms unproductive land into fertile, productive soil, changing the deadly sodium carbonate into harmless calcium carbonate or the less harmful sodium sulphate, and incidentally adding sulphur, releasing potash and increasing nitrogen.

Send in your sample today for analysis.

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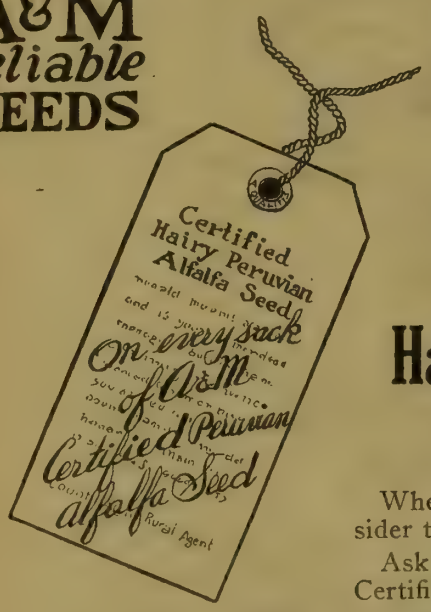

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When buying Alfalfa Seed, consider the source.

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FOR 28 YEARS

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Extra parts are always available without delay for standard advertised machinery. This class always found in the California Cultivator.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Scale Breeding

My home is a lot 50 by 150. I have a good house and garden and 13 kinds of fruit. Am nearly 80 years old and blind. Owners of next lot have two peach trees and a pepper tree which are scale breeding, each one foot from our line. To get to my garage I cut the limbs on line straight up into heaven. The pepper scale breeder is sending its pestiferous stuff on all my trees and vegetables. I had to build a platform and my aged wife took a long handled pruning knife and cut a passage into our garage. The owner of the pestiferous pepper tree stood by her and cursed. The scale still sticks. The horticultural commission gave advice to cut up into space. The other half goes on growing scale. Why should thrift be hindered by false esthetics?—Syam.

Our subscriber was entirely within his rights in trimming the tree. In addition the horticultural commission should give relief by ordering that the tree be sprayed.

Leaf Cutter

In January 8 issue I notice your reply to "Subscriber, Lincoln," and it reminds me of the fact that there may be another cause for leaf cutting of rose leaves than the efforts of the Fuller's rose beetle. Without seeing the leaves in question, of course, it would be presumptuous of me to "butt in," and what I say must not be taken as a contradiction of your illuminating reply, but the description of the injury to the leaves as "so nice and round" reminds me of the leaf cutting bee, which is especially fond of tender rose leaves. This big black bee bores a tunnel as thick as a large lead pencil in fence posts and old tree stumps, and lines them with the disks cut from leaves as slick and clean as if done with a pair of scissors. Perhaps they are for the young grubs to eat. The only remedy I know of is to locate the holes and fill them at night with asphaltum. When I first noticed the work of this pest in my own garden I wrote to several of the best horticultural authorities in the state, and they united in ascribing the trouble to Fuller's beetle, but for once they were wrong, and I was able to prove it. Hoping you will excuse my seeming interference, yours cordially, O. T. Bryant, Fillmore.

Cottonseed to Mules

An inquirer recently asked as to feeding cottonseed to horses or mules. He referred to the danger of feeding to hogs and advised to be sure of its desirability for other stock. The question was referred to Prof. F. W. Woll and he answers:

Cottonseed meal is sometimes fed to both horses and mules, and with satisfactory results when it makes up not more than 10 or 15 per cent of the grain ration as a maximum. It is not especially palatable to these animals, and in order to get them to eat it the meal must be given in small amounts at first, not over one-fourth pound at each feeding, mixed with light concentrates such as oats, rolled barley, crushed corn or milo, etc., and the amount fed may be gradually increased until full feed is reached in a couple of weeks. Cottonseed meal is sometimes sprinkled on silage or on hay, cornstalks or similar feeds, which are previously moistened, but the best method of feeding it to work animals is ordinarily to mix it with the regular grain ration. Fed as suggested, cottonseed meal will tend to keep horses in good condition and appetite and give them smooth coats. Care must be taken to feed only fresh, bright cottonseed meal to horses or mules, as these animals are very sensitive to any kind of moldy feed.

Non-Bearing Peach

We have two Crawford peach trees which, while they grow luxuriantly, do not bear more than six or a dozen peaches. The trees are about ten years old and are very thrifty, but have never borne a crop.—Subscriber, Lodi.

Without knowing more of the situation we can only suggest a study of the local conditions. Has there been severe winter pruning each year? If so, this may have induced excessive wood growth at the expense of fruit. Again, it is barely possible that weather conditions at blooming time were unfavorable. Try long pruning for a few years and observe results.

Pear Blight.

Our young Bartlett pear trees seem to be affected by blight. Can you suggest something for them?—Subscriber, Lodi.

The only relief from pear blight is through cutting out. The past fall, because of early rains and warm weather following, has caused much blighting of even mature wood. The orchard should be carefully inspected and every blighted twig or branch cut out and burned so as to permit as little distribution of the pest as possible. Then in the early spring when the new growth is at its strongest development, constant inspection and cutting will be necessary. There is no possible help from sprays.

Leasing to Japanese

One reader told me last week that a neighbor of theirs had told him he could not rent out land to Japs any more. They wish to know through the columns of the Cultivator.—

The whole matter of Japanese leasing or owning land in California is at present so unsettled that it is perhaps wise to wait decision of Washington as to the present treaty under consideration, and also the ending of the state legislature, for there are several measures introduced or liable to be introduced which will affect this matter. As to effect of the recently passed initiative law, see Mr. Stanton's answer to a similar question on Page 47 of the Cultivator of January 8.

Avocado "Pear"

I am writing you for information about the avocado pear. Is this locality favorable for it? What is the Avocado Association's office address? We have 30 acres to set in fruit this winter.—Subscriber, McFarland.

Why the word "pear" has become attached to avocado is not understandable, and avocado growers have endeavored to have the term "alligator pear" discontinued, and this has been practically accomplished in the markets. The avocado is a semi-tropical evergreen tree, no more closely related to the pear than to the strawberry. Some of the varieties are very hardy; others will not bear as much frost as will the lemon, but by very hardy we do not mean that the tree will stand any considerable degree of frost. It has grown and borne most successfully in a few protected sections south of Tehachapi and in the citrus section of the Kern and Tulare County foothills has been quite extensively planted. The address of the California Avocado Association is Altadena.

Planting Apricots and Peaches

I would like to plant 20 acres to orchard, apricots and peaches. Would you kindly tell me how to proceed regarding seed, kind of seed, when to plant, when and how to bud, giving all the steps from now to the orchard?—Subscriber, San Jacinto.

Our subscriber has given us a rather good sized contract, in fact, one which would call for the writing of at least two books, but we may, perhaps, make some suggestions which will lead toward the information desired. In the matter of planting the seed and growing the nursery stock, "The Nursery Book," written by Bailey and published by The Macmillans, New York, affords most concise information. When published some years ago it was a $1.50 book, but if now reprinted perhaps more. Then, as to peaches, there is "The American Peach Orchard," by Waugh, published by Orange Judd Co.,

Chicago, and "Peach Growing," by Gould, published by Macmillan. Both of these are from an Eastern standpoint, but have lessons for the California grower. As to apricot production, we know of no book devoted to that subject. The department of agriculture at Washington, D. C., has published several bulletins or separates on peach diseases and methods of handling, as has the agricultural experiment station, University of California, Berkeley.

Grubs or Warbles

Could you tell me what causes grubs on the backs of cows at this time of the year?—Subscriber, Orland.

This is one of the pests that affects the value of hides and the comfort and profitableness of stock in California, as it does in all other sections. "Diseases of Cattle," published by the department of agriculture recommends: "During the winter and spring examine the cattle for the presence of warbles. By passing the hand over the backs of the animals the swellings marking the location of the grubs may be readily found. Pressure properly applied to the swellings will cause the grubs to "pop out" if they have reached a late stage of development. They may be more easily removed by means of slender forceps inserted into the opening of the warbles, and a still more certain method of removing them, particularly if the lumps are still very small, is to cut into the swellings with a sharp knife or bistoury, after which they may be pressed out. Care should be taken to crush all grubs removed to prevent the possibility of their further development and transformation into flies. In order that none may escape it is advisable to examine the cattle every two weeks during the late winter and spring, at each examination removing the grubs which have developed sufficiently to cause perceptible swellings. Another method of treatment is to force grease or oil into the opening of the warbles, which kills the grubs. This method is less certain than that of removing the grubs, and has the further objection that the dead grubs remain beneath the skin."

Dates in Alkali

W. R. Nutting gives us some interesting information about growing dates in the region of Fresno. After reading his article I was at a loss to tell whether the date palms thrived because of the alkali or in spite of it. It will also be interesting to know if date palms will extract enough alkali to neutralize the soil and render it suitable for other crops.—Subscriber, Hayward.

We fear the extraction of alkali from the soil by growing dates would be so slow that many generations would be required to see any definite result. As a matter of fact, the success of dates is not because of alkali, but, as suggested by the inquirer, in spite of it. The date palm is very tolerant of alkali, but it must be understood that where alkali is present in abundance the drainage must be fairly good, which, with the liberal irrigation required by the palm, will so control the action of alkali that no serious injury is done the plant. Popenoe suggests in his book, "Date Growing," that "Ancient writers would not hesitate to advise that common salt be added to the soil in cases where it is lacking." But the writer hastens in the next sentence to say "I know of no region where this practice is followed today." Regarding the tolerance Popenoe says: "Best results will be secured if the alkali does not exceed 0.6 per cent, and three per cent may be conveniently taken as a limit beyond which the palm will not grow." Bear in mind that young plants are not as tolerant as old and established palms and also that an immense quantity of water is required during the entire growing season.

Trespass Law

A subscriber writes: "There should be an effort made by farmers associations to have a new trespass law enacted by the present legislature. This law should provide proper penalty for people who allow trespassing of their livestock. Much damage is done to orchard trees and gardens."

It is possibly too late to secure introduction of any bill which would stand much of a show of passing the present legislature. There has been an agricultural committee investigating as to present enactments and preparing and recommending bills which will prove of value to farmers. We believe the bills from this committee have generally been introduced and the state legislature is now settled down to consideration of the various sections. If the particular case referred to by our subscriber is not touched by any of these bills it should be called to the attention of the agricultural legislative committee for consideration at the session of 1923.

Blasting Heavy Soil

Is my soil, which is heavy, too wet for blasting hardpan in tree planting?—Subscriber, Denair.

The soil itself can best answer this question. To secure the answer, dig a hole to the depth where one would place the charge, or perhaps through the hardpan, and observe the subsoil. There has been but little rain this year and it is very probable that the soil would be so dry that there would be little injury, also it may be found that the subsoil is of such sandy nature that there would be little damage, but if the subsoil is found to be heavy and moist enough so it will pack and mold in the hands, it would probably not be wise to use explosives until a period when it is more dried out.

Purple Scale

My orange trees and fruit are both covered with these flakes. What are they?—Subscriber, Los Angeles.

These "flakes" are nothing more nor less than purple scale, one of the worst pests of the citrus orchard, introduced into this state from Florida through shipments of orange trees in 1887 or 1888. It is one of the most serious pests because it not only injures and saps the life of the tree but ruins the fruit. It is not possible to offer the fruit with this scale in the market as it would be immediately confiscated by horticultural guardians. The best treatment is fumigation, or, in case of inability to secure fumigating outfit to accomplish the work, the trees might be thoroughly sprayed two or three times with kerosene emulsion or rosin spray. The case should be reported to the horticultural commissioner who could give more specific information.

Smoking Ham and Bacon

We are going to smoke our own ham and bacon and would like to know what the proper temperature should be in the smokehouse and how long it takes to complete the smoking.—Subscriber, La Canyada.

Cruess gives one of the best materials for producing smoke as spent tanbark. Of course, the old time way of the East was to use hickory chips, but hickory chips are seldom available in California. However, any hardwood, or even hardwood sawdust, is satisfactory, likewise corncobs. Many are using "liquid smoke," a commercial product which may be had even in the smaller towns. This is rubbed into the meat. We prefer natural smoke. As to temperature, care should be taken not to raise above the natural temperature of the house. If it is cold enough so that the meat freezes, then there will not be satisfactory absorption of the smoke. To prevent raising the temperature, unless the house is a large one so that meat hangs five or six feet above the fire, it is best to place the firebox a few feet from the smokehouse and conduct the smoke in large pipe through into the smokehouse. This will so cool the smoke that the temperature will be but little, if any, raised. In his book, "Home and Farm Food Preservation," Cruess recommends smoking continuously for two or three days or three or four hours each day for about two weeks.

Safety Pin

My little girl, age nine months, swallowed a tiny open safety pin, being in her a week before it affected her. Would like to know something to make her pass it? Thanking you in advance.—Subscriber.

This is a form of question which ordinarily would not have attention in this column but would be handled by telegraph, or at least special delivery letter. But the inquirer failed to sign her name other than simply by the word "Subscriber." But, at best, all the advice which can be given in such a case is for the parents to get as quickly as possible the best of surgeon with X ray if possible and follow his advice. Meantime if physician is not immediately available give the child a teaspoon of castor oil in which is a drop or two of turpentine. Ordinarily don't dose babies (nor any one else) but in such a case as this get action.

When you purchase seed remember what your experience was with the last cheap seed you bought, and don't get stung again. It always pays to get the best in seed.

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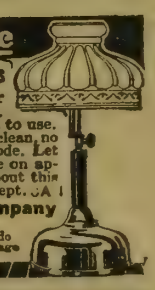

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Household Department

WHAT'S IN A LITTLE BOY

What's wrapped up in a little boy?
All that makes for a father's joy;
The pride that shall shine in a dimming eye
And an old man's peace in the by and by;
Strength perhaps for the manly deeds
Which the world we live in so sorely needs;
Faith for the black, dark hours of test;
Courage in trial to do his best.
What parcels of splendor shall time untie
For a little boy as the years go by?

There, in the baby that rides your knee
When the stars come out, is the man-to-be.
Wrapped in packages, O so small
That you see them not, are the virtues all.
Deep in his breast lie the future years
With your happy days and your nights of tears.
Time's deft fingers shall break the string
Round many a comfort that he shall bring.
Do you dream of an age that shall glow with joy?
Then it's all wrapped up in your little boy.

There are hours he's bringing when you shall sigh
And your heart shall ache, in the by and by;
Though he's O so young and he's frail and weak
There are glorious words for his lips to speak;
There are splendid deeds for his hands to do
And parcels of pride which he's bringing you.
Do you think at night as you stroke his hair
Of the mysteries which are hidden there?
All that you dream of and hope to see
Is bound in the boy that bestrides your knee.

Time shall open these parcels small
And round your feet shall the wrappings fall.
Do you pray for an age that is sweet with mirth?
Your baby brought it with him at birth.
Can greater glory e'er come to you
Than the greatest deed that your boy shall do?
He is little now, but can't you see
A hint of the man that shall some day be?
And don't you know that your every joy
Is now wrapped up in your little boy?
—Edgar A. Guest.

OVER HER LEFT SHOULDER

By Marion Crosby in The Farmer's Wife

DORA DENTON drew a jar of sizzling hot pork and beans to the front of the oven and lifted the cover gently.

"They are going to be just all right," she cried joyfully.

The kitchen was flooded with their rich fragrance. One whiff was enough to give anybody an appetite, even if it had not been a chilly September evening when everyone—meaning Dora and Henry and the three children—was sure to be hungry anyway.

Brown baked beans and all the good things that go with them made Henry's favorite supper. He would come in sniffing while his handsome face beamed happily, exclaiming in his deep, hearty voice, "Oh, that supper smells good! And how's the whole precious bunch tonight" meaning, of course, the three children, to say nothing of Dora.

"Hurry, children; set the table, please. Father will be home now in a few minutes." She worked busily, marshaling her little helpers. "That's right, Maud, help Clara. Bobby, get some fresh water and bring the butter in from the ice box. Oh, we're going to have a fine meal, and all piping hot. Hurrah!" Dora waved the dish towel over her head and pirouetted in the open space between stove and window, to the great amusement of her seven year old son, who was reluctantly starting out for the pump.

Dora was so graceful and pretty and slim that she seemed more like a young girl than the mother of three children and mistress of a rambling old farmhouse where the work, from one year's end to another, was hardly finished as she would wish it to be. She seemed even younger than usual tonight as she danced back and forth singing a gay song. A tiny moonbeam, coming through the window, fell on her yellow hair and gave it a softer sheen.

Suddenly, with a little frightened gasp, she stopped. "The new moon!" she cried. "And I looked at it straight over my left shoulder!" She had been very gay a moment before, but now she quieted down, her gray eyes were clouded and she went on with the supper preparations soberly.

"'Right shoulder, good luck; left shoulder, bad luck!'" she murmured while she cut the bread. "I just cannot help worrying if I see the new moon over my left shoulder. Henry and I do want good luck so much! We have had our share of the other kind."

Little Maud came into the kitchen and industriously began filling a plate from an easily reached cooky jar.

"Never believe in superstitions, Maudie," said her mother.

"No, Mother, never 'lieve in 'stishuns! What is they?" asked the chubby infant between bites of crumbly cooky.

"They are very silly thoughts, Maudie. But sometimes Mother just can't help thinking them. Now, I wish Father would come. It's so late we shall have to eat our supper without waiting. I'll put Father's in the oven to keep hot."

During supper Dora could not forget her "unlucky" first glimpse of the new moon. She hardly enjoyed the hot, tasty supper and spent most of the mealtime attending to the wants of the little ones. "I hate to have this feeling," she said to herself, "but I cannot help it! Aunt Martha taught me to be afraid of bad luck. I wonder what ancestor passed it on to her? I wonder how far back it started, anyway?"

"Clara," she said, turing to her older daughter, who was busy dishing up apple sauce, "have I ever told you about the beautiful locket I used to have when I was a little girl?"

"Why no, Mother," said Clara, eagerly. "What ever became of it, and what was it life?"

"I wonder if I can describe it so that you will know how it looked? It is a long time since I lost it. It was a solid gold locket with a blue enameled medallion on one side, surcounded by a wreath of fine blue flowers. On the other side were your Grandmother's initials in blue enamel. It was her locket. She died, you know, when I was a child."

"It must have been perfectly beautiful," said Clara. "How did you lose it, Mother?"

"I lost it in the brook one day when I was crossing the little footbridge near Aunt Martha's house, down in the valley where I used to live." Dora's eyes had a far away look, as if they were gazing upon that old scene.

"I'll tell you, Mother!" broke in Bobbie. "Next summer we'll all go down there and I'll find it for you. I can swim!" he added proudly.

"It is not very likely that you could find it after all these years, Bobbie." His mother did not tell the children that it had happened at new moon time. Aunt Martha had said, when told of the loss, "Bad luck! You must have looked at the new moon over your left shoulder." Dora had not tried very hard to recover the locket, since Aunt Martha was so positive that there was no use trying to get the better of "bad luck."

She was roused from her recollections by a dire little sound at her elbow. "Oh, Maudie, how could you!" She brought a cloth to sop up the white stream. "Well, well, I suppose you're tired, dear," she said comfortingly. "We are all tired tonight. I wish Father would come!"

It had been a wearying day. Even the children had worked hard, for besides helping gather fruit in the orchard they had wrapped hundreds of apples in paper and packed them carefully away in the attic.

"Come, chickadees, little ones, come on to bed. Clara will help me with the dishes." Dora took a sleepy child by each hand and danced them as far as the foot of the stairs and then marched them up ahead of her in the happy bedtime romp that they loved.

"Good night, sweethearts!" she called on her way downstairs after stowing them in their little white beds.

"Good night, Mother dear!"

At the landing Dora stopped and pulled back the window shade, peering out into the night. She could see no one coming. There was no moon visible. The sky was covered with dark gray clouds and as she waited she heard low rumblings of thunder.

The Cultivator Patterns

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3456. Ladies Work Dress or Apron.—Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42 and extra large, 44-46 inches bust measure. A 38 inch size will require 4¼ yard of 36 inch material. Price 10 cents.

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PATTERN DEPARTMENT
California Cultivator
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"There is going to be a storm and Henry is out on the road," she said, despondently. She could not shake off her superstitious belief in and dread of "bad luck."

Clara called to her from the pantry. "Daddy telephoned, Mother, but I could scarcely understand what he said. The line wasn't working right."

"Oh, Clara, why didn't you call me?"

"Well, I don't believe you could have heard any better, Mother, and he was gone before I could call you. He said he would be late but I could not hear the reason. There was such a buzzing I think there was something the matter."

"'Something the matter,' 'something the matter,'" ran through Dora's mind as she swiftly did the dishes and stacked them away, warm and shining, uopn the cupboard shelves. And then, as if there had not been trouble enough, she remembered more.

"Clara, you said the postman left a letter this morning with the papers, but it was not here when I came in from the orchard. Do try to find it for me, dear, before you go to bed. Hunt hard. Perhaps it was important. Every letter is important until you find out what is in it.'

"I've hunted and hunted, Mother, and I simply cannot find it," replied the girl in a distressed voice. "It was in a yellow envelope, I remember. What could have become of it?"

"Well, we will both hunt. You take this side of the room and I will take the other," said Dora, and they searched through the tall, old fashione secretary, back of the cushions on the sofa, among the few papers left on the stand after apple wrapping—all over the large, well filled living room. Ned, the big yellow collie, ran playfully from one of the searchers to the other, thinking it was a frolic. He thrust his nose into corners, pawed wrinkles in the rug, and then broke into a loud bark.

Dora stopped and listened eagerly, thinking that perhaps the dog heard his master coming, but she could hear only the thunder and the rain.

(Continued next week.)

HINTS FROM HOUSEKEEPERS

Bleaching Letters on Flour Sacks

I like the Cultivator very much. I am sending a quick and thorough way of bleaching flour sacks. After wetting in warm water, rub letters well with Fairbanks Gold Dust until color begins to fade, roll up and drop in good hot soapsuds and let boil a few minutes. Rinse and hang in sunshine or lay on the grass.—Mrs. W. C., Santa Rosa.

Another One.—To remove lettering from flour sacks, shake thoroughly to remove flour. Rub well with soap and saturate with kerosene. Put in a basin, cover with cold water and boil. Then bleach in the sun.—Subscriber, Watsonville.

Slightly Different.—I never have any trouble in removing the lettering on flour sacks. This is my method: Thoroughly saturate flour sacks with coal oil, roll up tight and let remain over night. Make a strong suds of any kind of washing soap and a little lye. I shave soap into cold water, add lye, put in the sacks and boil half hour. All coloring will be gone.—Mrs. Ed Johnson, Comptche.

Removing Stains From Linen

Wet the stains on your linen with sweet milk and then plunge them at once into the tub containing the suds ready for washing. This is an easy and sure way of removing all fruit, even the troublesome peach, and tea and coffee stains. Do not let the milk dry in the linen, but while saturated place at once in the washtub.

Iron rust may be removed from white goods by boiling in water containing cream of tartar, allowing three tablespoons to a gallon.

Tomato stain may be removed from white goods by applying a paste of cream of tartar and water and laying the article in the sun until it is bleached out.—Irene D. Payne, Bakersfield.

Two Conveniences for the Bathroom

A Blacking Box.—A bathroom stool, made of a box on legs, can easily be made to serve as receptacle for shoe blacking and brushes by the addition of a cover which is hinged in the middle. Nail one-half of the cover to the top of the box, and fasten to the under side of the other half an iron foot support. When the cover is turned back the support will be on top, ready for use, while the rest of the paraphernalia will be in sight within the box.

A Convenient Laundry Bag.—I saw this in a friend's bathroom, copied it in my own, and find it just as good as it looked. Out of five yards of denim, cotton challis or other fairly firm material, fashion a bag 45 inches deep and two widths of the goods from side to side. Make slits at the top large enough to pass a broomstick through, rip the seam in the middle of the front for an opening, rest the broomstick pole on two metal brackets just high enough to make the bag clear the floor, and your bag is done. If the pole is stained or painted and material of the bag harmonizes with the room it will be far from unsightly, and it is certainly very convenient.—Jean A. Koethen, Eagle Rock

IN KITCHEN AND PANTRY

To be prepared to start the kitchen fire quickly saves much time and temper, and failure to make the necessary preparations has caused serious accidents from the use of coal oil. To make a good and safe fire kindler, fill tin cans two-thirds full of fine coal or wood ashes. Then pour in coal oil and stir until the ashes are well saturated. One or two spoonsful of the ashes will light one fire. Another satisfactory fire kindler is fine shavings saturated with pitch and pressed into small blocks.

When baking cakes, and eggs are scarce, instead of using the required number of eggs, one or two may be omitted if a tablespoon of cornstarch is used for each one left out, and the cakes will be just as fine and rich as when the full amount of eggs are used, but be sure and use a very little more milk than the recipe requires.

A good way to fix the cheap cuts of beef, also the round steak, is to grind meat in a food chopper, mix salt and pepper to suit taste, and add some dampened bread crusts. Then thoroughly mix, make out into cakes and fry a nice brown. They are excellent and wholesome.

To keep the silver in daily use and the glass and china dishes shiningly clean, wash in warm suds made with dissolved borax chips, rinse in clear water and dry with a soft, dry towel. Try having enough dish towels to use a clean one every time the dishes are washed, then twice a week wash them out and boil in the soap chip suds and they will keep soft and white as long as they last. This hot suds is excellent for cleaning the pantry floor and shelves and for all cleaning in the kitchen.

Bread crumbs and pieces of dry bread dried in the oven and rolled fine can be placed in a glass jar and kept ready for use. They are fine for scalloped dishes, good in baked meat hash and can be made into toast. Strain a quart of tomatoes, add enough crumbs to make a stiff dressing, flavor with onion, sage, pepper and salt to suit taste, pack in a granite dish and bake and send to the table in the same dish it is baked in, and I am sure you will find it very palatable and quite easily prepared, and at no expense if you have the tomatoes.—A. M. H.

HOUSEHOLD QUERIES

Peanut Butter

Can you advise me through your paper how to make peanut butter from Spanish neanuts?—Subscriber, Pomona.

Peanut butter can be readily made at home by putting peanuts through ordinary kitchen food chopper, if it is equipped with the pulverizer knife. Put through chopper first with coarse knife to break in small pieces, then with the finest knife or pulverizer. This pure fresh peanut butter is the product usually sold, but some apparently has had salt added and much of the oil drained off, leaving it rather dry.

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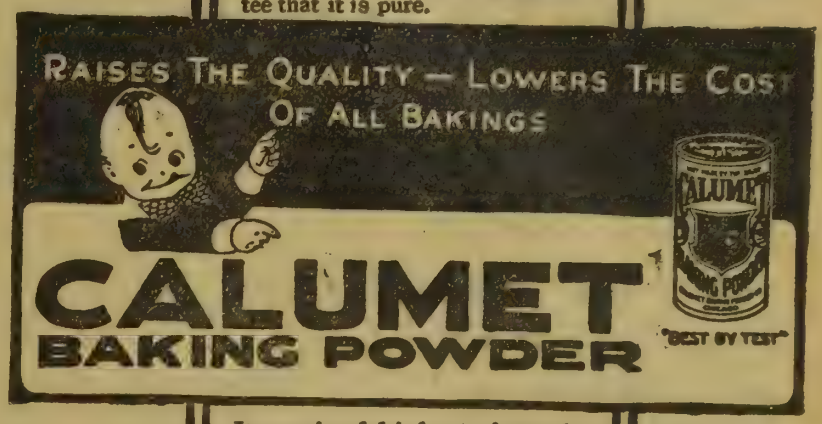

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Pound can of Calumet contains full 16 oz. Some baking powders come in 12 oz. instead of 16 oz. cans. Be sure you get a pound when you want it.

Calumet Cream Cake Recipe

—3 cups pastry flour, 3 level teaspoons Calumet Baking Powder, ½ cup butter, 1¼ cups granulated sugar, Yolks of 3 eggs, ¾ cup cold water, Whites of 3 eggs. 1 teaspoon orange extract. Then mix in the regular way.

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At Sacramento

By R. P. Royce

The agricultural committee of the assembly consists of the following members: Parker, chairman; Beal, Bernard, Broughton, Christian, Cleary, Cleveland, Colburn, Cummings, Kline, McCloskey, Merriam, Powers, Ream, Spalding, West and Windrem.

Senator B. F. Rush has again introduced a bill to restrict the running of dogs at large. The bill is designed to protect livestock men from depredations of dogs and requires that all dogs be licensed by counties. Provision is made for the collection of damages by owners of stock injured by dogs. It is more than likely that the bill will again meet strong opposition from a lot of sincere but misguided folks, and it should be made a special point by all interested in the livestock industry to urge its passage. It will be known as Senate Bill 119.

Senator Rush has also introduced a bill to regulate and supervise race meetings. The bill is calculated to encourage the breeding of race horses and proposes to eliminate gambling by having the control of such meetings in the hands of a state racing commission. The bill provides a penalty for making public the list of entries in any race prior to the race. The bill has the support of the large horse breeders of the state.

Senator Purkitt of Willows has introduced a bill that he says is intended to break up large land holdings in California. The bill would specifically prohibit corporations hereafter from engaging in farming or stock raising and would prevent any existing corporations from engaging in either occupation. A graduated tax is proposed on all agricultural land in excess of 1,000 acres, or grazing land above 2,000 acres. Another purpose of the measure is to prevent the inheritance of large bodies of land and to compel the cutting up of present holdings.

The agricultural committee of the assembly has recommended the adoption of the West resolution, which calls for an investigation of the college of agriculture and the university farm.

The California farm bureau federation is seeking the passage of a measure to regulate the warehousing of grain The bill would place the warehouses of the state under the control of the state director of agriculture. The director is empowered to set standards for agricultural products; to regulate the methods of weighing; to supervise the licensing of warehouse owners; to require such owners to post a bond and pay a fee for examination and inspection of warehouses. The period of the license is for one year. The bill carries with it an appropriation of $50,000.

Duncan has introduced a bill in the senate to prohibit all aliens from owning agricultural land and limiting the leases to such persons to three years.

The California State Irrigation Association will present a bill asking for an appropriation for a survey and investigation of the water and power resources of the state. The association is backing the Marshall plan.

One of the most important agricultural bills introduced in the present session is the one offered by Rigdon, chairman of agricultural committee of the senate, and known as the pure seed bill. The bill proposes to regulate the sale of seed in this state and in substance will guarantee seeds to be free from noxious weeds and other adulteration. Such a bill was passed last legislature, but was vetoed by the governor. It is rather certain of passage this year, as it has the backing of the agricultural organizations of the state.

Certain amendments are planned for the present hide and brand law.

An effort will be made to have the slaughter of meat animals placed under the supervision of the state board of agriculture. Such inspection will not interfere with the government inspection now operating at certain plants engaged in interstate shipment.

WET THAT SUBSOIL

(Continued from Page 99.)

develop sugar content the trees in general took on a withered and ragged appearance. Here and there orchards, particularly of apricots, shed the greater part of the leaves, leaving the bare branches laden with sunburned fruit. Gumming of the fruit, twigs and branches has been worse than in ten years, particularly so with plums and apricots, although the peach has also suffered severely.

At the present time deciduous orchards in general, and particularly in dry farmed districts, are showing weak fruit bud formation for the coming year.

Vines have failed to make a satisfactory growth in many districts and have not ripened up and matured their wood in the usual way.

With citrus trees there have been various symptoms of drouth injury. Internal decline or blossom end rot of the lemon has been more prevalent than ever before and has extended later into the winter. While this trouble is now under investigation and important information may be forthcoming shortly, the writer ventures the assertion that this rather new and serious disease is primarily due to prolonged drouth injury.

The average size of oranges is much smaller than usual both with Navels and Valencias, clearly reflecting scarcity of water. Indeed, in many districts it is doubtful whether Valencias can be brought up to marketable size on account of the unusual smallness of the fruit at the present time. In certain districts Navels are beginning to drop in the same manner as they normally do late in the season, indicating early maturity occasioned by water shortage. A peculiar mottled and pinched condition of the foliage is rather widespread in certain districts where a water shortage has existed all season.

Walnut growers have not been without their troubles due to drouth effects. Crop estimates ran nearly one-quarter over the crop actually harvested, this being due to the unusually high percentage of "blanks," or non-filled nuts. Walnut growers everywhere testify that the percentage of "blows" has been most abnormally high.

Recognizing the signs of injury from abnormally dry subsoils early last spring, the agricultural extension service for Los Angeles County launched an educational campaign for a better knowledge of soil moisture conditions on the part of orchardists through the greater use of the soil auger. Professor J. W. Nelson of the college of agriculture cooperated in conducting field meetings at which more than 1,000 growers were in attendance. The Los Angeles County farm bureau cooperated by financing the manufacture and sale of soil augers to members at cost. Approximately 100 augers were handled by the organization and the campaign resulted in nearly 500 augers being put into use.

There is still need for driving home the necessity for closer attention to soil moisture problems in the orchard. The rainfall to date has not been sufficient to wet the soil down to a depth of more than 15 to 18 inches. The subsoil is dry, drier than has been the case for years. Hundreds of borings made by the agricultural extension service have shown this to be the case quite generally. Spring may be here in six weeks or so with the trees renewing growth for the season.

It is of the greatest importance that these dry subsoils be wet before that time, else serious results must be expected. It will take six inches of good steady rain, all soaking in without any runoff, to accomplish this wetting. We may, perhaps, receive this much rainfall before spring. We may, and probably will not. It is unsafe to wait. Filling that subsoil up now will reduce the amount of water necessary to apply next season.

In most soils the winter season is the only time when the subsoil can be wet thoroughly without endangering the health of the trees. And with most soils it is also the only time when it can be wet at all. Can you afford to take a chance?

Imperial County farming lands of large extent, and to the value of over $600,000, changed hands recently, Los Angeles capitalists being the purchasers.

How Much are YOU Leaving Unharvested?

YOU wouldn't leave actual fruit *on* your trees—yet you are leaving lots of it *in* your trees; unless you bring it forth with

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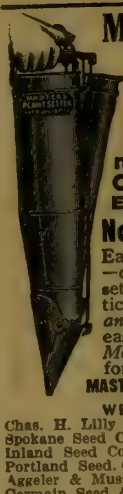

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Herefords

February 23, Pacific Coast Hereford Breeders Association, Davis.

Holsteins

February 3, James J. Jeffries, Burbank.
February 5. W. A. Thompson, Hynes.
March 17, Holstein Guaranty Sale, Sacramento.

Shorthorns

February 22, California Shorthorn Breeders Association, University Farm, Davis.

Hampshires

February 8, Ortega-Underhill Ranch, Santa Barbara.

Poland Chinas

February 15, Bassett, Ross & Crawshaw, Hanford.

February 26, Kings County Poland China Breeders Association, Hanford.

Berkshires

February 1, Italian Vineyard Company, Guasti.
February 3, A. B. Humphrey, Escalon.

Durocs

January 24, Glenn County Duroc-Jersey Swine Breeders Association, Glenn.
January 29, C. C. Ellis, Tulare.
February 5, California Duroc-Jersey Breeders Association, Davis.
February 16, Diamond Bar Ranch, Spadra.
February 17, Falfadale Farm, Perris.

Percheron Horses

February 17, M. Bassett, Hanford.

Elmer Lamb, one of the pioneer breeders of Durocs in this state, has sold the remainder of his herd, except Mary Jane Pathfinder, to E. G. Stone of Modesto, who has leased his ranch. Mr. Stone is a new man in the pure bred business, but is an old timer at hog feeding. He will be cordially welcomed by the Duroc men. Mr. Lamb's health failed about a year ago and he now plans to spend some time touring the state with his wife and daughter. He may also visit the East during the coming summer.

Anoakia Walker Pontiac, the Santa Anita heifer who broke the seven day record for senior two year olds, also broke the 30 day record for the same age when she made 102.81 pounds of butter from 1,898.3 pounds of milk. The former record of 102.38 pounds was held by Miss Valley Mead De Kol Walker and was also made at Santa Anita before she was sold to A. W. Morris & Sons.

Carl Fuechter of Sonora, Mexico, has purchased from The Lewis Company of San Jose, a good son of their herd sire, Ormsby Segis Marie Lad.

Poland China breeders of the state will regret to learn of the death of W. A. Young, Lodi, from heart trouble, January 9. Mr. Young was one of the pioneer breeders of Poland China hogs in the state and was for many years quite prominent as a showman, winning many prizes at the various fairs. He was very enthusiastic and no doubt helped start as many new men in the business and as many good herds as any one man in the state.

J. P. Walker, Visalia, recently purchased ten September yearling Duroc gilts from Conejo Ranch, Newbury Park, some of the best to be found in any one herd in the state, and quite an asset for any breeder to own. Like most of the progressive breeders of the state, Johnny Walker reports business improving. He has made quite a number of good sales recently and has had to make several purchases to fill orders.

The catalog for the big dispersal sale of Durocs at the Falfadale Ranch is ready for mailing. The sows and gilts booked for the sale are in excellent shape and most of them will be heavy with pig on February 17 when they go into the ring. The champion boar, Great Orion Sensation Junior, doesn't seem to be worrying much as to where he will live after that date. He knows he is so valuable that whoever buys him will see to it that he has every comfort. It is going to be a great sale.

The 1921 Holstein Guaranty Sale will be held at Sacramento on Thursday, March 17. It was originally planned to hold this sale at Tulare, provided the proposed new hotel was completed there, but the hotel has not yet materialized. According to announcement of California Holstein-Friesian Association the entries this year will be limited this year to not over 60 head. In females only cows and bred heifers will be selected, and there will be only a very few outstanding young bulls. The committee of selection appointed by President F. L. Morris is composed of G. M. Brown, Los Angeles; Alex Whaley, Tulare; H. V. Bridgford, Patterson, and C. L. Hughes, Sacramento. This committee has also been instructed to select cattle in California only from the herds of members in good standing of California Holstein-Friesian Association.

Princess Boweda Alcartra, a junior two year old Holstein heifer, owned by Sunnybrook Ranch, Willits, has just completed a seven day record of 21.029 pounds of butter from 538.5 pounds of milk. The above record was made in the third week of strictly official 30 day test. The first week of her test she made 20.47 pounds of butter from 450.5 pounds of milk. This promising heifer is a granddaughter of the 37.52 pound cow, Boweda, formerly owned by the Bridgford Company of Patterson and now owned by the Carnation Stock Farms, Seattle. Herdsman Gelder expects to put the dam on test as soon as she freshens in March.

The California Duroc-Jersey Breeders Association has decided to hold the annual sale of bred sows and gilts at the university farm, Davis, February 5. The association has discarded plans for holding sales at Tulare and Los Angeles. A special effort will be made to assemble an offering of extreme class and in order to do so the leading herds will be called upon for entries. J. P. Walker of Visalia, secretary of the association, is in charge of the event.

Another good seven day record has been made in the Jane Garden Holstein herd, owned by Fred W. Kiesel of Sacramento. Sterlin Colantha Duchess, a senior three year old, has a production of 27.94 pounds of butter from 424.2 pounds of milk to her credit. Herdsman Harry Redd reports that the 34 pound cow Mansell Korndyke Francis has produced 93.26 pounds of butter from 1,541.2 pounds of milk in 20 days. Thirty-eight cows are now on semi-official test in the Jane Garden herd.

Eighteen Holstein, Jersey and Ayrshire bull calves owned by members of the Petaluma Calf Club were sold at auction, January 12, for an average of $262.50. The top calf sold for $700. Col. Cy N. Clark of Modesto was the auctioneer. Plans are now being made for the formation of a club to develop heifer calves.

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Caledonia Shorthorns constitute one of the choicest collections of the breed owned in America. Our herd bulls, Imp. Caledonia, Gainford Matchless, grand champion at the 1919 San Francisco show and Pine Grove King stand out prominently in the West. Our females represent choice Scotch and American families, and are noted for their type and quality. We can at all times furnish foundation material and bulls suitable for any herd or for the range. Our prices are moderate and every animal is guaranteed. Visit our farm and herd. Send for special bull list.

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Under the Auspices of
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Will be Held at
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Tuesday, February 22, 1921
Some Splendid Cattle Have Been Listed in this Sale
50 Bulls — SHORTHORNS — 25 Heifers
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HOLSTEIN CATTLE

R. M. Smith, Supt. Marinette County Asylum, Peshtigo, Wisconsin, writes:

"I am thoroughly convinced that the Holstein cow is the greatest Institution cow in the world. That is one place in particular where the Holstein cow is superior. She saved this Institution, saved my reputation as to judgment.

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The Holstein-Friesian Association of America
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The Cow and the Man

ONCE upon a time a little girl and her mother were making a visit, the first one for the little girl, in the country. The housewife thought perhaps the child had not been favored with milk with any excess of cream, so she made a special point of giving her a glass of particularly rich milk. It was barely tasted and left in the glass. The mother asked the child afterwards why she did not drink it, and the child replied: "It was so yellow; not nice and blue like our milk in Boston."

There are a good many "farmers" in California, recently here from professional life in the East, whose knowledge of a dairy cow is about on a par with that of the little Boston girl, so we have asked for some hints or first reader lessons in the care of the family cow from R. A. Condee, instructor in agriculture in the Ontario Junior College of Agriculture, also director of agriculture of the George Junior Republic near Chino. Mr. Condee is too busy a man to sit down and write as we know he can, but he has given us a few notes from which we gather the following:

First, the cow cannot make milk without water. Some people have an idea that the purity of the water has nothing to do with the purity of the milk. Presumably the cow's digestive apparatus is so arranged as to eliminate impurities, but there are limits, and it is just as easy to keep a supply of pure water before the cow at all times.

Thousands of cows in California are never under shelter from sun or rain, and they do well, for our climate is mild. Yet there are seasons when protection from the sun's rays and attacks of flies is essential if one expects fullest return from a faithful creature. If the shed or stall is not dark enough to give the animal protection from flies, some help may be had from fly repellents, of which there are several very satisfactory ones offered by the trade. Again, protection from a norther, or driving rain, will result in saving expensive feed from being used up as fuel.

In the matter of feed nothing is quite as good as alfalfa pasture, but one warning is necessary there, and that has to do with bloating. A hungry cow turned on dripping, lush alfalfa is very likely to bloat, and in severe cases of bloat there is danger of sudden death. Some cows seldom bloat, but where they do or where their tendency in this direction is not known, they should be kept from the field until the sun has had an opportunity to thoroughly dry and even partially wilt the grass. In case of pasture, or where fresh alfalfa is available, it is not necessary to give such close attention to the cow before calving time, but if she has been kept on dry hay there should be care in giving laxative feeds and proper conditioning for a couple of months. A ration suggested by Mr. Condee consists of equal parts ground barley, bran (wheat), soy bean meal and cottonseed meal, feeding about one pound to each 200 pounds weight of cow. An 1,800 Holstein would have nine pounds of this grain ration, while a 900 pound Jersey would receive 4½ pounds of grain ration per day, all the alfalfa hay she will eat, and if possible 10 to 15 pounds of cut stock beets.

A cow must be in good physical condition before calving, but must not be over fat. She must start her lactation period with enough (grain) flesh to carry her through the first 60 days of her heaviest producing period.

After the cow freshens leave calf with her for 24 hours, then remove calf and milk out the cow, being careful not to strip her at this time. In six hours after calf is removed milk her out, being sure to examine her bag, and it is well to rub thoroughly with camphorated vaseline. Milk can be used after the ninth milking. Start feeding by giving a good feed of chopped beets and let cow have all the alfalfa hay she will eat. Start grain feed on the third day after feeding, and up to seventh day, feeding 1 pound grain to 10 pounds milk produced—following ration: 100 pounds bran, 50 pounds corn meal, 50 pounds beet pulp, 20 pounds cottonseed meal, 80 pounds ground barley, 3 pounds charcoal.

After the seventh day feed any standard mixed dairy feed or the following ration: For every four pounds of milk give cow 1 pound of grain feed, with what alfalfa hay she will eat, cut beets, 25 pounds, or silage, 25 to 35 pounds, daily.

Home Mixed Grain Ration

(Salt before her at all times.) 200 pounds bran (wheat), 100 pounds corn meal, 100 pounds beet pulp, 100 pounds cottonseed meal, 100 pounds soy bean meal, 200 pounds rolled or ground barley, 4 pounds charcoal.

A MODERN WAY OF MILKING

By N. J. Daysh

A LOSS of $200,000,000 a year, or $10 per cow, is the estimated toll that the dairy farmers of this country are paying for poor hand milking. The question naturally comes to every thinking mind, why spend money for expensive breeding, feeding and housing if the full benefits are partially lost in the act of extracting the milk? There can be but one answer—the modern milking machine, which will not only check this loss, but will save a great deal of time as well.

Dairymen know that a cow is an extremely temperamental animal and that she quickly reacts to abuse, harsh language, and any adverse conditions to such an extent that her milk flow is greatly diminished. However, it is not so well known that apparently little things, such as a change of hand milking, a change in time of milking, or a variation in the speed of milking, also cut down the flow of milk.

Dr. Babcock, the great dairy authority, proved this some years ago in exhaustive experiments on many cows in Wisconsin. During these tests milkers were changed frequently, cows were milked fast and slow, and every condition that exists on the average dairy farm was approximated. Observations made of the variations in the flow of milk from day to day because of improper milking caused Dr. Babcock to make the statement that the dairymen of Wisconsin were losing $19,000,000 a year, or $10 per cow. Dr. Babcock's experiments proved that good milking increased both the quantity and the fat content of the milk produced.

Hand milking is a job which is disliked by farm hands, and boys leave home on account of it. Indifferent milking is to be expected under such conditions. But even good hand milkers cannot milk with machine like uniformity from day to day, hour to hour, and minute to minute. It is humanly impossible. Hands get tired, moods vary, and when a milker is irritated he is bound to take it out on the cow. Then there is the constant hurry to get through, as milking is the first task in the morning and the last one at night. When all these things are considered it is not surprising that even under the best of conditions cows are not milked with absolute uniformity. And it is this lack of uniformity which is costing our dairy farmers $200,000,000 a year in decreased milk production, to say nothing of the loss in time as compared with milking by perfected mechanical milkers, which may be worth an equal amount.

Heretofore the chief argument for the use of a mechanical milker has been the time saving feature, convenience and means of keeping the boys and hired help satisfied. This is all true, and the saving of time alone is enough to justify the purchase of a good milker. The fact that it saves time twice a day, every day in the year, is more than can be said of any other farm machine, with the exception of the cream separator, and many of these other machines cost more than a milker.

A correctly designed mechanical milker is not merely just as good as hand milking—it is better.

To make a mechanical milker that would be positive and uniform in ac-

Jas. J. Jeffries Dispersal

65 Registered Holsteins

Jeffries Ranch
Burbank, Cal.
Thursday, Feb. 3, 1921
at 10 A.M.

Featuring one of the highest quality offerings of high record, richly bred Holsteins of outstanding type ever submitted to the Western Public.

K S P J PET SEGIS

KING SEGIS PONTIAC JANNEK, the famous Jeffries herd sire, will be sold. He is only six years old, straight and right in every way, and a proven sire of outstanding merit.

A few of the other individuals and groups include:

BARRON ANNABEL LILITH, 38.28 pounds butter in 7 days, now making a big yearly record. She is the highest 7 day record cow ever sold in California. Two of her daughters and one son, all of King Segis Pontiac Jannek, are in the sale.

MAID TUEBIE SEGIS, 1,140.95 lbs. butter in one year. She is the highest yearly record cow ever sold in California. Her splendid young son by King Segis Pontiac Jannek also sells. A real herd bull for someone.

K S P J PET SEGIS, the wonderful heifer whose picture appears above. She was Grand Champion at Los Angeles, 1920, holds the California records for a junior 2 year old for milk in one day, seven days, and 30 days, milking 99.6 lbs. in one day with first calf. Now making a great yearly record.

DE KOL PET SEGIS, dam of the Grand Champion, now making a big yearly record. Her son also sells, a full brother to the Grand Champion, and himself a show bull.

SEVEN 27 TO 30-POUND COWS, several on yearly test, and practically all of them have one or more beautiful daughters by King Segis Pontiac Jannek in the sale.

MANY OTHERS with records up to over 25 lbs. butter in 7 days, great individuals and splendidly bred.

THIS IS POSITIVELY ONE OF THE RARE OPPORTUNITIES TO SELECT FROM A HERD OF HIGH UNIFORM QUALITY.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer except as announced in sale ring.

Catalog free on request

Auctioneers:
Rhoades & Rhoades
Los Angeles

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

tion at all times and still embody all features necessary to successful milker operation has required many years of experimentation. If all the milk were secreted and held in the cow's udder before milking, its extraction by a mechanical milker would be very simple, and the problem would have been solved many years ago. A pump would do the work. However, approximately 85 per cent of the milk is secreted or manufactured during the process of milking. Unless the method of milking is uniform and pleasing to the cow, secretion is interfered with and she holds up her milk, and if this is done repeatedly an early drying up of the cow or a congestion of her udder and injury results. Briefly, that is the problem that has been solved.

The use of the right milking machine will result in increased production of milk, a saving in time, and will eliminate one of the greatest drawbacks to dairying—hand milking—all of which will bring greater profit and pleasure to the dairyman, elevate and stimulate the entire industry, and benefit all humanity by abundant and clean supplies of man's best food.

BACK TO LIVESTOCK—AND SAFETY

(Continued from Page 101.)

duced on the place as possible, in order first of all to conserve the soil fertility and, second, to furnish a market for grain and roughage. There will be times when grain feeding is not profitable, but if one "sticks to his last" over a period of years he will come out all right.

Year in and year out nearly every ranch of sizable acreage produces more or less feed in the form of grass and roughage and waste that could be put through livestock at a profit.

The majority of our ranchers who have grain in storage (some have crops for several years in storage) would not be so strictly up against it as they are just now if, instead of putting all their eggs in one basket, they had diversified their operations sufficient to handle some livestock.

Any community or group of producers that depends solely on one primary crop; barley, beans, wheat, rice, or cotton, even alfalfa, has deliberately placed itself at the mercy of the market. Take, for example, the barley situation at present. Warehouses from one end of the state to the other are loaded to the roofs. There is practically no market. Now and then we hear of small sales ranging from $1.10 to $1.30. No one knows just what to expect, but all know that the crop must move eventually. Incidentally, barley is relatively higher than corn, so it won't go East for feed. It is too much to expect that much will be exported. The grain buyers know very well that the owners haven't livestock to feed and they can bide their time in buying. Now it so happens that barley can be put through hogs at present prices and have a value of above two dollars. If our ranchers had the hogs they could find a market for their grain and at the same time materially reduce the surplus and by so doing greatly relieve the market.

Furthermore, the average grain rancher hardly knows which way to jump just now. Only this morning an extensive grower was talking to the writer and made the following remark: "For one of the few times in my life I don't know what to do. I've got over a thousand acres that have got to produce this year, but I can't figure what to plant. My barley hasn't sold, and it looks as though barley won't pay next year. My bean crop was a total loss—the early rains got the beans—and I've about had my fill of beans anyway. I'll probably sow some alfalfa to take the place of what I plowed up to grow grain during the war. I've got some cattle, but I haven't got enough. I've tried to locate some feeder hogs, but they're not to be found. I've learned my lesson, though, and from now on I am going to keep more livestock. I've always got more or less grass and roughage that would otherwise go to waste, and I might as well turn it into cash."

On my desk is a letter from a well known hog feeder who took a flyer in rice, and he closes by writing: "From now on I guess I'll stick to cows and hogs; they're a little slower but they are pretty sure."

I know of other livestock men who took their flyers in speculative crops who say "Never again," and I have heard any number of grain growers make statements to the effect that they intend to depend to a greater extent on livestock.

So it goes up and down the state; more and more men are figuring on the possibilities of livestock, and it is more than likely that during the coming year many men will either make a start with or reengage in livestock.

To those men who go in to stock raising it is of the greatest importance that they start right. They should realize that the keeping of any kind of livestock is not an easy road to travel. There is a difference in cattle, either beef or dairy, in hogs and in sheep. Some are good, others inferior. The good sorts will pay a profit under most conditions; the inferior kinds will make a loss. No man can afford to handle inferior stock of any kind. A good many men seem to think they can, but their bank rating tells the story. Good livestock will cost more than the other kind; it is worth more. Try to get the best. Try to get pure bred sorts, not with the idea of becoming a breeder, but because pure bred stock of any kind is more efficient—contrary to what a lot of your well wishing friends might tell you. The ownership of pure bred animals does make one eligible to be a "breeder," but it also carries a certain responsibility and that responsibility concerns proper care. Good blood will respond almost in direct relation to the care it receives. Care does not mean "hothouse" methods, but rather providing proper feed, exercise, sanitation and reasonable shelter.

With wider use of good livestock California agriculture will be on a more permanent and satisfactory foundation than we can claim at the present time.

NATIONAL TRACTOR SHOW

The American Society of Agricultural Engineers, with the cooperation of practically every university of the country, will present a unique educational exhibit at the sixth National Tractor Show, to be held at Columbus, Ohio, February 7 to 12.

Unlike all previous tractor shows, this event is stressing heavily the educational and service features, being the first of its kind in which educational institutions are so vitally interested. Selling will have no part in the week's program, as it has had in previous shows of the kind. E. E. Whaley is manager of the show.

Great Orion Sensation Junior

Grand Champion at Tulare, Los Angeles and Riverside and Reserve at the State Fair, and sire of many prize winning pigs. Will positively be sold in the

Mammoth Dispersal Sale

FALFADALE FARM DUROCS

FEBRUARY 17th

40 sows and gilts by Pathfinder, Pathfinder's Likeness, Winsor's Giant Orion and other great boars will sell bred to the Grand Champion. Also a bunch of his spring and fall pigs.

The Greatest Chance of the Season.
Write Today For Catalog.

Falfadale Farm
Perris, Cal.

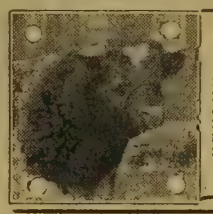
Col. G. W. Bell, Auctioneer B. H. Wilkinson, Mgr.

Maxwell Farms' Holsteins

Sir Ormsby Skylark
Sire of the World's Champion Cow

The fountain head of the Ormsbys with over 50 daughters of Sir Ormsby Skylark in the herd which has two sons of Sir Pietertje Ormsby Mercedes at its head. Write for our sales catalog of service bulls.

D. G. Maxwell, Owner
Garden Court, Hollywood, Cal.



CHANGE IN RULES

No animal over two years of age will be accepted for registry in the American Shorthorn Herd Book after February 1, 1921, or in the case of animals imported from Great Britian or Canada two years after date of importation. After January 1, 1921 a fee of $5 will be charged for entering the pedigree of an animal between one and two years of age. Formerly the charge was $10. Seller must furnish transfer and pay transfer fee. Twin animals must be entered for registry at the same time.

AMERICAN SHORTHORN BREEDERS' ASSOCIATION
13 Dexter Park Avenue Chicago, Ill.

When Writing Advertisers Mention California Cultivator.

Absolute Dispersal---W. A. Thompson Herd

66—REGISTERED HOLSTEINS—66

Rhoades & Rhoades Sales Pavilion, Hynes, Cal. Saturday, February 5, at 10 A.M.

This will be an absolute dispersal of the herd owned by W. A. Thompson, Holtville, California, and contains a large number of females of most attractive breeding, as well as a number of young bulls of like breeding. Included in the sale list are

A DAUGHTER OF KING MEAD OF RIVERSIDE, out of a half sister to Tilly Alcartra that made 933.49 lbs. butter from 22,675.2 lbs milk in one year.

A DAUGHTER OF PRINCE GELSCHE WALKER, with 722.68 lbs. butter from 16,142.9 lbs. milk in one year as a junior 2 year old, her dam with 842.85 lbs. butter in one year. Her daughter by King Morco Alcartra, son of Tilly Alcartra, also sells.

A DAUGHTER OF PRINCE GELSCHE WALKER, with 18.25 lbs. butter in 7 days as a 3 year old, her dam a yearly record daughter of a 22 lb. cow.

A DAUGHTER OF KING MEAD OF RIVERSIDE, out of the above daughter of Prince Gelsche Walker.

A 27.86 POUND COW and her two daughters, both by King Morco Alcartra, Jr., who is by King Morco Alcartra and out of a daughter of Aaggie Acme of Riverside.

A 22 POUND GRANDDAUGHTER OF KING OF THE PONTIACS, and her daughter by King Morco Alcartra, son of Tilly Alcartra.

A GRANDDAUGHTER OF KING SEGIS PONTIAC, out of a yearly record daughter of a yearly record cow, and her two daughters by King Morco Alcartra, Jr.

A GRANDDAUGHTER OF ARCADY CORNUCOPIA JOHANNA LAD, out of a 25 lb. dam.

A GRANDDAUGHTER of the 820 lb. yearly record cow Heg Rector 2nd, and her daughter.

A DAUGHTER OF A 32 POUND COW that milked 723.4 pounds in 7 days.

A DAUGHTER OF KING MORCO ALCARTRA, out of a 17 pound junior 2 year old daughter of Prince Gelsche Walker, second dam a yearly record cow with 795.11 pounds butter from 17,591.5 pounds milk.

MANY OTHER COWS with official records up to over 21 pounds butter in 7 days.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER EXCEPT AS ANNOUNCED IN SALE RING.

Catalog of Sale Free on Request to Management

Auctioneers:
Rhoades & Rhoades
Los Angeles

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

Your Chance for Better Berkshires

We are offering the greatest collection of Big Type Berkshires ever together in one sales ring.

35—Bred Sows and Gilts—35

Daughters of

Real Type Baron Duke 201 Laurel Champion
Superb Emblem Big Leader
Ames Rival 100-102-116-118

and other Berkshire boars of note. The sows are strong in the blood of show winners and many of them have enviable show records. They are bred to our great herd boars:

Winona Leader Champion, the litter mate to the famous boar Laurel Champion's Best, out of a Grand Leader 2nd sow.

Rincon Leader, a son of the great Grand Leader 2nd, the grand champion of the P. P. I. E. and out of a litter sister to the dam of the world famous boar, Real Type.

Model Leader 3rd, a double grandson of Grand Leader 2nd and a litter mate to Grape Wild Rose 6th the undefeated Coast champion sow in 1920.

Bred Sow Sale
February 1

under cover at our ranch 40 miles east of Los Angeles on paved highway through Pomona.

Our entire herd is tuberculin tested and cholera immune

CATALOGS NOW READY

If you want the real big type Berkshires with high backs, deep sides and good bone and feet, you cannot afford to miss this sale. Alex Wilson is sacrificing a lot of sows he could use in his own herd in order to make his first sale a good one. You can profit at his expense if you plan to buy now.—Jack Klein.

Italian Vineyard Company

GUASTI, CAL.

Alex. M. Wilson, Supt. Jack Klein Represents the Cultivator
Col. Ben A. Rhoades, Auctioneer

Mail bids will receive every consideration and honest treatment

Rhoades & Rhoades

Expert Livestock Auctioneers

Col. Ben A. Rhoades Harold B. Rhoades

Sales conducted in all parts of California and adjoining States

REG. DAIRY CATTLE

REG. BEEF CATTLE

We conduct sales of grade dairy cattle and general farm sales in all sections of California. Absolute satisfaction guaranteed. Forty years of successful sales in California and thousands of satisfied customers.

A completely equipped Stockyard and Sales pavilion maintained at Hynes, California.

Write, phone or wire for dates and terms.

RHOADES & RHOADES

1501-3-5 So. Main St. Los Angeles, Cal.

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

HAMPSHIRE SWINE RECORD ASSOCIATION GROWS

During the year ending June, 1920, the American Hampshire Swine Record Association increased its membership 14,300 persons, 6,666 of these new members being in the state of Iowa alone. This increase shows a remarkable interest in the black hog with the white belt.

Known originally as the "Thin Rind," they were imported to the United States from England. The Hampshire originated in Scotland and drifted from there down into Hampshire, where they were taken up in earnest, and by selection and breeding the type greatly improved. In order to distinguish them from the heavy hided, fat hogs in vogue at the time in this country, the original importers of the Hampshires made much of the thin skin of their chosen breed, and the first record association founded at Earlanger, Kentucky, was called the American Thin Rind Association. This was later merged into the present record association. On account of the tenderness and edible quality of their meat these hogs were raised for meat rather than for fat, the thin rind being noted among all other breeds of that day for "a streak of fat and a streak of lean," which packers now days call "marbled," clear to the rind. This characteristic, retained through all the intervening years, together with their great length of body from shoulder to ham, make these essentially a bacon producing hog.

The Hampshires have been great winners in all shows in the barrow and dressed hog contests in competition with the other breeds. They have been successful in the car lot classes at the Chicago International for the past three years.

There are a number of very substantial herds of Hampshires in California now, including the O. U. R. herd at Santa Barbara, the Llano Vista herd at Perris, the Fairbanks herd at Redlands, the Tarzana herd at Van Nuys, and the Rio Hondo herd at Compton.

The California breeders are very progressive and are evolving a type of Hampshire that will have good bone and feet to go with the long deep sides which are so well known. Great strides in the improvement of the breed are being made by these up-to-date Westerners and the Hampshire Association will undoubtedly have many new members out here as well as in the East.

BASSETT, ROSS AND CRAWSHAW SALE

On Tuesday, February 15, Messrs. Bassett, Ross and Crawshaw, Hanford, will sell 25 bred Poland China gilts selected from their three herds. This will be a choice offering and deserves the support of the Poland China breeders of the state. The sale will be held at the fair grounds. In the forenoon Mr. Bassett will sell 20 high class Percheron horses — stallions, mares and geldings. This sale marks Mr. Bassett's retirement from the horse business, in which he took a great interest and was very successful.

THE C. C. ELLIS DUROC SALE

C. C. Ellis of Exeter has gone steadily forward laying the foundation for a real herd and getting ready for the prosperous times ahead. Mr. Ellis has not only one of the largest herds of Durocs in the state, but one of the best. He recently purchased the entire herd of Durocs from E. Avery Newton of Lankershim. He has selected 40 top sows and gilts from this herd and his own to put in the sale at Tulare, January 29. This is one of the most useful lots of females to be found anywhere and will make money for the buyer. Mr. Ellis deserves a lot of credit for his efforts and the Duroc men should give him their support in his first sale.

Much of the stock offered in this sale are prize winners and practically all are from prize winning blood. There are champions and grand champions and more of firsts and other good money winners. In one small bunch there are winners of seven firsts in Ventura and Owensmouth fairs of 1920, and in the same bunch there are others who were winners in '18 and '19 fairs. Best of all, the herd boar, Uneeda Orion B, has made something of a record through his pigs which have been winners at various fairs in California. At the Glenn County fair this last fall 11 of his pigs were in the money.

HOLLOW-HILL FARM
COLTON, CALIFORNIA

G. W. Wilder, Proprietor

Guernsey Dairy Cattle Duroc Jersey Hogs

December 31, 1920,

To the Editor,
Livestock Department,
California Cultivator,
Los Angeles, Calif.

My Dear Sir:

I thought you might be interested to know that since we have been advertising in the California Cultivator the Guernsey pure bred females and Guernsey grade females for sale, within the last three weeks we have sold three pure bred females at an average price of $1,083.33, seven pure bred bull calves at an average price of $321.42, nine grade female cows at an average price of $317.77, and 13 grade heifers at an average price of $183.84. The men who have bought pure bred Guernsey sires and Guernsey females include: B. F. Bowen of Riverside, Hans Mortenson of Santa Rosa, Alfred Peterson of El Centro, Walter Young of Artesia, B. H. Fish of Santa Barbara, B. M. Lederer of Chino and W. E. Bush of the Canada Vista Rancho of Covina, H. J. Fay of Anaheim.

I thought you would like this information.

Yours sincerely,
B. W. SHAPER, Bus. Mgr.

S:E

T B TESTED HOGS

The Italian Vineyard Berkshire herd is one of the very few herds of tuberculosis tested hogs in the country Believing that hogs are particularly susceptible to tuberculosis and wanting his herd to be free if possible, Superintendent Wilson had the entire herd tested. Members of this herd have come from all over the country and out of all sorts of conditions, but the number of reactors was very small and happily only a couple were from among the sows bought for foundation stock.

Tuberculin testing of hogs is a courageous act as the law requires every hog that reacts to the tuberculin test to be branded, which of course renders it useless either for a breeder or for pork. All the sows in the big sale on February 1 are tuberculosis free and cholera immune.

TUOLUMNE WATER RIGHTS

Tuolumne County irrigators are fighting for their rights as to water and the rates which shall be paid for it. Appropriations of water were made with the declaration that they were to be dedicated to agricultural and mining purposes in that county. It has been suggested that certain ditches be abandoned and that the rate per inch be increased. The matter of power house construction also enters into the contention, to all of which there is no objection providing "a stipulation is first made that Tuolumne County water users will be fully supplied with good service." There will be hearings before the railroad commission at Sonora on January 25.

OPEN NEW SALES PAVILION

Over a thousand dairymen and their families, a perfect Southern California day, a herd of grade Holsteins that averaged over $190 per head; Senor Jose Romero, the famous Spanish barbecue chef were the high lights of the opening sale at the new Rhoades & Rhoades Stock Yards and Sale Pavilion at Hynes, on January 14. Over 400 machines parked about the place.

A peculiarity of the dairy industry in Southern California is the fact that only a very small percentage of the heifer calves are raised, which necessitates the shipping in of outside cattle to replenish the dairy herds. To give the shippers a convenient location to handle such shipments, Rhoades & Rhoades of Los Angeles have built what is without a doubt one of the finest and most completely equipped privately owned stockyards and sales pavilions in the United States. The yards are located at Hynes, 16 miles south of Los Angeles in what might be termed the heart of the dairy center. Within a radius of 15 miles a large proportion of the whole milk supply of Los Angeles is produced. The sales pavilion is completely enclosed with plenty of windows for light and air, large exits in case of fire, comfortable seats and a perfect ring for the showing of cattle. The lighting system is very effective and the acoustic properties of the building are extremely good.

In addition to the handling of dairy stock another building for horses, mules and the housing of farm machinery has been provided. The facilities of the stock yards and the sale pavilion not only appeal to shippers but to local dairymen as well as many of them remove their cattle to the yards and hold sales there in preference to their own farms. People interested in dairy cattle may now avail themselves of the opportunity to inspect this plant as well as the great herd of registered Holsteins at the W. A. Thompson dispersal sale to be held there on February 5.

SAYS FARMERS WANT HOGS

"Sentiment seems to be growing among farmers that it is now time to return to the business of producing pork. Evidence is found in the recent sales at which most of the buyers have been farmers," says Bruce S. Bennett, formerly of the Western Berkshire Congress, who goes on to say: "Feeds are cheaper and in many localities skim milk is going to waste for lack of sufficient livestock to consume it. The farm bureau auction sales of fat hogs show a strong demand for top butcher's hogs. To the farmer who desires to make a new start in the hog business and prefers Berkshires the sale announcement of A. B. Humphrey, owner of Grape Wild Farm, Escalon, will be of interest. On Thursday, February 3, he will sell 30 sows and gilts, all of which will be bred to one of their herd boars. No fancy prices are expected and he is willing to accept whatever price the farmer believes he can afford to pay for a good sow or gilt." The sale will be held on the farm, near Escalon, and will start at 1 p. m. Previous to the sale lunch will be served. Col. John A. Davis of Manteca will be the auctioneer.

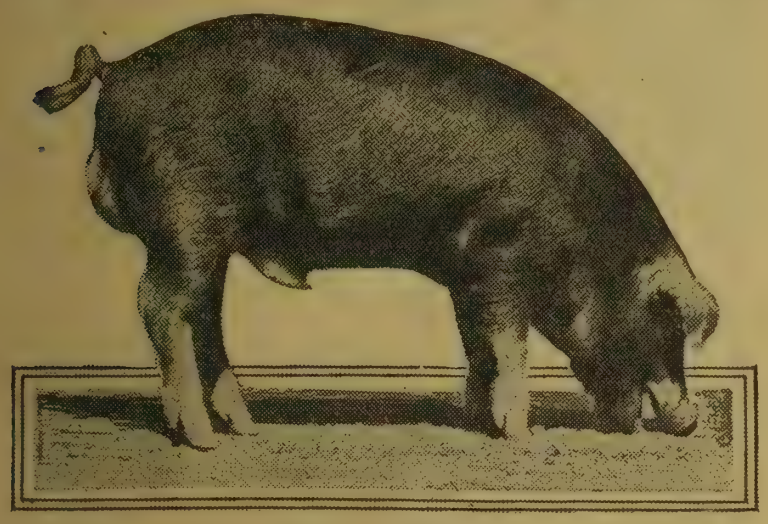
MORRIS COW STILL GOING STRONG

Miss Aaggie Acme Burke, dam of the $41,000 bull, King Korndyke Pontiac Acme, now on test in the Morris herd at Woodland, is just now hitting her stride and has made a notable increase in production for seven days since our announcement in the issue of January 8. As we go to press she has to her credit 35.22 pounds butter from 726.3 pounds milk in seven days, with a possibility of further increase.

CHERRY PATHFINDER

The young Duroc-Jersey boar recently sold by the Diamond Bar Ranch of Spadra to W. P. Hodge, Hinkley, is undoubtedly one of the greatest sons of the champion, Ace of Pathfinders, and made a wonderful record as a show boar last fall, winning first junior boar pig at both Los Angeles Livestock Show and Riverside Fair.

Cherry Pathfinder represents the type modern Duroc breeders are trying to produce. He is high and very straight sided, tall, long, smooth and has a very high arched back. He comes from a remarkable family, four pigs out of his litter winning 16 firsts, two thirds, one junior championship and two reserve championships at Los Angeles, Riverside and Sacramento last fall. The first prize sow out of this show litter will be sold in the Diamond Bar Ranch bred sow sale, February 16, at Spadra, and will undoubtedly prove one of the attractions of the sale.



Cherry Pathfinder

STATE HOLSTEIN ASSOCIATIONS TO SPEND $85,000

Approximately $85,000 will be spent during 1921 by various state Holstein associations in the interests of their members to develop and promote the dairy business in their respective territories.

The national body of the Holstein Friesian Association of America has put the real punch into the state associations during the past year. The idea was conceived about a year and a half ago by R. C. Pollock of the extension service of the national association.

Most state organizations lack only the funds to go ahead and develop within their own boundaries better business methods in improving their herds and disposing of their surplus stock.

Veterinary

Calf Poisoned

Ten months old pure bred bull calf got out of corral and when we got him back in the evening he was blind and lame, digestive troubles set in and he came near dying. Veterinarian was able to cure him of all but the blindness and said that it would soon leave him. But it hasn't, although he eats well and appears well. Is there anything we can do for it? Would it be good policy to use him for breeding purposes next year if he is still blind? —Subscriber, Fallon.

The trouble you mention with your bull calf was probably due to plant poisoning of some kind which caused, as you state, digestive disorders. It is rather difficult to recommend any treatment for correcting the blindness which has resulted, and even though he appears to be normal in other respects I do not think it would be wise to keep him for breeding purposes unless he is a particularly valuable animal. You would probably be better off in the long run to sell him to the butcher and purchase another bull calf of his age, if you desire.

REASONABLE EXPLANATION

"Why is there so much interest in a minimum wage?"

"Dunno," said Uncle Pennywise, "unless it's because so many people are trying to qualify for it."—St. Louis Globe-Democrat.

Have you planned your work so that you can take an invoice of the farm? Start account books and if you have not already done so it would be advisable to get some cooperative insurance on your farm buildings and animals at the earliest opportunity.

BREEDING DATE BOOK--FREE

We have issued a convenient little book for the keeping of breeding dates of cattle, hoping to aid the breeder and cattle owner in maintaining accurate records. We will gladly mail you a copy free if you request it. A postal will do.

CALIFORNIA BREEDERS SALES AND PEDIGREE CO.
C. L. Hughes, Sales Manager
Sacramento Cal.

USE SHIRE POWER

The cheapest and best power that any farmer can use. Shire mares will raise as good a colt when working as when idle. Breed your mares to Shire stallions, the young stock will make you a very good profit. For information on Shires write:
W. G. Lynch, Secretary, American Shire Horse Association, Box H, Tonica, Illinois.

Grape Wild Farm Berkshire Sale

Escalon, Cal.
Thursday, Feb. 3rd, 1921

An offering of 30 bred sows and gilts from the premier Berkshire herd of the West. The offering is sired by Big Leader, Winona Champion Leader, Escalon Superb and Grape Wild Farm Leader.

Bred to Escalon Artful Leader 3rd, Wilsonia King Laurel and Grape Wild Challenger.

The Grape Wild Farm Berkshires have proven their value in both the show ring and feed lot. This offering is a combination of the best breeding obtainable and should go to help establish new herds at a time when there is a greater profit in feeding hogs than there has been in years. Write for catalog.

A. B. HUMPHREY

Escalon Cal.

John A. Davis, Auctioneer

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows

HARVEY'S CHOICE
Grand Champion Boar
at Los Angeles, 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair
SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale

A. E. Harvey, Manager Redlands, Cal.

O.U.R. Hampshire Swine

Ortega-Underhill-Rancho

Thos. T. Dinsmore, Mgr., Santa Barbara, Cal.

DUROCS
You Should Own

45 outstanding sows and gilts will be sold in our

Bred Sow Sale, Jan. 29
Tulare Sale Pavilion
at 10 A.M.

No matter how good a herd you own you will find sows and gilts here that will profit you.

La Tierra De Uva Rancho
Exeter, Cal.

N. M. Graham, Herdsman C. C. ELLIS, Owner

This Duroc Jersey litter, sired by Ace of Pathfinders, won 16 firsts, 5 seconds, 2 thirds and 2 Reserve Junior Championships at Los Angeles, Sacramento and Riverside this year.

There will be champions raised from the sows that go through our sale this winter.

Bred Sow Sale, February 16th

35 head bred to Ace of Pathfinders, Mammoth Sensation, Jr., and Diamond Sensation.

Geo. W. Bell
Auctioneer

Write for Catalog

DIAMOND BAR RANCH

SPADRA
Los Angeles County
California.

F. E. LEWIS
Owner & Manager
R. K. WALKER
Hog Department

The Greatest Duroc Boar of His Age!
Choice Wonder 3d

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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Preparing 1920 Farmers

By H. K. Dickson, Local Club Leader, Kern County High School

A FEW days ago one of California's prominent educators was talking to a very practical and successful California farmer. The educator noted the fact that the state average for each crop is far below the yields which our really successful farmers rely on producing. He was lamenting the fact that each year we have a lot of crop failures and bankrupt farmers. "Yes," said the successful farmer, "but I've been looking around this state quite awhile and about the only material I can see to make good, successful farmers out of is our California boys." We believe that the farmer was applying the same principles of "horse sense" to the educational problem that had made him a successful farmer. In other words, if we teach our own boys the fundamental principles of good farming and good business now, we will have a "crop" of successful farmers in 1930.

The Kern County Union High School believes that every willing boy should be given an opportunity to learn all he can about farming while he is in high school. To this end courses are given in general agriculture—dairying, stock judging, beekeeping, farm management, soils and crops. Supplementing this regular work in agriculture is the boys' agricultural club, whose membership is open to any boy in school. This boys' club has grown into a real community factor during the last year. Here is a brief history of its accomplishments.

In the fall of 1919 the boys' club was organized and began work on a "pig litter raising contest." Each boy in the club was to buy a pure bred registered gilt which would farrow a litter of pigs during the winter of 1919. As a club member he must follow instructions, feed and care for his sow and litter correctly, and hand in reports of weights at different ages, amount of feed, cost, etc. Thirty high school boys joined the club and began work.

In a body, the 30 boys and their local club leader visited the Security Trust Company of Bakersfield and talked with the bank officials as to the possibility of their borrowing money to finance each boy in buying a good purebred gilt and furnishing feed for raising his first litter of pigs. Arrangements were made whereby each boy could borrow at least $300 on his personal note without security or the signature of any parent or relative, the only stipulation being that the local club leader endorse each separate check so that both the bank and club leader might be assured that the money was only being spent for club purposes and that the boys might not be overchcarged on any transaction.

During the days which followed the boys borrowed $5,550 from the bank. They made trips to different pure bred hog ranches and hog sales. By November 1, 1919, they had selected from the best herds of California 30 pure bred gilts.

Litters of pigs began coming on during late fall and winter. The boys had a great time comparing notes as to who had the heaviest pigs at different ages and who was making his gains at the lowest cost. As each boy had his own sow at home where he could take care of her himself, and as these 30 boys were scattered over a radius of 25 miles, it was not possible for many of the boys to see all of the other club members' pigs. In order to bridge this gap, and also to tell the people of Kern County what they were doing, the boys' club began publishing a little mimeograph paper known as "Pure Bred Squeals." Six hundred copies of this paper were distributed free of charge to the farmers of Kern County every two weeks.

As the reports of the 30 different litters of pigs came into the club office, it was realized that the accumulated reports contained a great deal of valuable information about raising pigs, particularly so since each boy raised his pigs under just a little different condition from any other club member. In other words, the reports covered the conditions on 30 different farms. These reports were published in a 72 page bulletin which the boys' club called "The Cost of Raising a Pig to Weaning." Fifteen hundred copies of this pamphlet were distributed free of charge to the farmers of Kern County.

To minimize the individual risk on their hogs the boys' club formed its own insurance company, each boy depositing his note for $10 with the club treasurer, and so helping to capitalize the company. Each member was allowed to take out insurance to the extent of three-fourths the value of his sow. During the year two sows were lost, so that by June 1, 1920, the actual insurance cost to each boys' club member was $7.50.

The Kern County Union High School, wishing to back up the boys'

High School Pig Raisers

Upper illustration shows Wm. Bone of the Kern County High School Boys' Agricultural Club and his litter of seven Poland Chinas which averaged 69½ pounds at 70 days. Lower shows Kern County High School Boys' Agricultural Club.

agricultural club in their work, loaned the club $1,000 without interest, which money the boys used to buy their herd boar, The Kern County Pilot, from Mr. McClarnon of Braddyville, Iowa. This nine months old pig was full brother to the 1919 grand champion of the National Swine Show, and came to California as one of the highest priced boars ever owned by a boys' agricultural club. This last fall at the 1920 California state fair, The Kern County Pilot took second place in the Poland China junior yearling boar class, and later was placed first in the same class at the Fresno district fair. He was exhibited by members of the club, and every hog man knows they had reason to be proud of him.

On May 15, 1920, the boys' club conducted the first purebred hog sale ever held in Kern County. This sale turned into a sort of a hog show at which the boys exhibited their stock to a fine assembly of interested growers. The boys served a free lunch to 500 people, and later in the day sold at auction $4,000 worth of stock.

The boys' club accounts up to July 1 of this year showed that the club had sold during the first six months of 1920 approximately $7,000 worth of stock, of which $1,025 was the sum brought in by the sale of boar pigs to hog raisers in Kern County. The prices received for these registered boar pigs ranged from $30 to $75. The sale of these boars has been a big step in the "better sire campaign" of Kern County.

Last fall the boys' club was opened to new members, bought more pure bred gilts ready to farrow, and is raising a better class of pigs than the members had dreamed of doing last year. Their little paper, "Pure Bred Squeals," has increased in circulation to 1,300 and is being distributed free of charge to farmers of Kern County. A new section of the club has been organized for boys interested in horticulture. In this work each boy is to grow 10,000 grape cuttings during the year of 1921.

You ask, "Will not so many boys producing pure bred hogs in one county overdo the industry" or "Isn't the time soon coming when Kern County will be overstocked with pure bred hogs?" The local situation seems to answer these questions best. One purebred hog sale seems to lead to another. The farmers like the boys' club stock. Wherever it has been grown it has proved superior to the general grade or scrub hog. Careful records show that the pure bred barrows raised by the club have made a profit when put in the fattening pen, even under the adverse feeding conditions of last year. The general sentiment of the farmers of Kern County is that they cannot get too many pure bred hogs, and that they are looking to the boys' agricultural club to continue to furnish them with high class breeding stock. In other words, the boys' club has started an industry of its own.

With this experience in cooperation and the careful study and practice of some of these fundamental problems of farming and farm business, we believe that the boys of the Kern County Boys' Agricultural Club are fast preparing themselves to become successful farmers, and the greater number of boys who are educated along these lines, the greater will be the service which we can render to the future farming industry of California.

Hogs Cash Dickey's Barley---at a Profit

By J. P. Bennett

IT is worthy of note that California has the highest pork market in the country at the present time, and with the increased freight rates the packers cannot afford to ship as many hogs from the corn belt feed lots to the Coast as has been the custom in the past, and with the actual supply of hogs in this state at the lowest it has been in years, the farmers of California are assured a good market for their produce for an indefinite time, or until supply overtakes demand, a condition that does not appear imminent.

The unusually high prices were chiefly upon a speculative basis, and the highest prices in the history of the business were recorded. Money was plentiful and easy to borrow, while the value of the dollar was small, and as a result many unsound and unwise investments were made. The greatest mistake made by the swine breeders was in forgetting the real use of the hog—overlooking the fact that the ultimate end of any hog is the pork barrel. True, there are times when it is more profitable to sell the crops for cash and put the hogs on the market, even in an unfinished condition; to suspend pork production until a more profitable time and reduce the size of the herd. However, that practice is not good business at the present time.

As the result of the heavy buying of pure bred animals last winter at abnormal prices, many beginners sustained heavy losses, especially those who were new at the game, and many have thrown up the sponge, cashed their herds for what they could get, and called off all bets. Others, realizing their position, are solving their problem in inaugurating a comparatively new system of maintaining their herds on a purely commercial basis, keeping them strictly pure bred but having the consumption of the bulky crops of the farm and the ready cash of the local market as their primary aim. The acid test of any proposition is, "Will it work out profitably?"

Z. M. Dickey is doing this very thing on his ranch near Dinuba. Mr. Dickey became interested in the pure bred hog business and was one of the heaviest buyers at the pure bred sales last season when prices were at their zenith. He purchased a large number of sows with which to start his pure bred herd and to this foundation he added Giant Bob, the 1919 grand champion boar, at a cost of $5,250. Here he had the nucleus of one of the best herds in the state. Unfortunately, however, his valuable herd boar died within a very short time after his purchase, making a total loss of this investment. When the deflation of prices struck the country, instead of quitting cold, Mr. Dickey worked out an economic plan of production and put his herd on a commercial basis. He kept his best sows for foundation stock and sold the surplus over the scales. A recent visit to the Dickey ranch found over 100 fattening hogs running to self feeders, consuming the barley raised on the ranch at a cash return of around $2 to $2.50 per hundred and bringing in a steady cash income at a good profit. The scales and cost sheets show it has cost Dickey about four and one-half pounds of barley to produce one pound of pork. Figure it out with barley selling at around $1 to $1.25 per hundred. Dickey says his hogs are making the money necessary to pay the expenses of the ranch until his vineyards get old enough to bring in a cash income.

Mr. Dickey is making extensive plans for the coming year. He expects to put in a modern hog plant in every detail to facilitate the handling of a larger herd at a minimum cost of feed and labor. His present plant

(Continued on Page 123.)

California Duroc Breeders Consignment Sale

DAVIS, CAL.
Saturday, Feb. 5, 1921

A consignment of 45 bred sows and gilts from the leading Duroc herds of the state, will be sold at Davis at the University Farm. This will be an opportunity for both the farmer and breeder to procure some of the cream of the breed at their own valuation.

The following Duroc sales will be held: Glenn County Duroc Jersey Association, Orland, Jan. 24th; C. C. Ellis, Exeter, sale at Tulare, Jan. 29th; Diamond Bar Ranch, Spadra, Feb. 16th; Falfadale Farm Dispersal Sale, Perris, Feb. 17th.

For Duroc-Jersey information write the Secretary,
J. P. Walker, Visalia, Cal.

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Bred to farrow next two months. We are making an extremely low price on these to reduce our herd. At the price we won't keep them long. Write today. Quick, before they are all gone.

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"The Best Duroc Sire on the Coast"

During January and February I'll Accept
Ten First Class Duroc Brood Sows
For Mating to

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Buy 200 Egg Strain Chick, Pullet Breeders! Customers say: "Pullets raised from your chicks averaged 209 eggs last year;" "114 hens cleared $612 in 12 months;" "lost but 2 chicks of 100;" "get more winter eggs from 50 your hens than from 200 formerly." 140,000 electrically hatched 180-290 egg Leghorns, Reds, Anconas, Rock, Minorcas, Wyandottes, Andalusians, (ducklings, turks) reasonable. Half booked. Hundreds satisfied customers. Repeat orders often. Write (am rarely home). Profitable Poultry, 151 North Fair Oaks, Pasadena.

Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

For Sale—One million S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock for spring 1921 delivery. January prices $5.00 per 25, $10.00 per 50, $18.00 per 100. Special prices 500 and 1,000 lots. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Order early chicks now and realize big broiler profits. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., 438 Seventh Street, Petaluma, California.

Buy Early Chicks—Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, California.

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Both the novice and the experienced poultryman should have a copy of **"Poultry for Profit"** in order to prevent mistakes commonly made in the poultry business. This cloth bound book of 225 pages and 18 illustrations is written by Jean Koethen, a practical authority on all branches of the poultry business in California. Price $1.00 postpaid. Cultivator Publishing Co., 115½ N. Broadway, Los Angeles.

Sly's Old Mission Strain Rhode Island Reds. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. SLY, 1642 (D) Middleton Place, Los Angeles, California.

Quality Barred Plymouth Rock and Ferris S. C. White Leghorn guaranteed hatching eggs. Also Barred Plymouth Rock breeding cockerels for sale. We have good stuff at honest value for you this season. GOLDEN RULE POULTRY FARM, Porterville, California.

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Baby Chicks from good layers. Booking orders now for 1921 delivery. R. I. Reds, Barred Rocks, White Rocks, White Leghorns, Brown Leghorns. Safe arrival guaranteed. Write for circular. Stubbe Poultry Ranch and Hatchery, P. O. Box 67, Palo Alto, California.

We Can Supply strong, vigorous chicks guaranteed Tancred Strain from trapnest parent stock, 290 egg male birds, 240 and better female birds. These birds will grade up your flock. Price $20.00 per hundred f. o. b. Seattle. QUEEN HATCHERY, Seattle, Washington.

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X L Hatchery, 351 Soquel Avenue, Santa Cruz, California now booking orders for electrically hatched X L Chicks; trapnested Tancreds and Tom Barrons; also other varieties and breeds. This year the demand is greater than the supply. Place your order now.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks—S. C. White Leghorn and R. I. Reds. Bred from paying flocks. Hatch each week. Chicks shipped by parcel post. Order now for early delivery. Write for prices. San Diego County Hatchery, San Diego, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jesch, Fallon, Nevada.

Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

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For Sale—Fancy White Leghorn Cocks, year old, single comb, Martin Downey strain. Priced right. Whittier State School, Whittier.

Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made such a remarkable record in the state laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

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We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

White Leghorns—hatching eggs our specialty, produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the West. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R. 1 Box 29, Gardena, California.

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"Eastman's Bred-to-Lay" Trapnested Barred Rocks. JANUARY CHICKS. Fairmead Poultry Farm, Fairmead, California.

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Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bred Sows and Gilts and young stock. Pathfinder and Great Wonder I Am breeding. Monthly payments if you wish. Derryfield Farm, Capital National Bank Building, Sacramento.

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Duroc Hogs and Guernsey Cattle—Pure bred stock for sale at all times. Hollow Hill Farm. B. W. Shaper, Manager, Colton.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

Registered Duroc Gilts and Boars. Also Poland Chinas. Eleventh and Verdugo Streets, Burbank, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

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Bargains in Polands—600 pure bred Polands—sows, gilts, boars, feeders, must be disposed of to make room. Take one or more at your own price. Santa Anita Rancho, Santa Anita, California.

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For Sale or Exchange—At bargain if sold in 30 days; 400 acre grain and stock ranch in Foothill section of Mariposa County, 7 miles from Coulterville, only 3 miles from railroad station; 100 acres tillable, 300 acres good pasture, rolling to hilly. Several 1000 cord of oak timber, all fenced and cross fenced, part hog tight. Large house and barn, outbuildings. Well, windmill and tank. Family orchard, spring water; rainfall 30 inches, elevation 1500. Close school and neighbors, no hardpan or alkali, best climate. Price $13,000, equity $6500 (balance 4 years). Will trade for clear city property in Southern California or consider small ranch in Imperial. A. F. Zurilgen, Owner, Chowchilla, California.

Agriculture—the Mother of Civilization, but who is going to do the work when the hired man quits or the boys go to the city? Don't try to farm so much land that you make life a burden. We have an ideal one man proposition to offer you. Soil and climate where you can grow anything that grows in California. Water piped under high pressure to your door for irrigation and domestic purposes. Good schools and churches in a 100% AMERICAN colony. A limited amount of cleared land for $200 per acre. PARADISE RANCHITA, Paradise, California.

For Sale—$8000—Modern 5 room house, bath and toilet, gas, electricity and telephone; 2 acres of land under cultivation, family orchard, 5 Holstein cows, 1 Jersey spring heifer and 4 Holstein heifers and all farming implements. Everything included in the price. Can be bought for $5000 cash, balance on easy terms to suit purchaser at 6 per cent; Cudahy district. Address Owner, D. Ferraro, Los Angeles, California, R. D. 12, Box 744.

For Sale—The show place of the Valley—forty acres; irrigated from 5 flowing wells, also ditch. All kinds of fruit; on Bankhead Highway. Rural mail and telephone. Free bus to graded and high schools. Mild winters, no hot night in summer. Stock and tools seven thousand five hundred. R. W. Boyle, St. David, Arizona.

Big Money Makers. Grapes, Kadota preserving figs and pomegranates. Forty acres of choice land adapted to above fruits. Ample water, Exeter district, Tulare County. The Phalanx Company, 516 Chamber of Commerce, Los Angeles, California.

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For Sale — **Ranches, Homes, Acres, free list.** Wilson Bros., Santa Cruz, California.

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Turkeys—"Goldbank"—"Copper King V" strain. Selected Giant Bronze toms. Sired by son of famous "Copper King V." First Prize Yearling, N. B. T. Club Show, Madison Square, N. Y., January, 1919. Bred to 20 lb. hens. Egg orders taken. Prices reasonable. Address: BRONZE KING MOUNTAIN FARM, P. O. Box 308, Calistoga, California.

Mammoth Bronze Turkeys. Stafford strain. Eastern stock, beautiful plumage, extra large frame and bone. Money back guarantee. Send for circular. R. M. Dodge & Son, R. D. 2 Box 129, Bakersfield, California. Phone 31F4.

Thoroughbred White Holland Turkeys, two extra fine toms at $15.00 each, females 2 for $15.00. Order eggs now. Chinese Ringnecked Pheasants, mated pairs $12.50, eggs $5.00 per setting. Pause Pheasantry, Fair Oaks, California.

Earl E. Sanders, Modesto, breeder of Mammoth Bronze turkeys and Single Comb White Minorcas, is booking orders for eggs, chicks and breding stock. Route D, Box 1880.

Mammoth White Holland Turkeys for Sale—Choice hens and toms from our famous breed of large vigorous turkeys. Earl V. Smith, Loma Vista Ranch, Willows, California.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Mammoth Bronze Eggs from prize winning stock. Order now for early delivery. $30.00 per 100. T. T. Middleton, Tankersbim, California.

Turkeys—Finest breed of each, Bourbon Red, Mammoth Bronze. Box 27, Shawmut, California.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, S. Reservoir, Pomona, California.

WANTED

Wanted to Exchange—50 acres river bottom partially improved alfalfa land in dairy and fruit section, close to Fresno, at $10,600, $3,000 down, for small acreage or city property as second payment. R. W. Sharp, 601 N. 4th Street, Fresno, California.

Wanted—Trees, mostly Grape Fruit, some Oranges; trees on sour orange roots. Write, give best wholesale prices. G. H. Dorton, Nurseryman, Harlingen, Texas.

Married Man Who Has Had Eastern Farm experience and place of own here wants work on ranch. Address C. Hephner, 126 East Avenue 44, Los Angeles.

Wanted to Buy—Bean power sprayer. Duplex or triplex type. R. Matson, R. D. 1, Redondo Beach, California.

Wanted—Walnut Meats. Fred L. Mitchell & Son, 214 French Street, Santa Ana. Phone 551-M.

Royal Apricots, Myrobolan roots, wanted; also Myrobolan seed. Ernest Harrison, Halcyon, California.

SEEDS AND PLANTS

Berrydale Berries and Roses—"De Roo's Mary Lewis" New Everbearing Raspberry. The finest, largest and best flavored berry grown. Can ship 500 miles in perfect condition. Plants strong and need no supports. Plants ready for delivery now. Price per 12, $3.00; 100, $20.00; 1,000, $150.00. Sample plant 30 cents, parcel post. Write for catalogue, sent on receipt of 5 cents in stamps. Salesmen wanted. Our salesmen are making good up to $600.00 per month. BERRYDALE GARDENS, Dept. D, 1715 Webster Street, San Francisco, California.

Set Your Strawberry Bed with the Gibson —The best and largest and sweetest berry grown. Buy from the grower; far better than any ever bearing. Also Mammoth Thornless Blackberries, Loganberries and Raspberries. Nursery at Bell, California. E. E. Roy, Proprietor. Mailing address, Los Angeles, California, R. D. 2, Box 640.

Strawberries—1,000,000 plants, leading varieties; 200,000 Cuthbert raspberry; 100,000 Black Cap Tips; 100,000 Loganberry Tips. Order now; low prices. Also 100,000 choice peach seedlings — will graft in plums or prunes on contract for fall delivery 1921. Lafayette Nursery Company, Lafayette, Oregon.

For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

Increase Your Potato Yield by planting clean healthy seed. I have some Great Divide seed potatoes of excellent quality at 3 cents. Present crop 200 sacks per acre. Come and see. W. G. Brumund, Cucamonga, California, on Foothill Boulevard.

For Sale—Grape cuttings, Black Mission, Malaga, Flame Tokay, Black Malvoise and other varieties. Vineyard near Old Mission, San Fernando, California. Address all correspondence to C. D. Hubbard, Carpinteria.

Berry Plants — Strawberries, Loganberries, Currants, Gooseberries, Blackberries and Raspberries, for immediate delivery. All stock first class and strictly true to name. Write for prices. M. J. MONIZ, Berry Specialist, Sebastopol, California.

Selected Wine Grape Cuttings for field and nursery planting. All varieties. Price $10.00 per 1,000. Let us quote you our low prices on fruit trees. We ship any quantity anywhere on approval. J. F. Miller & Son, Healdsburg, California.

Ethelburg No. 80. Grand new strawberry, wonderfully productive, $2.00 per hundred, postpaid. PACIFIC BULB COMPANY, No. 137 Pacific Ave., Santa Cruz, California.

Tomato Seed—Improved Stone, San Jose Canner. 25 cents oz., $3 pound, postpaid. Stamps or Money Order. Thomas Murray, 3209 West Washington St., Los Angeles, California.

Brandywine Strawberry Plants from stock which produced $3,000 worth of berries from acre this season. Price reasonable. Lon King, 1158 West Fourth, Riverside, California.

Rhubarb Plants—Wagner's Giant 1 year, per dozen 50c; per hundred $4.00. Wagner's Giant, 2 year, per dozen $1.00; per hundred $8.00. Seed per pound $5.00. Currier Bulb Co., Santa Cruz, California.

Strawberries six months in the year. Plant Everbearers, Superb, Progressive, Americus, $2.50 per hundred prepaid. Catalogue. Fred Leissler, R. 6, Box 429, Seattle, Washington.

For Sale — Mountain grown Brandywine Strawberry plants, $1.50 per hundred, $10.00 per thousand. By mail postpaid. B. Bryan, Camp Baldy, California.

For Sale—Genuine Red Kidney beans for seed. These beans are bringing the highest price in the market. Norman Johnson, Chatsworth, California.

Grapes—3000 No. 1 vines black Zante Currant, 10,000 Thompson's Seedless. Large carnation plants any color, 25c. C. L. Wilson, 121 E Street, Roseville, California.

Pumpkin Seed — Mixed Pumpkin Seed, good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

For Sale—Good clean common variety alfalfa seed at 22 cents per pound. Chas. A. Haug, Star Route, Corona, California.

300,000 Grape Rootings $30.00 a 1,000 while they last. Four kinds. Box 501, Fowler, California.

British Queen Seed Potatoes for sale. P. L. Brown, Irwindale, California. Phone Covina 950.

Fine Klondyke and Brandywine plants for sale, $12.00 per M. L. E. Hall, R. D. No. 2, Box 61, Pasadena, California.

For Sale — Strawberry and Raspberry plants. Thos. Mullins, Carmel, California.

California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

For Sale — Senator Dunlap strawberry plants. J. L. Bodwell, Van Nuys, Calif.

CATTLE

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

For Sale—Jersey bull 6 months old out of imported bull Helen's Oxford Son. Price $75.00. J. R. Carhart, Fullerton, Calif.

Reg. Shorthorns—Fair Oaks Ranch, Willits, California.

TREES

French Prune on Myrobolan, Peach and Almond root.
Imperial and Robe de Sargeant on Myroblan and Peach root.
Clingstone Peaches, June buds. Fine, stocky, well rooted trees.
Plums in all varieties on Peach and Myrobolan root.
Cherries, full assortment on Mazzard root.
Pears, all varieties on Jap root.
Franquette and Mayette Walnut on Black.
Thompson Seedless Grapes.
General assortment of all fruit varieties for Home Orchard or Commercial planting.
For hardiness, well branched roots and freedom from disease, our foothill grown trees have no equal.
Submit to us a list of your wants for prices.

SILVA-BERGTHOLDT CO.,
BOX 377, NEWCASTLE, CALIF.

Nursery Stock—We are offering commercial lots in Bartlett pear trees, at prices which will save you planters big money. Have apple, pears, prunes, cherry, strawberry, berries, etc. NO AGENTS. Try our Mail Order System. Send for planters List. 30 years in business. CARLTON NURSERY COMPANY, CARLTON, OREGON.

For Sale—10,000 Valencias one and two year buds; 2,000 Eureka lemon two year buds; Navels, M. S. Pomelos; 1000 Wonderful Pomegranates; 3000 Texas Umbrellas; 100 Kadota figs; 2000 Mission Olives; Sweet and Sour orange seed-bed stock. Southland Nurseries, 1941 East Colorado Street, Pasadena, California.

For Sale—Fruit trees, all leading varieties, including Bartlett Pears, Royal Apricots, Tuscan Cling and Phillip Cling Peaches, Satsuma and Santa Rosa Plums, Eureka and Placentia Perfection Walnuts. Write for catalog and price list. Orange County Nursery Co., Anaheim, Calif. Salesyard: North Los Angeles Street.

Royal Apricots, Tuscan, Sims and McClure Clings, Elberta and J. H. Hale Freestone Peaches, Santa Rosa and Beauty Plums, Pear, Apple and Walnut Trees. Grapevines, Berries, etc. Order now; leading varieties scarce. Los Nietos Valley Nursery, Downey, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

Special Sale—5000 Improved French Prune on peach root.
6-8 ft. 60c — 5-7 ft. 50c
4-6 ft. 45c — 3-4 ft. 40c
Better trees are not grown. Write for prices on other trees. J. F. Miller & Sons, Healdsburg, California.

Budded Avocado Trees. Leading varieties. Order early to secure best selection. Dr. Stonebrook's Avocado Nursery, 15 N. Raymond Ave., Pasadena. Phone Colorado 208.

For Sale—Walnut trees, fine stock Eurekas grafted on black root. Prices, 4-6 feet in height $2.00; 6-8 $2.25; 8-10 $2.50; 10-12 $2.75. La Puente Walnut Nursery, Puente, California. Phone 103.

For Sale — Peaches, Cherries and other fruit trees. Full line of shrubbery and roses, also flowering plants. Write City Nurseries, 109A Orange St., Redlands, California.

For Sale—Citrus trees and grape vines, two years old on Sour root. Valencia, Navel, Pomelo, lemon trees, and rooting vines. J. S. Ogawa, Rt. A, Box 114A, Sanger, California.

For Sale — 100,000 Florida Sour Orange Seed-bed Trees; 100,000 California sweet seedling orange seed-bed trees. SOUTHLAND NURSERIES, 1941 East Colorado Street, Pasadena, California.

I Have Just a Few Thousand Elberta peach trees three to four feet at 50 cents f. o. b. Los Angeles. Wm. Kelly, El Centro, California.

A Limited Number of almond seedlings at 10c each. Also St. George (resistant) grape cuttings $5 per M. Mountain View Ranch, Calistoga, California.

Fine Straight Rooted Florida Sour and Sweet SEED BED STOCK, 10 inches to 15 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Seedling Trees, all kinds. Thornless blackberry, Brandywine strawberries, $1.00 hundred. Box 301, Sebastopol, California.

Seed Bed Stock—Florida sour and California sweet. Nursery 100 Ventura Street. Address Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena.

For Sale—Ehrhardt Walnut Trees. V. Ehrhardt, Minnie Street, 4 blocks south of Gas Plant, Santa Ana, California. Phone 454-M.

For Sale—Several thousand HACHIYA Persimmon grafts from Thales stock. First class condition. Apply to Foreman Chapman Ranch, Fullerton.

TREES—TREES—ALFALFA SEED Etc. Full stock—best varieties, now. Write J. L. LAWSON, San Jose, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—1,650 No. 1 French prune trees, 4x6 almond root, 65c. W. M. Burton Nursery, Box 43, Porterville.

Grape Vines, orange, lemon, grapefruit trees; citrus seed bed stock. L. A. TUTTLE, R. 1, Box 385, Pasadena.

For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

RABBITS

Pedigreed Flemish Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

MISCELLANEOUS

Revolution Among Ford and Chevrolet Owners—They are installing the Go-Ite Gas Filler and Gauge, which shows the amount of gasoline in tank at all times and can fill tank without moving seat cushion. Easy to install. Nothing to get out of order. Send for literature. Ask about gasoline saver. J. A. Baker, 1143 West 7th Street, Los Angeles, California.

For Sale—50,000 gallon capacity Redwood Tank with conical cover; used about six months; reason for sale owner has built concrete reservoir. Price $900.00, or will consider any reasonable offer F. O. B. present location at Ortega. Apply Max C. Fleischmann, P. O. Box 647, Santa Barbara.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Save the Trees—Use Lloyd's tree surgery dressing for all wounds. A safeguard against wood rot or wood decay. $1.50 gallon, prepaid. Box 12, Yosemite, California.

Taylor's Tampa Havana 5-in. Cigars—$7.50 for 100, postpaid. J. R. Taylor, Box 661, Tampa, Florida.

If You Want to sell or exchange your property write me. JOHN J. BLACK, 116th St., Chippewa Falls, Wisconsin.

White Mesquite Honey—five gallon can 60 pounds f. o. b. Parker, Arizona, $6.50. G. E. Striplin.

MACHINERY

Rebuilt Windmills, irrigating pipe, tanks, pumps, cylinders, rods, fittings.
WHY PAY MORE?
WE SELL FOR LESS.
New 1,000 gal. galv. tanks $47.25; 2,000, $67.25; 10,000 gal. redwood $115; 25,000, $195. Ship wood tanks knocked down. Many other bargains. 350 ft. 8 in. galv. irrigating pipe 35c, SNAP. SPECIAL in complete pumping plant consisting of 15 h. p. Western engine, deep well double acting Ames pump with pipe, rods, cylinder for 90 ft. lift $950. This is only what pump head alone would cost new. Give us call, see who's cheapest. DEMMITT CO., Upstairs, 120 N. Main, Los Angeles.

For Sale—Orchard power sprayer, 1½ h. p. engine, Myers pump and tank, mounted on truck. Price $100. Inquire of Lester Barber, Ford Garage, Gardena, California or address R. Matson, R. D. 1, Redondo Beach, California.

For Sale-Samson Tractor, model S25 used small acreage part of two seasons. Good order. Three bottom power lift plow, 8 ft. chisel, 10 ft. cyclone, 10 ft. drag trap wagon all complete for $1,000. F. D. Hudson, Van Nuys, California.

For Sale—Merry Garden Tractors. Circulars and demonstration free. Dwight E. Smith, L. A. County Agent, 1645 North Normandie Avenue, Los Angeles.

For Sale—Yuba 12-20 tractor, John Deere, two-gang plow, 8 foot Cyclone harrow, good condition, price right. Ralph Esaley, 126 Rose Street, Compton. Phone 483.

GEESE

Now Is the Time to Buy Geese for breeding, or to order your eggs. Send for catalog and mating list of our wonderful utility and prize stock of Bronze Turkeys, Geese, Pekin Ducks, Muscovy Ducks, White King Pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, Guineas. Paradise Valley Poultry Ranch, National City, California.

Mammoth Geese—Bronze Turkeys. Now is the time to buy breeding stock of "McNeely's Mammoth Geese," fine Bronze Turkeys, Toms and Hens at right prices. Chas. McNeely, Alpaugh, California.

GOVERNMENT LAND

300,000,000 Acres Free Land in U. S.—Send for free descriptive circular of our 100 page book THE HOMESEEKER, which tells you where this land is and how to acquire it, or send $2.00 for book direct. The Homeseeker, Dept. M, 336 S. Broadway, Los Angeles, California.

TO LEASE

To Lease on Shares—Ninety acre orchard —Apples, Bartlett Pears; in Paradise Irrigation District. Address, Dr. C. A. Oliver, Box 942, Chico, California.

LIVESTOCK

BUTTE CITY RANCH
Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale or Trade. One draft stallion, 1 black Jack. Address, A. Gaul, R. F. D. 5 Box 71, Stockton, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 237-241 Court St., Los Angeles.

DUCKS

Caldwell's White Muscovy Ducks win, weigh, lay and pay. The largest duck of the duck family. The duck without the quack. Eggs, ducklings, breeders. Free circular. Caldwell Duck Ranch, Lock Box 274, Los Angeles.

ROOFING MATERIALS

ROOFING PAPER
One ply $1.50, 2 ply $2.00, 3 ply $2.50 complete with fixtures. Rubber roof paint 50c per gallon in 5 gal. lots.
ANGELUS ROOFING & PAPER CO.
766-768 So. San Pedro St., Los Angeles. Broadway 5401

INCUBATORS

Closing Out Sale, including P. C. A., Peerless, Old Trusty, Cyphers, Prairie State incubators. Write: Goodacre Poultry Ranch, Compton, California.

THE FIG INSTITUTE

More in sorrow than in anger the fig growers gathered recently in Fresno. It was the fifth annual institute. We think perhaps last year the motions were reversed, for there were at that time so many problems to be thrashed out and so much dissension —or lack of perfect harmony—that many felt the growers themselves were responsible for chaos in the marketing situation. This year there has been a gathering together of many of the producers in a great cooperative marketing association so that the question of marketing has been materially aided. However, the whole marketing situation has so seriously changed that there is no hope of spectacular prices. However, it is believed that reasonably fair prices will be obtained.

The institute, however, was provided with a program which was almost entirely cultural. The first question up was that of varieties, and this portion of the program was made up of "Why I Prefer the —— Fig." The Adriatic was championed by Mr. Minturn; the Calimyrna by Mr. Yokum; the Mission by Mr. Nieman; Kadota, Mr. Beckwith. Then there was discussion of washers, sulphuring houses, by-products, splitting and souring, fig diseases, methods of drying, how to improve dried figs.

And then orchard culture came in for one thorough discussion. Soil moisture, which at the time of the institute promised to be more serious than it now appears, was discussed from various standpoints, the greatest interest, however, being in the necessity of moisture during the fall months because of its relation to fruit bud formation. The discussion of "Planting a Fig Tree" was carried on during the actual work of the planting; likewise pruning, packing in baskets and other attractive containers, and, best of all, at least from the housewives' standpoint, there was a display of figs dried, figs preserved, canned, spiced, pickled, glace and candied, fig bread and cake, fig pudding and fig paste, and even fig candy.

HOGS CASH DICKEY'S BARLEY—

(Continued from Page 121.)

is inadequate to obtain the best results. An old cow barn on the ranch is to be moved and converted into a first class hog house with plenty of space for farrowing pens, feed rooms, etc. This will be placed on a slight knoll with a southern exposure, as Dickey realizes that pasture, sunshine and plenty of room for exercise are essential for the development of the young growing stock. In the future the sows will be more carefully selected, the offspring culled and only a few of the top pigs out of each crop saved for breeding stock. The remainder will go over the scales as fast as they are ready and the whole herd will be maintained in such a way that at any time when the demand for breeding stock is slack the animals can be cashed on the market before they have an opportunity to cause any loss or the herd become overstocked.

At present this ranch is practically the only one in the immediate vicinity producing pork on a commercial basis. Many of his neighbors buy one or two fat hogs to kill for fresh or salt pork. Rarely does a week pass without one or more sales of this sort. The local butcher has found that he can come and pick out six or ten fat hogs a week. Practically all the marketing is done at home without expense or shrinkage due to delivery at the market. As fast as a few of the easiest feeders in the lot are ready to kill, they are picked out, and as a rule by the time these are disposed of, another bunch is ready for the butcher's approval. It is the best and most profitable feeding and marketing system we have seen, and when Dickey gets his new plant in operation he will be in a strong position when it comes to converting his grain into cash and his hogs will enjoy helping him.

What Dickey is doing can be accomplished by others, and with as satisfactory results. The hog is not a get-rich-quick proposition, by any means, but over a five year period no meat animal will produce more revenue for the capital invested.

Consignment Shipments

COOPERATIVE marketing of eggs has so stabilized the market or, perhaps more correctly, has so distributed this product that there has been no glutting of California markets and livable prices have been obtained. This has been made possible because of the large percentage of poultrymen who have realized the power and even the business necessity of this standing together, but it has created a situation which calls for a warning from Chairman Ross of the executive committee of the Poultry Producers of Southern California. This condition of prosperity has induced many others, especially newcomers to California, to enter the business of producing eggs who have not realized the necessity for joining in the cooperative movement. This is throwing a great quantity of eggs on the market without control and it is having a most depressing effect on prices. Giving warning along this line, Mr. Ross writes:

"With a rapidly increasing surplus production of eggs, California faces a serious setback to its poultry industry unless producers realize the basic fact that it is only by united effort on their part that these eggs can be accumulated and graded so that carload shipments can be made to distant markets.

"It is not primarily a question of a greater profit on the eggs so shipped, but the stabilizing of the local market by the ability, through cooperative organization, to send our surplus where it is needed, instead of being obliged to dispose of it locally at such figures as would be obtainable with the supply in excess of the demand.

"In 1919 it was possible for your organization to dispose of most of this surplus f. o. b. Los Angeles (for shipment to other markets), and at prices sufficiently above our local market to make our pool prices reflect this profit. Unfortunately, many of these shipments resulted in a loss to the shippers, owing to a drop in the market while the eggs were en route; hence in 1920 it was found necessary to make these shipments ourselves, the cars going forward on consignment, i. e., billed to New York broker, to be sold on arrival for our account.

"Another feature of this Eastern business (especially all shipments for New York trade) should not be lost sight of, and that is we have to send out a strictly fancy pack if we are to realize the top prices at the selling end. In other words, your management has deemed it unwise to ship out all our best eggs to the ultimate detriment of our home business.

"Practically all these consignment cars are forwarded by express, but even that means seven or more days en route, so that we have to take the risk of fluctuations in the market, and while a few of these may be very slightly upward, the reverse is usually the case and all the spectacular drops have been downward, the New York market having been known to drop as much as 22 cents in a single week.

"This will show you that all consignment shipments are more or less speculative and are only resorted to in our endeavor to stabilize our local market conditions when we are unable to store our surplus and must resort to foreign markets to move it. In fact, taking figures which the writer happens to have at hand, for the first 13 cars shipped out, we show a loss on six cars and a gain on seven.

"Actual figures on consignment car No. 11, shipped out November 20, are:

"Car shipped to New York in American Railway Express refrigerator car No. 221—422 cases candled fresh extras at 88 cents, $11,140.80; paid express, $1,332.80; paid commission for selling, $422; paid cartage in New York, $35.87; total, $12,931.47.

Sold 12,660 dozen at $1.03 (this was the highest price received for any car sold), $13,039.80; less cost as above, $12,931.47; net gain on this car, $108.33."

The annual meeting of the Poultry Producers of Southern California will be held Friday, January 28, at 10 a. m., and Mr. Ross writes:

"You owe it to yourself, as well as to your fellow members, to be present and take part in the transaction of your business. Don't leave it to the other fellow."

STORRS EGG LAYING CONTEST

Storrs, Connecticut, December 27, 1920. Report for the eighth week, ending December 26, 1920.

In the eighth week of the laying contest at Storrs, Rhode Island Reds occupied the front of the stage. A pen owned by Charles H. Lane, Southboro, Massachusetts, was an easy first with the splendid production of 54 eggs, a yield of nearly 78 per cent as compared with the general average of 25 per cent for all pens.

All poultry flocks are now expected to gain in egg yield more or less steadily and rapidly from this time on to the zenith of production, which comes along in May. The weekly gain in the laying contest has not, however, been as rapid as in some years. On the other hand, the management has been somewhat different in that the incoming pullets were not forced for egg production from the very start. At one time this seemed to be generally accepted as the best scheme, but lately it has come to be believed that in the long run more eggs can be obtained from any given flock of hens, not by forcing them too early, but by waiting until the pullets become more physically fit. All this is accomplished by feeding grain liberally for the first few weeks instead of forcing the birds to eat a lot of mash. During the month of November the pullets in the contest consumed an average of four pounds of grain for each bird, but only a little more than two pounds of mash, whereas it is a virtual certainty that next May when in heavy production these figures will be reversed, and then read two to three pounds of grain and four or five pounds of mash.

The four leading pens in each of the principal varieties are as follows:

Plymouth Rocks

W. H. B. Kent (Barred), 233 eggs; Rock Rose Farm (Barred), 138; F. R. Pember (White), 134; Ernest W. Picker (Barred), 130.

Rhode Island Reds

Old Town Farm, 301 eggs; H. S. Bickford, 247; F. S. Chapin, 243; F. H. Sampson, 233.

White Leghorns

Lion Head Poultry Farm, 222 eggs; L. E. Ingoldsby, 219; E. A. Ballard, 213; Max Axlerod, 212.

Other Varieties

Obed G Knight (White Wyandotte), 304 eggs; Clemens J. Diemand (White Wyandotte), 151; H. P. Cloyes (Buff Wyandotte), 133; Harry D. Emmons (White Wyandotte), 91.

CLOSER COOPERATION

The poultry business has proven wonderfully attractive in California, and not only in California but in other sections of the country, notably on all the Pacific Coast. This calls forth appreciation of the fact that competition enters into the poultryman's business as well as some others. Touching upon this point, Cornele G. Ross of the Poultry Producers of Southern California has written a circular letter to members of that association, in which he says:

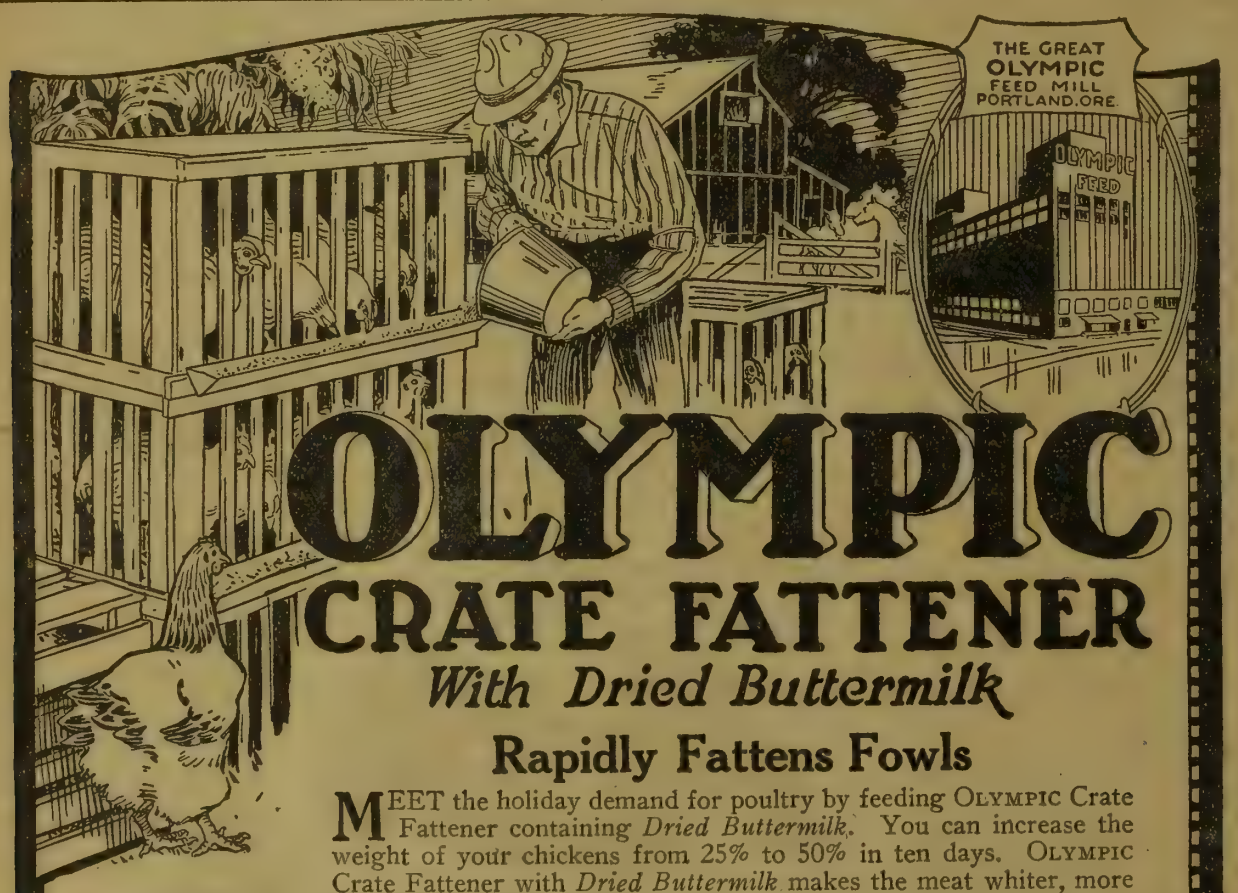
"Western Washington reports over 1,000,000 baby chicks hatched in 1920, with more promised for the coming season. We quote from the Seattle Produce News:

" 'For the second time this season, and also the second time in the history of the poultry industry in the state of Washington, a solid express train of fresh eggs was sent out of Seattle to New York, on December 24. The special train consisted of five carloads. Three were packed in Seattle, one in Winlock and one in Tacoma. The first special of four cars was shipped from here in the early part of December.'

"This shows that our Washington brothers are hustlers, and if we are to stay in the game we shall have to keep our organization intact and right up to the mark every minute. This means loyalty on the part of every member and more interest taken by all in getting new members that we may be in better shape to stabilize our local market during the peak season, as well as reduce our operating cost through greatly increased receipts."

Meetings with poultry producers are being held this week at Gardena, Van Nuys, Riverside, San Diego, and another will be held at Pomona on Monday of next week. Especial inducements to attend that meeting are shown by this portion of the notice sent out:

The Los Angeles County farm bureau and the Pomona Valley Poultry Breeders Association have arranged



OLYMPIC
CRATE FATTENER
With Dried Buttermilk

Rapidly Fattens Fowls

MEET the holiday demand for poultry by feeding OLYMPIC Crate Fattener containing *Dried Buttermilk*. You can increase the weight of your chickens from 25% to 50% in ten days. OLYMPIC Crate Fattener with *Dried Buttermilk* makes the meat whiter, more tender and sweeter flavored, breaking down the tough sinews and muscle tissue. You can command better prices per pound and bigger profits per bird.

Dried Buttermilk

The OLYMPIC Dried Buttermilk Process simply removes the 90 to 92 per cent of water, leaving the milk elements in highly concentrated form, pure and fresh for shipment, storage and feeding.

This is mixed in proper proportions with the other ingredients in OLYMPIC Dried Buttermilk Feeds.

A Test of Taste

An OLYMPIC crate-fattened chicken dinner, served simultaneously at three great Portland hotels, brought the following expressions of satisfaction:

"OLYMPIC crate fattened chickens are more tender and better flavored."—*Hotel Portland.*

"Every piece of the poultry measured up to as high a standard as the hotel could wish."—*Hotel Benson.*

"The dinner was served 300 guests and complimented by all."—*Multnomah Hotel.*

A Test of Weight

The following results were obtained by the Hazelwood Company, of Portland, a concern shipping 10,000 birds a week:

92 White Leghorns fed *100 lbs.* OLYMPIC Crate Fattener with *Dried Buttermilk*, gained a total of *40¾ lbs.*

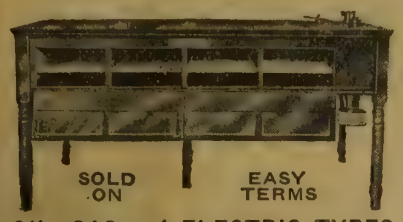
92 White Leghorns fed *181 lbs.* mixture of corn, oats and barley feed with *semi-solid* buttermilk gained but 32.3 lbs. in the same time, or on a 100 lb. basis, *but 17.7 lbs.*

The Portland Flouring Mills Co.,
Merchants Exchange Building,
San Francisco, California.
C. B. Sharp, Agent.

540 Egg Size $25

down, balance four equal monthly payments. We sell from factory direct to you. Free 48 Page catalog gives full details.

"PIONEER INCUBATORS"
Used by 60 Western Hatcheries.



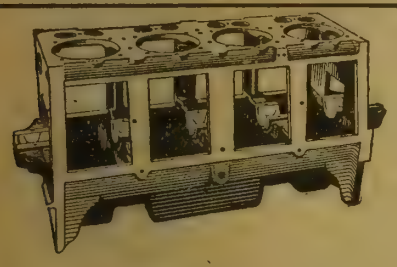
OIL, GAS and ELECTRIC TYPES
ALL SIZES 72 to 540 Eggs

BROODERS

FIRELESS AND INDOOR AND OUTDOOR TYPES HOT WATER BROODERS.

WRITE TODAY

Pioneer Incubator Co.
Los Angeles, Cal.
Andrews and New London Sts.



Five Crankshaft Bearings

The motor used in the "Caterpillar" Tractor has five main bearings. Rigid bearing support on each side of each crank-pin eliminates excessive vibration, provides the proper foundation for a heavy-duty motor, insures longer bearing life and service. This is one of many features of Holt design that make the "Caterpillar" Motor stand supreme in service, power and low upkeep cost.

The Holt Manufacturing Company
Stockton, Calif. Peoria, Ill.
Los Angeles, Calif. Spokane, Wash.
San Francisco, Calif.

CATERPILLAR
Reg. U.S. Pat. Off.

GERMOZONE

"the Best Remedy for Poultry and Pet Stock"

The old reliable, proven remedy for Roup, Colds, Canker, Swelled Head, Bowel Trouble, Snuffles, Wounds, Sores, Loss of Fur or Feathers, Skin Disease, Etc.

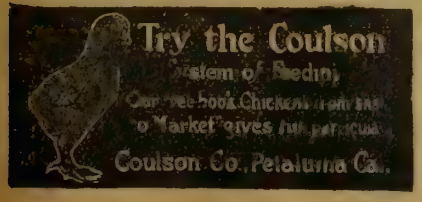
H. A. Kiewert, 5042 N. Long Ave., Chicago, Ill., says: "I had some of the worst kind of cases of roup in my chickens and I thought I would not save any but I have saved these birds, thanks to Germozone." H. A. Haines, Rosalia, Kas.: "If we had tried Germozone at first it would have saved us $1,000 worth of expensive experiments." Mrs. T. A. Morley, Galien, Mich.: "Have used Germozone 17 years and could not get along without it." E. W. Thiel, Waukesha, Wis.: "I have used your Germozone for white diarrhoea in baby chicks and sure got wonderful results. I also use it right along on grown fowls."

Germozone is sold by most drug, seed and poultry supply dealers, or mailed postpaid in 25c, 75c and $1.50 packages, from Omaha. Poultry Book and Book on Diseases FREE.

GEO. H. LEE CO., Dept. F-30 OMAHA, NEB.

NO MORE SPRAYING!
NO MORE MITES!
NO MORE LICE!

WEGNER MEDICATED POULTRY ROOSTS
Sold under a guarantee of satisfaction or money refunded. Write for particulars.
E. W. BADGER SALES CO.
Coast Distributors Long Beach, Cal.



for an exhibit of stereopticon slides of the laying houses at Santa Cruz, also at Petaluma, where two laying contests are now being conducted. This exhibition will be given at the Pomona high school auditorium on Tuesday evening, January 18, at 7:30 p. m. R. B. Easson will have charge of the meeting and will explain the pictures as well as give figures on the 1920 laying contest. All poultrymen and poultrywomen are invited.

Poultry Queries

Conducted by J. A. Koethen

Scaly Leg on Turkeys

I have several turkey hens that have a scaly or rough growth on their legs just below the knees. I rather think it is caused by roosting on the ground. Can you suggest a cure?—Subscriber, Water.

The growth is probably the scaly leg of chickens. It is due to filthy yards and houses, but is also contagious. If your turkeys have been roosting on filthy ground or ground previously contaminated by chickens, the explanation is easy. Rubbing the scale well with a mixture of lard and sulphur, half and half, will probably remove it. The treatment will have to be repeated several times, a day or so apart. If this treatment does not have the desired effect, try oil of caraway mixed into an ointment with white vaseline, 1 part oil of caraway to 5 parts vaseline. Equal parts vaseline and zinc ointment is also recommended. Treatment must be continued at intervals of a few days till all signs of the disease have disappeared.

WHAT STRAIN OF BEES?

By G. W. Bercaw

Just exactly what strain of bees one chooses depends mostly upon individual tastes. Our native honey bees have some good qualities. In the production of comb honey in our own yards we have found that our native black bee, sometimes called the German bee, produces and caps the whitest and clearest comb honey, but this might not be the experience of others in all instances. I might add to this that these black bees are probably the crossest and much inclined to sting either a trespasser or a beekeeper. For an all around, good, reliable, gentle bee we have found the Leather Colored or Three Banded Italian the best for storing honey, if properly handled. There is a strain, commonly called Golden Italian, which are fine looking, but for the production of honey I have not found them satisfactory. An imported queen bee is not handsome. However, the gentleness and strain are much more to be desired than color, and if a person can get good stock from Italy, crossing them with our native Italian drones, there is no better strain, all things considered. Importing queen bees from foreign countries is a risky proposition. We have had consignments of 12 queens from Milan, Italy, arrive with all attendant bees dead and only about six queens alive. Queens seem to stand the trip better than their attendants. It is acknowledged by nearly all prominent beekeepers that a good strain of Italian bees is the best resistant stock and much less liable to the attack of our commonly called foul brood. Just why this is has not been definitely solved. It may be that good Italian bees are the better housekeepers, and most of us know that good housekeepers are difficult to find.

Kansas will use the California state land settlement act as a model for a system of land colonies similar to those in this state. This was determined at a meeting last week at Topeka at which Dr. Elwood Mead, professor of rural institutions in the University of California, outlined the California plan before a representative conference.

Honey production has increased greatly in the Sacramento Valley during the past ten years. Alfalfa sections especially have proved attractive to the bees.

12,000 Miles

GUARANTEED
Without Punctures or Blowouts

They can't puncture—They can't blow out.

No pumping or patching or roadside repairs.

Ford, Maxwell and Chevrolet owners are getting 10,000, 15,000 and 20,000 miles of wear, in all kinds of service—on passenger cars and trucks—under all kinds of driving conditions.

Nothing can happen to Dayton Airless Tires but w-e-a-r. Nothing stops them until they are worn clear down to the last pier of rubber. Remember — without punctures or blow-outs.

Do you use 30 x 3, 30 x 3½, 31 x 4 tires? If you do, spend your money wisely — buy Dayton Airless. It's true economy.

The next time you drive around our way, STOP—AND LOOK THEM OVER.

DAYTON AIRLESS TIRE CO.
OF LOS ANGELES
Phone 66424 COR. HILL and PICO

KROGH PUMP AND MACHINERY COMPANY

147-159 Beale St., San Francisco, Cal.
Los Angeles Agent, J. B. Van Horn Co.
Krogh Pumps are Absolutely Water Balanced
No End Thrust Possible No Set Collars Used
The No Trouble Pump

Krogh Direct Motor Driven Pump

Fitted With Ring Oiling Bearings
Renewable Babbitted Bushings
Ring Oiling Gland

We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

Immediate delivery can be had on

Pioneer Incubators

in 540, 270, 135, 110 and 72 egg sizes, either electric, gas or coal oil machines; these are absolutely the best incubators made and when better ones are manufactured we will handle them.

Also fireless brooders in 100, 50 and 25 chick sizes. Pioneer hot water brooders in 200 and 100 chick sizes. Kresky brooder stoves. 500 to 1,500 chick sizes. "Chick-Elec" Electric hovers. 150 to 600 chick sizes. Reliable Blue Flame Hovers, 100 to 500 chick sizes. Cycle Hatchers, the best 50-egg incubator on the market. Poultry supplies, remedies, feeds, etc., always on hand.

We can supply baby chicks in any quantity and can handle single orders in 5,000 lots of R. I. Reds, Barred Rocks, White Leghorns, Brown Leghorns and Anconas, and we will have a limited supply of Black Minorcas, White Minorcas, White Rocks, White Wyandottes, Indian Runner Ducklings and Mammoth Bronze Turkeys.

All our chicks are hatched from selected eggs supplied from thoroughbred flocks owned by experienced breeders who have been connected with us since we first started in business fifteen years ago. Send to Department A for price lists and catalogs and place your order soon to avoid disappointment on delivery. Finest incubator, brooder and baby chicks display in the city. Visitors welcome at all times.

PIONEER HATCHERY

320 South Spring Street Los Angeles, California
"World's Largest Baby Chick Hatchers"

When Writing Advertisers Mention California Cultivator.

Los Angeles Markets

Los Angeles, January 19, 1921.

BUTTER

Butter, creamery extras, Produce Exchange price 48 cents.

Jan.	12	13	14	15	17	18
'21 ...	48	48	48	48	48	48

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 59 per dozen. Case count produce Exchange closing price 58 per dozen; pullets, produce Exchange closing price 57 per dozen.

Dairy Exchange price last week on extras:

Jan.	12	13	14	15	17	18
'21 ...	61	61	61	61	61	59

POULTRY

Price to producers: Hens, lt., 35; heavy 35; colored, 36; broilers, 40@48; roasters, 35; old roosters, 14; fryers, 40; ducks, old, 23; ducklings, Pekin, 3½ up, 25; others, 23; geese, 25; turkeys, live, young tom, 45; dr., 50; old, live, 40; dr., 41; hens, live, 45; dr., 50; squabs, 45@47.

Belgian hares, live, 16@21; old, 9.

LIVESTOCK

Los Angeles, Jan. 18.—Weighed and delivered off cars without food or water:

Hogs, (hard grain): 125 to 150 lbs., 11.00; 175 to 225 lbs., 11.50.

Cattle (on foot, gross weight): Steers, good, 8.50@9.00; medium, 8.00@8.50; cows, good, 7.50@8.00; medium, 7.00@7.50; bulls and stags, 6.00; calves, 125 to 150 lbs., 1.00; 175 to 225 lbs., 10.50.

Sheep: Ewes, 7.50@8.00; lambs, 12.50@13.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, January 18, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market dull, quality generally poor. Stocktons: Burbanks, 1.85@2.10 according to quality; few high as 2.40. Idahos: Russets mostly 2.00@2.25. Local: Mostly 85@90 per lug. Sweets, best, mostly 1.50@1.60.

Onions: Supplies heavy, market dull. Stockton: Whites, cold storage, 2.50@2.75; Browns mostly 1.00@1.25 per 100 lbs. sacked.

Garlic, lb., 14@17.

VEGETABLES

These are the actual prices obtained January 18, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Beets: Doz., 40@50; sk., 1.50@1.75.

Cabbage: Supplies heavy, market firm. Best mostly 1@1½ per lb.; per field crate, mostly 1.00@1.25.

Carrots: Doz., 30@40; sk., 90@1.15.

Cauliflower: Supply liberal, field cr., best, 1.75@2.00.

Celery: Cr., best 2.25@2.50; poorer low as 1.75.

Cucumber: Hothouse, best, 2.50@3.25 doz.

Egg Plant: Lb., 9@11.

Lettuce: Field crate, mostly 1.25@1.40.

Peas: Sk. sales, 13@14 per lb.; small lots 12@15 per lb.

Peppers: Bells, 8@10; Chilis, 15@17.

Radishes: 15 doz.

Rhubarb: Crimson Winter, best bx., 1.00@1.35.

Spinach: Doz., 20@25.

Squash: Local Hubbard, lb., 1@1½.

Tomatoes: Local lugs, mostly 85@1.25 lug; few best 1.50@1.75.

Turnips: Per doz., 25@35; sk., 1.00@1.10.

DECIDUOUS FRUITS

These are the actual prices obtained January 18, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Apples: Supplies liberal, movement slow, market steady. California: Bushel boxes Bellfleurs, fancy 4 tier best 2.10@2.25; ordinary, 1.90@2.00; 4½ tier, 1.75@1.85; Jonathans fancy, 3.00@3.25; Delicious fancy, 3.25@3.50. Rome Beauty, fy., 2.75@3.25. Idahos and Utahs: Loose Jonathans. Romes and Arkansas Blacks, best mostly 6@7 per lb. Oregons and Washingtons: Bushel boxes, extra fancy Jonathans and Spitzenburg mostly 3.00@3.25.

Pears: Various varieties, 7@10.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 1.75@2.25; special packed brands, 2.50@3.00; Arizonas, box, 4.00@4.25.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.25@2.00, few high as 2.75; loose, bx. 75@1.25; lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack large sizes 2.75@3.25; small low as 1.75; special brands mostly 3.00@3.75 according to size and quality, grove run 75@1.00 loose. Tangerines, best, 6@8.

HONEY

Movement slow: Carloads f. o. b. usual terms: Per lb. 5-gallon cans White Orange and White Sage, 16½@20; extra Light Amber Orange, and Sage, 19; Light Amber Orange, 18½; Light Amber Sage, 12@18½; Light Amber Alfalfa, 11@17. Beeswax: Sacked, in less than car lots 40@42 per lb. Prices given represent quotations; practically no sales being made. Wide range due to extremely unsettled market conditions; low prices are considered possible in near future.

NUTS

California Walnut Growers' Association announces prices on 1920 walnuts: No. 1, soft shell, 12½; No. 2, 18½; Budded, 25½; standard budded, 22½ per lb.

GRAIN AND FEEDS

Grain Exch. price bid January 18:
Milo: Cariots, 1.92½; Eastern, bulk, 1.55.
Kafir: Eastern, 1.68¾.
Corn: Bulk, No. 2 Yellow, 1.73¾.
Wheat: Mixed feed, 33.00.
Barley: 1.65@1.71¼.

HAY

Alfalfa Growers of California report under date of January 19:

Receipts of alfalfa hay were somewhat lighter while the demand continued at the norfhal rate for current consumption, resulting in a good steady business throughout the week, without any particular change in prices.

There were 450 tons received on January 15, 1921, with 60 tons held over as against 720 tons the week before.

Rabbit	39.00
No. 1 dairy	27.00
Stock	19.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@24.00
Barley	18.00@22.00
Alfalfa	20.00@28.00
Barley straw	6.00@10.00

San Francisco Markets

San Francisco, January 18, 1921.

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 45½

Dairy Exchange prices extras this week and year ago:

Jan.	11	12	13	14	15	17
'21 ...	45½	46	46½	46	..	45½
'20 ...	..	66	66	62	..	..

Rcts. 5 days ending Jan. 17, 2,491 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Cal. Y. A.	34
Oregon Trips	32
Cal. Y. A.	31
Cal. Flats	25½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	65½
Extra Pullets	61½
Undersized	58

Dairy Exchange prices, extras this week and year ago:

Jan.	11	12	13	14	15	17
'21 ...	64½	63	64½	65	..	65½
'20 ...	..	71	67½	61½	..	..

Rcts. 5 days ending Jan. 17, 256,115 doz.

POULTRY

Wholesale prices are:
Hens: Colored, 38@40; White Leghorn, 37@39; strictly young roosters, 40@42; old roosters, 22@23; fryers, 45@50; broilers, 50@43.
Ducks: 30@35.
Squabs: 70@75 per lb.
Turkeys: Dressed, fancy, 54@55; occasionaly 56 per lb.; poor quality 45@50 per lb.; live 43@46.
Geese: 32@35 per lb.
Pigeons: Old, 2.50@3.00 dozen.
Belgian Hares: Live, 24@27 per lb.
Jackrabbits: 2.50@3.00 per doz.

LIVESTOCK

Western Meat Co. prices:
Cattle: Steers, No. 1, 9@9½; do, second quality, 8@8½; do, thin, 5½@7.
Cows and Heifers: No. 1, 7@7½; do, second quality, 5½@6½; do, thin, 3@4.
Calves: Light weight, 10½@11½; medium, 8½@9½; heavy, 7½@8½.
Lambs: Milk, 10½@11½; yearlings, 8½@9.
Sheep: Wethers, 7½@8½; ewes, 4@5.
Hogs: Hard, fat, grain-fed, weighing 100 to 150 pounds, 11½; 150 to 225 pounds, 12; 225 to 300 pounds, 11½; 300 to 400 pounds, 10½.

California Farm Bureau Marketing Association reports:

No. Hogs	Av. Wt	Dock	Price
Tulare, January 11			
1	220	...	$13.35
81	187	...	13.35
83	201	...	13.30
75	204	...	13.00
26	210	50	12.60
77	206	...	12.15
52	150	...	11.60
9	324	...	11.60
5	106	...	10.90
20	329	330	10.90
Five cars, 34 consignors.			
Visalia, January 12			
71	224	...	12.00
75	231	20	12.00
81	173	20	11.80
72	213	...	11.80
5	342	...	10.80
10	288	140	9.30
Four cars, 20 consignors.			
Hanford, January 13			
73	220	...	12.00
47	224	...	11.90
75	227	...	11.80
81	206	...	11.75
74	227	...	11.75
77	205	...	11.75
101	160	...	11.45
23	205	...	11.40
15	210	...	11.05
29	294	...	11.05
10	149	...	11.05
20	112	...	10.75
10	364	...	8.50
Nine cars, 46 consignors.			
Corcoran, January 14			
88	198	...	12.50
10	132	...	10.00
1	320	...	8.00
2	495	Both for	45.00
One car, 6 consignors.			
Bakersfield, January 15			
55	188	...	12.90
2	210	...	11.90
One-half car, 6 consignors.			

Total for the week 19½ cars, 112 consignors, 1545 hogs, $38,566.89.

HIDES AND PELTS

No. 1 heavy, 60 pounds up, 6: do, medium, 45 to 60 pounds, 6; light hides, 30 to 45 pounds, 7½; do, native bulls, 5. No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less.

No. 1 wet salt kip, 15 to 30 pounds, 8; No. 2, do, 7; No. 1, wet salt calf, trimmed, 10; do, untrimmed, 5; No. 2 calf, 2 per pound less. The price of No. 2 hides will be 1c less than the price of No. 1. Hides having any of the following defects will be classed as a No. 2: Any cut over six inches from the edge, over five bad scores, five grubs, one grain slip, one rubbed spot where grain is gone, one dragged spot where grain is gone, one sore spot where grain is gone.

Dry hide, 16 pounds and up, No. 1, 12; dry kip, 7 to 15 pounds, No. 1, 15; dry calf, under 7 pounds, No. 1, 16. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint. Prices for short haired hides only. Long haired winter hides, 1 less.

Long wool, 9 to 12 months' growth, 75 and up; medium, 6 to 9 months, 50@70; short, 3 to 6 months, 25@40; shearings, good, 1 to 3 months, 10@20; shaved or damaged, 10; lambs, large, long wool, 25 and up; do, small, 15@20; milk lambs, 5@10.

POTATOES AND ONIONS

Wholesale prices:
Potatoes: Street prices: River, 1.85@2.00 for No. 1; do, Oregon Burbanks, 2.25@2.50; Salinas, 3.15@3.25; Idaho gems, 2.25@2.50 sweet potatoes, 5.25@5.50 per 100 lbs.
Onions: Australian brown, 90@1.00 per cental.
Garlic: New, 7@10 lb.

VEGETABLES

Wholesale selling price:
Artichokes: Doz., 70@1.25.
Beans: Limas, 10@12½.
Brussel Sprouts: 5@7 lb.
Beets: Sk., 1.25.
Carrots: 1.25@1.50 sk.
Cauliflower: Doz., 90@1.00.
Cucumbers: Hothouse, bx., 3.00@4.00; Eng. doz., 2.50.
Cabbage: Lb., 1.
Celery: Cr., 2.25@3.00.
Egg Plant: Southern, 7@10 lb.
Lettuce: L. A. cr., 2.00@2.25; Sac., 2.00.
Mushrooms: Small bx., 1.00@2.00.
Onions: Green, per lug, 1.25@1.50.
Peas: Lb., 9@13.
Parsnips: Sk., 1.75@2.00.
Peppers: Bells, lb., 10@12; Chili, lb., 5@10.
Rhubarb: 2.25@3.00 lug.
Spinach: Lb., 5½@6.
Squash: Italian, 1.00@1.25 per small box, 1.50@2.25 per small lug; cream squash, 65@75 per lug; Hubbard squash, 1.00@1.25 per sack; marrowfat and pumpkin, 1.00 sack.
Tomatoes: Bx: 60@1.00; fy., 1.25@1.75.
Turnips: Sk., 75@1.00.

FRESH FRUITS

Apples: Bellflowers, nominal; Newtons, 3½ tier, 2.75@2.85; do, 4 tier, 2.@2.25; B grade, 1.50@1.75; 4½ tier, 1.25@1.50; Oregon Newtowns, 2.50@3.00; Hood River Spitzenberg, nominal; Arkansas Black, fancy, 3.00@3.50 do, choice, 2.25@2.50; Golden Ortley, 3.00@3.50; Rome Beauty, fancy, large, 2.50@3.50; small, 1.75@2.50; Missouri Pippins, 1.25@2.00; Ben Davis, 1.75@2.50; do, small, 1.25@1.50.
Avocado: Fla., 6.00@7.00.
Bananas: Lb., 8@10.
Cranberries: Per bbl., 25.00@27.00, Oregon, 6.00 box.
Dates: Lb., 10@22.
Mangoes: Doz. 6.00@10.00.
Olives: Lb., 7@8.
Pears: Winter Nelis, 3.50@4.00; other varieties, 3.00@3.75.
Persimmons: Bx., 1.00@1.75.
Pineapple: Doz., 4.00@6.00.
Pomegranates: 1.50@2.25 per half orange box.
Strawberries: Dr., 1.25@1.50; cr., 3.50.

CITRUS

Navel oranges, 2.00@4.00; lemons, 2.00@3.50 per bx.; lemonettes, 1.50@2.00; grapefruit, new crop, 1.50@2.50; do, Arizona, 4.00@4.25; limes, 1.25@1.75; tangerines, 2.50@4.00 per half orange box.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 23 lb.; Sunmaid seeded, 36 15-oz. pkgs., 23 lb.; seedless Sultanas, 25-lb. bxs. 21½ lb.; Thompson seedless, 25-lb. bxs., 22 lb.; do, 48 15-oz. bxs. 23 lb; 3-cr. L. M., 25-lb. bxs., 23 lb.; 2-cr., do, 22 lb.; 1-lb. clusters, 20-lb. bxs., 5.50 box.

Peaches: Blue Ribbon brand, 48 11 oz. to cs, $10 cs; Blue Ribbon brand, 24 2 lb. bxs to cs, $11; fancy, 25 lb. bxs, 19c; extra choice, 25 lb. bxs, 17c; choice, 25 lb. bxs, 15c.

BOSTROM IMPROVED

Shipping weight 15 lbs. Price $22.50

Has TELESCOPE with magnifying glasses which enable you to see cross on Target quarter of a mile. Pays for itself on the first job of

IRRIGATING, DITCHING, TILE DRAINING, TERRACING, etc.

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Write for description of Level and TELESCOPE, details of money back guarantee; also name and address of our distributor in your section.

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89 Stonewall Street, ATLANTA, GA.

"Red Top" Steel Fence Post

DRIVES LIKE A STAKE
ANCHORS LIKE A ROCK

Effective FEBRUARY 1, 1921 there will be a marked reduction in the price of Red Top Steel Fence Posts F.O.B. Los Angeles.

We wish to announce that due to the rapid growth in the sales of these famous fence supports it has become necessary to improve facilities for handling this product. Please notice carefully our new address and write today for descriptive matter and price list.

Harry L. Baylies
431 Pacific Finance Bldg.
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Los Angeles, Cal.

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Few countries possess all the conditions for happy, prosperous living as does British Columbia. The varieties of climate and soil offer inducements for almost every branch of agriculture. Whether in the warm interior valleys, the rich grazing table lands or the fruitful lowlands of the Coast or Vancouver Island, the advantages offered for

Dairying, Fruit Growing and Stock Raising

are such as must appeal to those who wish to improve their circumstances and at the same time live in a country of delightful climate, magnificent scenery, varied resources, progressive people and abundance of opportunity for development. British Columbia—the playground of America—is already famous for the production of its orchards, fields and dairies. Now, is the time to

Learn about this wonderful Province and share in its possibilities. It's industrial life—mining, lumbering, fishing, manufacturing, transportation—assures a ready market at good prices for all the farmer can produce. Schools, churches, railways, roads, telephones, all the conveniences of an old land await you in this new Province of Opportunity and Success. For illustrated literature, maps, etc., write Department of Immigration, Ottawa, Can., or

Gilbert Roche.
8-5 First St., Sheldon Block San Francisco, California.
Canadian Government Agent.

Pears: Fancy, 25 lb. bxs, 20c; extra choice, 25 lb. bxs, 16c; choice, 25 lb. bxs.
Pears: Fancy, 25 lb. bxs., 20; extra choice, 25 lb. bxs., 15; choice, 25 lb. bxs., 12.

Figs: Fancy black, 25-lb. bxs., 11 lb.; extra choice, do, 9 lb; choice, do, 8 lb; fancy white, do, 15 lb.; extra choice, white, do, 12 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10-oz. white, 1.25 box; 24 8-oz. white, 20 8-oz. 1.75 box; fancy 4-layer, 10-oz. bxs., 2.00 box; choice, 4-layer, 10-lb. bxs., 1.75 box.

Prunes: 30-40s, 25-lb. bxs., 16 lb.; 40-50s, do, 13 lb.; 50-60s, do, 11 lb; 60-70s, do, 9 lb.; 70-80s, do, 8 lb.; 80-90s, do, 7 lb.; 90-100s, 6 lb. Persian dates, 20 lb.; Fard dates, 30 lb.; Dromedary dates, 6.50 case.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 9 lb.; choice, do, 8 lb.

NUTS

Peanuts: Japanese, 9.
Pecans, 25.
Almonds: California Almond Growers Exchange quote:

Nonpareil	26
I. X. L.	26
Neplus	25
Drake	18

BEANS

Below please find shippers' prices January 17:

	Per 100 lbs.
Pinks	5.65
Large Whites	3.95
Small Whites	3.65
Mexican Reds	5.50
Blackeyes	5.35
Red Kidneys	9.00
H. B. Limas	5.25
Bayos	10.00
Crans	6.00

RICE

Receipts for two days ending January 17, 8,025 bags.
Fancy California Japan rice offered f. o. b. San Francisco, immediate, spot, 3.60; February, 3.15; March, 3.10; April, 3.05.

GRAIN

Sales grain exchange, January 18:
Wheat: Mill run, 2.90@3.15; feed, 2.90@3.15.
Corn: 2.00.
Oats: Red feed, new crop, 1.50@1.75.
Barley: New feed, 1.50@1.62½.
Shorts, 34@35.

HAY

Alfalfa Growers of California under date of January 19:
There were 775 tons received in San Francisco the week ending January 15.
No. 1 Dairy Alfalfa.....21.00
Standard 19.00
Under date of January 17, A. W. Scott Co. says:
Receipts of hay for the past week, 775 tons. The past week has shown more activity in the handling of hay, both in San Francisco and throughout the state, than for some weeks. In fact, it is the result of a general sentiment manifest in all lines of business. Both consumers and producers seem to have squared back their shoulders, tightened up their belts and made up their minds that they are going to take their medicine and do business. The consumer seems to feel that values have now reached levels low enough to inspire his confidence, while the producer also has become apparently convinced that a reaction is unlikely and nothing will be gained by holding longer. As the minds of the two elements of business thus apparently approach a meeting, trading results and business will probably be increasingly active from now on.
We quote today wholesale prices in carload lots as appear from dealers' transactions upon the hay market in San Francisco (for prices to consumers charge of cartage, commission and handling expenses must be added, according to conditions).

Wheat Hay, Fancy	20.00@21.00
Wheat Hay, light 5 wire bales	17.00@19.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00

Citrus Markets

Los Angeles, January 19, 1921.
Prices are firm and fairly satisfactory in nearly all markets. The immense amount of small fruit is inducing heavy cutting of small offs. There is but little f. o. b. buying. No injury is the report from all orange districts affected by the recent cold.
The lemon market remains flat, though slightly better feeling prevails. There are practically no foreigns on the market.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 2,873 cars; lemons, 1,012; total 4,885. To same date last season: Oranges, 4,794; lemons, 799; total, 5,593. From Central California to date, this season: Oranges, 3,890; lemons, 50; total, 3,940. To same date last season: Oranges, 3,381; lemons, 140; total, 3,521. From Northern California to date this season: Oranges, 297; lemons, 3; total, 300. To same date last season: Oranges, 260; lemons, 20; total, 280.

AT THE AUCTIONS

January 12
New York: 10 or., 2 lem. Nav. 3.20-3.70, lem. 3.25-3.85.
Boston: 4 or., 1 lem. Nav. 3.70-4.35, lem. 3.75-4.25.
Pittsburg: 5 or., 1 lem. Nav. 2.60-4.40, lem. 3.55-3.80.
Cleveland: 4 Nav. 3.05-4.65.
St. Louis: 2 or., 1 lem. Nav. 2.40-3.70, lem. 3.05-3.65.
Baltimore: 1 lem, 2.65-3.25.
Cincinnati: 1 lem. 3.60.

January 13
New York: 10 or., 3 lem. Nav. 3.15-3.50, lem. 1.65-3.80.
Boston: 3 or., 1 lem. Nav. 4.15-5.05, lem. 3.30-3.90.
Pittsburg: 2 Nav. 2.15-3.25.
Philadelphia: 1 or., 1 lem. Nav. 2.75-3.55, lem. 3.20-3.50.

January 14
New York: 6 Nav. 3.50-5.30.
Boston: 2 Nav. 4.30-5.15.
Cleveland: 3 or., 1 lem. Nav. 3.20-5.00, lem. 4.25-5.00.
Pittsburg: 2 or., 1 lem. Nav. 2.50-2.95, lem. 3.80.
St. Louis: 5 Nav. 3.40-4.20.
Cincinnati: 1 lem. 3.55-3.75.

January 17
New York: 2 or., 2 lem. Nav. 3.55-5.95, lem. 3.50-3.95.
Boston: 6 or., 1 lem. Nav. 3.70-5.35, lem. 4.15-4.25.
Cleveland: 4 or., 1 lem. Nav. 3.45-4.85, lem. 4.10-4.70.
Pittsburg: 4 or., 1 lem. Nav. 2.05-4.85, lem. 3.95.
Philadelphia: 1 lem. 3.95.
St. Louis: 4 or., 1 lem. Nav. 2.75-4.20, lem, 4.20-4.45.

January 18
New York: 3 Nav. 3.90-5.00.
Boston: 4 or., 1 lem. Nav. 3.65-5.60, lem. 5.00-5.05.
Pittsburg: 1 Nav. 3.55.

HOG WALLOWS

I was much interested in Mr. Whitney's article on hog wallows. He has surely been close to this particular soil and knows whereof he speaks. I think he has effectively disposed of the bush, wind and dirt theory. Now I would like to ask who has ever seen tules growing in this particular soil? I never have, and I have seen thousands of acres in California and Oregon. Invariably they grow in silt, and their whole lifework is leveling and building up.

No respectable tule would be satisfied with a little 20 foot hog hummock. They are a slow plant to start, and then only under the most favorable conditions; but once they do start they never let go until long after they are dead, and lack of water is about the only thing that will kill them. Dozens of plants grow from a single root, which may be 50 to 100 feet long, crossed by other roots until a network is formed upon which one can walk in safety, while underneath may be 20 feet of slime and ooze.

The first time I saw the hog wallows of Tulare County they reminded me of the home of my youth, and I am taking the liberty of advancing the theory that occurred to me at that time. In the light, deep soil along the creeks and rivers are many grand old oaks, and the ground under them is smooth as a lawn. In many places where the oaks cease the hog wallows commence. Is it unreasonable that many years ago there should have been oaks where there are none now?

Many years ago a fire in Maine and New Brunswick swept a good part of that state and province. Before the roots had rotted heavy rains loosened the soil and a high wind leveled the forest, and the roots lifted great quantities of dirt and small stones. And there today, in all but the lightest soils, are hummocks and hollows in miniature of the hog wallows of Tulare County. Those knolls are five to ten feet across, but after all these years during which generations of timber have grown and been cut for the market, the little wallows still wallow and the little hummocks still stand. The knolls of Tulare are 20 to 30 feet across, and if one of our giant oaks uprooted what would you have?

And, again, is it unreasonable that during some season of extreme wet that a high wind swept through the valley, and while the deep rooted tree still stands, his brother on the heavier soil with his mighty weight of leaf and branch and shallower root system should be uprooted and help to form the noted hog wallows of Tulare County.

A woman tourist inquired of the San Diego ticket office man when the 5:15 train would leave.
"A quarter after 5," he replied politely.
"My goodness!" she exclaimed. "I never can get accustomed to Pacific Coast time."

Establish a reputation for honest, uniform, high grade products, and then live up to your brand.

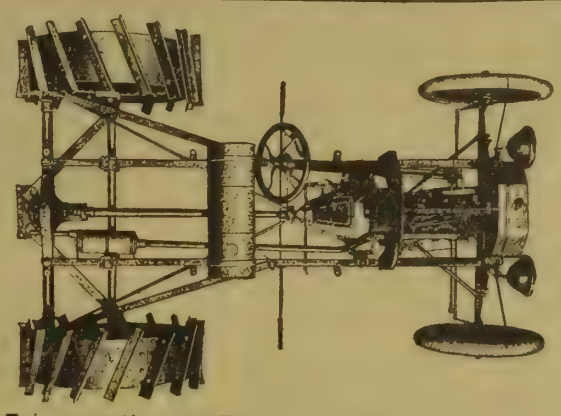
SCRAPERS TO FIT CALIFORNIA

Californians have always demanded something "different." Years ago wagon manufacturers sent the old time eastern box wagon here and found it was not received with favor. They learned California's requirements, and practically every Eastern manufacturer sent carloads of "California" wagons. They are even quicker today to meet the conditions. As an example, the Miskin Scraper Works at Uncin, Idaho, manufactured a scraper which fitted Idaho conditions to a T. It was a horse drawn implement and so successful that shipments made to California were well received, but still were lacking in the eyes of the tractor farmer. Regarding the situation the company writes:
"We began sending our horse drawn scrapers into California last summer but soon ran up against the proposition that most of the farmers in that section of country use tractors instead of horses for their farm work. They were very anxious to get a suitable tractor scraper so that the driver could operate the scraper as well as the tractor, which we have succeeded in doing, though not until after a long and severe strugle, so that now the tractor will carry the front end of the scraper and the scraper wheels carry the rear end of the scraper, loaded or empty. It is very easily operated from the tractor seat. It is already in great demand in California."

WEATHER REPORT

San Francisco, Cal., Jan. 15, 1921.

Stations	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.19	28.03	20.25	54	32
Red Bluff	.13	15.16	11.82	52	32
Sacramento	T	9.03	8.57	54	32
San Francisco	.01	12.54	10.01	56	43
San Jose	.00	7.31	7.28	62	32
Fresno	T	3.07	4.36	60	32
San Luis Obispo	.00	6.74	8.15	76	38
Los Angeles	.01	3.00	6.37	78	38
San Diego	.10	1.10	4.15	76	38



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Harrowing and
All Field and
Orchard Work
With Your
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Finest Nursery Stock
Ever grown at our Betabel Nursery.
The excellent root system on these trees attracts favorable attention wherever seen. Send us a list of your nursery stock need for our quotation.
FRUIT TREES—a little of almost everything still available.
CITRUS TREES—balled or in large cans.
GRAPE VINES—commercial and table sorts.
BERRIES—all the best varieties. Grapes and berries, and many other kinds of stock can be sent in small lots by parcel post.
ORNAMENTAL AND SHADE TREES—of all kinds.
SEND FOR CATALOG PROMPT DELIVERY
Leonard Coates Nursery Co.
MORGAN HILL, CAL.
Home of the Famous Coates (French) Prune Trees

NEW CATALOGUE
Full of Reliable Information About
SEEDS, PLANTS
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It's Free
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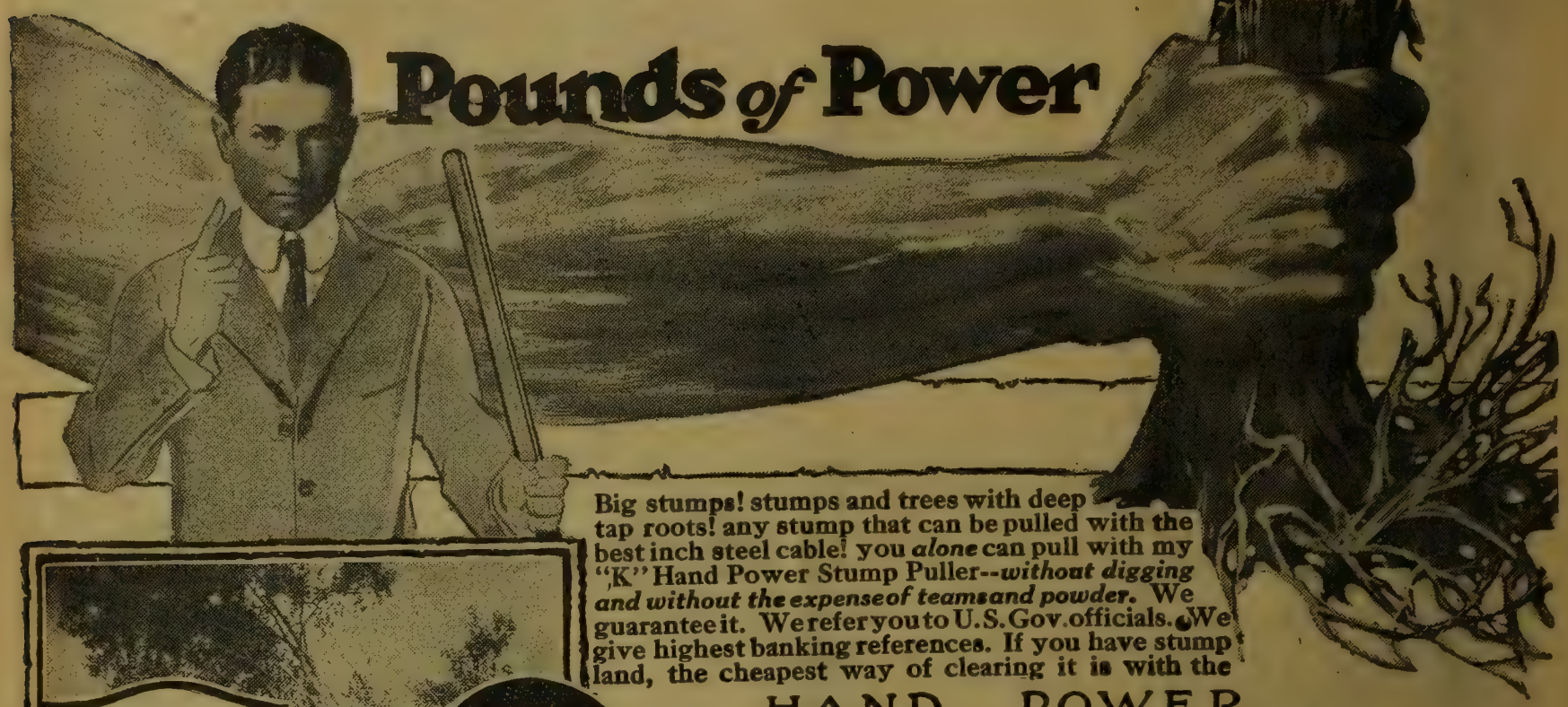
The K Hand Stump Puller

Gives Your Hand 96,000 Pounds of Power



Big stumps! stumps and trees with deep tap roots! any stump that can be pulled with the best inch steel cable! you *alone* can pull with my "K" Hand Power Stump Puller--*without digging and without the expense of teams and powder.* We guarantee it. We refer you to U.S. Gov. officials. We give highest banking references. If you have stump land, the cheapest way of clearing it is with the

HAND POWER

K Stump Puller

Frank Hance, a *one-armed* farmer of Bowie, Md., pulling double silver maple 3 ft. 8 in. in diameter at the ground, with deep tap roots. This is an easy pull for the "K" as the cable can be hitched high and the leverage is consequently greater.

How the "K" Pulls Biggest Stumps

The "K" works on the leverage principle of the ordinary lifting jack, except that the power is applied on a cog-wheel instead of a standard. 100 lbs. push on the lever develops a 48-ton pull on the stump—all an inch steel cable will hold. One man operates it alone—no teams to pay for—no walking.

A Mechanical Wonder

Made of finest steel—guaranteed against breakage. Weighs only 171 lbs.—easily carried or hauled about on its own wheels. Has two speeds—60 feet per minute for hauling in cable or for small stumps—slow speed for heavy pulls. *Works equally well on hillsides and marshes where horses cannot work.*

Owners Praise It

H. Sinclair of the Dept. of the Interior, a U. S. Gov. official, writes: "The stump puller is a wonder."

Ernest Thompson Seton, author and naturalist, declares the "K" "a great success."

Hundreds of owners write in, telling of pulling six- and seven-foot stumps, of pulling faster and pulling bigger stumps than by any other machine.

Special Offer We are making a special offer to get a "K" Stump Puller introduced in every neighborhood. Write us today for full information and for free book on Land Clearing and about our Wonderful Drag Saw.

The Fitzpatrick Products Corp.
Box 17
99 John St., New York
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H. G. Hunzicker of Foster, Wash., pulling a 24-inch fir stump with deep tap roots out of hard ground, without using powder or cutting any roots.

Tear Out and Mail Today

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Send me full particulars on your special offer and your free booklet on Land Clearing.

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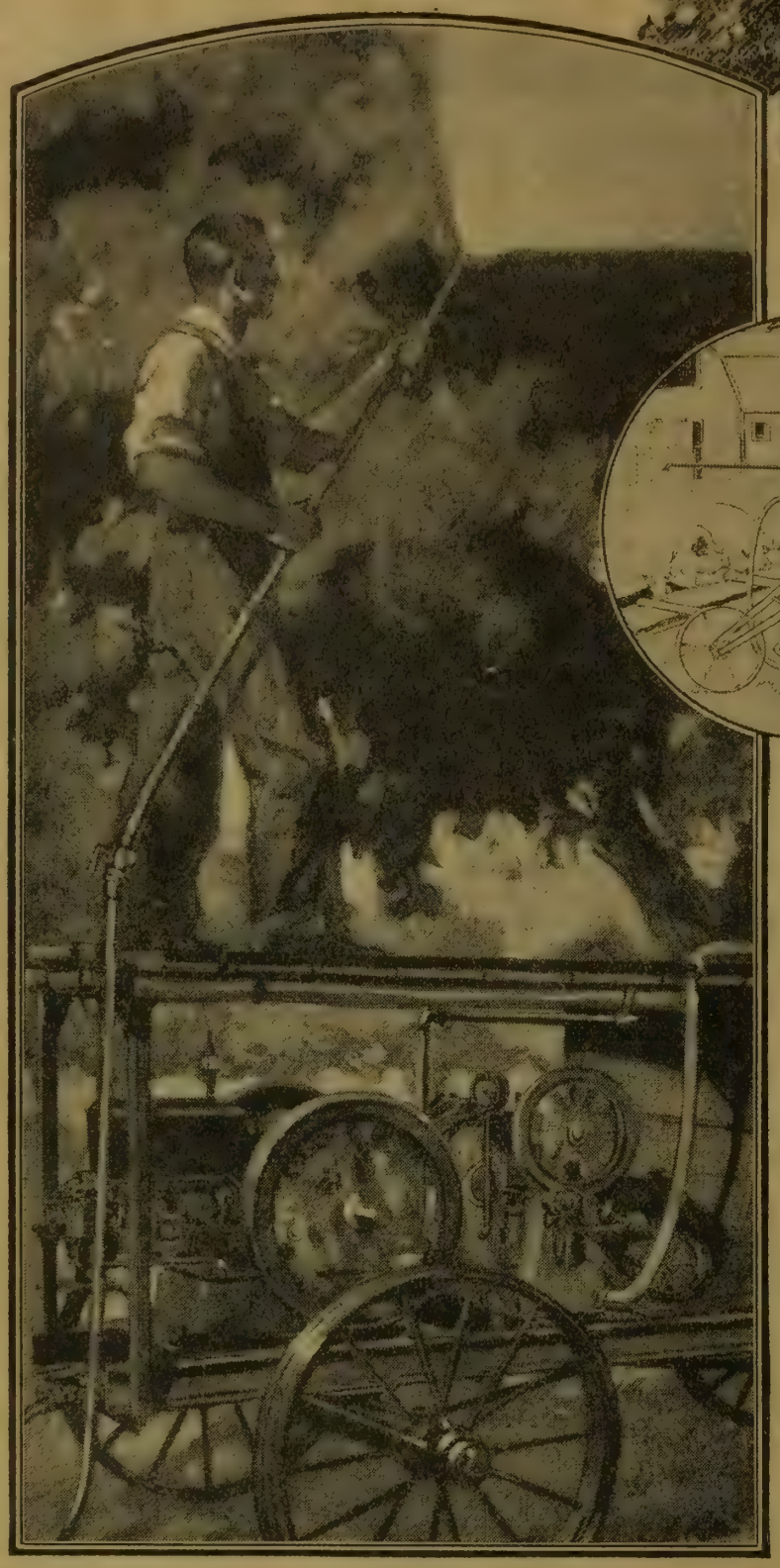
CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — January 29, 1921 — No. 5

1921



Let Spraying Save Your Fruit

Your Hogs, Garden and Poultry

EVERY Fruit Grower and Farmer should look out for destructive pests this year. Government bulletins say their work of destruction is more terrible than ever before in some sections. Experts estimate that the loss will total millions of dollars.

Send the coupon and find out now, how spraying will save your part of this enormous loss; how spraying will save your fruit and every other living thing on your place.

Our new FREE Book tells also how Fruit-Fog, the scientific, vaporous, super-spray, works into the microscopic niches in bark, buds and foliage, where no ordinary coarse spray can possibly reach. It explains why ONLY by thus doing a **thorough** job—only by seeking out and killing these **hidden** pests—are big crops possible.

When you understand this wonderful advantage, you will KNOW why Fruit-Fogged orchards and farms are producing amazing yields. Also why Fruit-Fog is acknowledged a phenomenal success.

Fruit-Fog is produced by Hayes 300-lb. high pressure and the famous Hayes nozzle. It envelops everything like a mist. Its vapory fineness gives wonderful adhering power. No drops form—no solution wasted—no buds or leaves knocked off—as with heavy, lower pressure sprays.

Hayes Sprayers are scientifically made to give enduring service and greatest efficiency under high pressure. The famous Fairbanks-Morse "Z" engine insures reliable engine service.

Send Coupon Today

Tell us how many trees you want to spray, and how old they are on the average, also what other uses you have for your sprayer. We will tell you where and how you can get the style Hayes Sprayer best suited to your needs, and its price. We will also send our big New Book of Hayes Sprayers, and valuable Spraying Guide FREE. Send the coupon today.

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Hayes Sprayers For All Purposes

Whether for spraying orchards or gardens, for disinfecting hogs or poultry, for whitewashing or cold water painting or any of a hundred other purposes, there is a Hayes Outfit to exactly meet your needs.

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Distribute Hayes Power Sprayers, Engines and Repairs. Users of Hayes Power Sprayers are therefore, within only 24 hours of a service station at all times. In case of accident at a critical time, this quick service may save your fruit crop. Hayes Hand Sprayers are distributed by Hardware and Implement jobbers.

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Gentlemen: Please send, FREE and without obligation, your Big New Book of Hayes Sprayers and Your Valuable Spraying Guide.

Number of trees.....Average Age.....

Other uses.....

Name.....

P. O.....

State.....R. F. D. .....

83

California Cultivator

Vol. LVI, No. 5 **Los Angeles, January 29, 1921** **One Dollar Yearly**

Arizona Boll Weevil

By Chas. T. Vorhies

Shall wild cotton be eradicated from Arizona's hills and with it will it be possible to eradicate the Western cotton weevil? This question would be serious enough in its financial phase, but it is also somewhat complicated by contention between the federal and Arizona authorities on one side and A. W. Morrill, formerly entomologist of Arizona, on the other. Dr. Morrill is now connected with cotton interests which take issue with authorities of Arizona, as he explained in an article appearing on Page 5 of the issue of the California Cultivator of January 1. Those who believe the Arizona authorities and department men are acting wisely and doing their utmost to control a pest which, as yet, is not serious, but from which much is feared, have since the publication of the article called at the office, and we now have a letter from Dean D. W. Working of the Arizona agricultural experiment station, in which he refers to Dr. Morrill's connection with the board of agriculture and horticulture at the time the present line of work was initiated and to the fact that his association joined in requesting the federal horticultural board to make an effort to study the Arizona situation and plan a campaign of eradication. Dr. Working encloses with his letter one which he has received from Entomologist Chas. W. Vorhies.

MR. MORRIL states that the wild cotton weevil "is probably more to be feared than the Eastern variety." This is purely a matter of opinion not yet proven by experiment, and on this point the opinion of Mr. Coad, the government authority who carried on the experiments at Agua Caliente ranch, east of Tucson, is doubtless as good as any other. He says in his report on this weevil: "Its present habits are such that it would not injure cotton greatly, but these habits will probably be changed to a certain extent and more injurious ones acquired." Without wishing to minimize in the least the possible danger, it is only fair to point out that no one knows the extent of this danger sufficiently to make a valid argument that it is "more to be feared." Mr. Coad further says: "The present habits render it quite probable that the control of the Arizona form will be a very different problem from that of the cotton weevil and more easily solved." Apparently the world is not on fire because an infestation has been found.

Unfortunately for the argument regarding the danger of forcing an infestation of cotton by such destruction of wild cotton as was carried out in the fall of 1919, there are several facts which tend to nullify it. The plants which were destroyed at that time were an insignificant fraction of the whole number of wild cotton plants in the adjoining ranges, quite insufficient to cause any great "food shortage" and consequent migration in numbers. I would estimate that much less than one per cent of the total plants were destroyed, only the fringe of scattering plants along the washes between the mountains proper and the valleys where cotton could be grown being cleaned out. These are precisely the plants referred to in Coad's report, as follows: "In this connection the distribution of the plants through the lower arroyos is especially important. In many localities these now support weevils and so are a constant menace to cotton, while even where the weevils are not now present they are always likely to serve as stepping stones in the downward movement of the weevils maintained by floods." It was only these "stepping stones" plants which the Arizona authorities eradicated, or attempted to eradicate. As a matter of fact, the plants outside of the canyons have during the last two years had a lighter infestation of weevils than those farther up in the mountains, and less than apparently was the case in some earlier years when others were making observations. This is a fact determined by my personal observation.

Regarding the forcing of an infestation of weevils by means of the eradication work, there was not known to me or to the commission or the state entomologist a single acre of cotton growing in the danger zone of the upper Rillito Valley in the season of 1919, so that the danger of causing an infestation at the late date of October 13 or 14 was but little; while as a matter of further fact, a killing frost occurred in a few days after the inauguration of the work, further safeguarding against forcing adult weevils to flight. The oncoming generation of weevils, such as may have been present, was certainly destroyed by the burning of the plants after pulling. In this connection, also, it is of much interest to know that precisely the condition held desirable by Dr. Morrill, namely, the leaving of roots of plants to grow and act as trap plants the next season, occurred in most if not all of the washes or arroyos where work was done. These in most cases produced a crop of bolls in the following season of 1920, and in these we should expect to find, if the trap plant theory works out so importantly in practice, a large number of weevils and also a large number showing the work of the boll worms. According to Morrill the boll worm moths must otherwise have infested cultivated cotton. Neither of the above events has transpired. As a matter of actual fact, I have opened and examined every discoverable boll on these left over trap plants in two washes and have not found a single weevil. Only one boll was found which had been eaten out by the boll worm, and this was at the canyon mouth, near undisturbed wild cotton and four miles from the nearest cotton field.

True enough, some weevil infestations of cotton have been found in the danger zone of the upper Rillito Valley, and I must believe that these infestations would have occurred under Dr. Morrill's plan of protection, as they have occurred under the other plan. I now believe, as a result of my observations of the past season, that the only safe thing to have done last year would have been to have established a wide and strict non-cotton zone such as has already been established for the coming year, and this Dr. Morrill does not claim he would have done. No one knows better than he the practical difficulties in the way of establishing such a non-cotton zone when the price of cotton is high and every farmer wants to try the crop. With the cotton market as it is today this will be a relatively easy precaution to carry out.

I wish to state that I know from cage experiments begun last fall on this potential pest that it is much easier to detect an infestation by the boll worm than a weevil infestation, and I therefore believe that no such infestation has occurred. The close inspection necessary to detect what has been found of weevil infestation would inevitably, in my judgment, have led to discovery of the boll worm, if present. A boll infested with a boll worm of the species to which Dr. Morrill has referred can be readily detected from outside examination only; in fact, if the worm be of fair size the boll is likely to be rendered conspicuous. On the other hand, a boll infested with weevil larva must be opened to be certain of determining the presence of a larva. The above facts concerning the appearance of a boll of cultivated cotton infested with boll worms of the species under discussion are doubtless unknown to Dr. Morrill, as they are the results of my own experimental work of last September.

There is another point which, as a direct result of my personal studies and observations in the past two or three years, I consider of great importance. Dr. Morrill makes much of the possibilities of distribution of weevils to the cotton fields by floods, following up in this respect the suggestions rather strongly urged by Coad in his bulletins. I am becoming more and more convinced, on the other hand, that this means of distribution, while a possibility, is not very probable. My reasons for this view are as follows: It appears to me that the great majority of the bolls remain rather firmly attached to the parent plants until a year and even more has passed. During this time nearly or quite all of the uninfested seeds have shaken or rattled out, allowing plenty of opportunity for the seeds to be carried away by floods, but not so the bolls. Further, a considerable number, which I believe to be the majority, and possibly nearly all, of the infested bolls not only remain on the plants, but they fail to open up sufficiently to allow of the discharge of the several glued together seeds which constitute the hibernation cell of the weevil. Consequently the supposed danger of carriage of infested bolls by floods I believe to be greatly minimized if not almost wholly negligible. I no longer believe that the distribution of seeds by floods, as indicated by the appearance of seedlings far down the washes and stream beds, is at all coincident with the probable distribution of weevils by floods. As this conclusion has grown upon me I have mentioned it to others in advance of the past season, which as I now see it offers some proof for it in a negative way. That is, we have seen this season an infestation similar to that observed by Coad at Agua Caliente Ranch, but without the floods to account for it. The 1920 season was unexpectedly dry in July and August when floods are usual, and no floods from the Catalinas reached the Rillito and the ranches where infestations occurred. From observations on the wild cotton in August and September, I learned that the blossoming season was abnormally delayed, probably mostly by lack of mosture, and the weevils had not even buds (squares) on which to oviposit until an unusually late date, and of course they had no bolls, which they prefer, until a later date. In fact, there were no bolls formed until the month of September, it being a very rare exception when a blossom opened before August 31. It is my belief that this condition caused a flight of adult weevils which would not otherwise have occurred, resulting in the infestation of cotton fields.

Dr. Morrill says: "No effort should be spared to completely eradicate the wild cotton boll weevil in Arizona." Personally I have steadily maintained, and am more firmly of the belief than ever, that to attempt this would be a great waste of money. The cost of eradication of the plant alone without any precautions as to the insects harbored would be prohibitive, and when there is added to that the increased cost which would be necessary if proper precautions were taken for eradication of the insects it becomes entirely out of the question to attempt it. The entire cotton crop of the Santa Cruz and Rillito valleys for many years would not pay this cost.

TRACTOR AND IMPLEMENT ASSOCIATIONS

On the Pacific Coast there are four separate power farming and implement associations. They are the Northwest Power Farming Association of Spokane, the Portland Tractor and Implement Association, Portland, Oregon; the Traction Engine and Implement Dealers Association, Los Angeles, and the California Tractor and Implement Association, San Francisco. These four associations united and organized the Pacific Coast Tractor Associations early in 1920. Members of this coast association have now made arrangements by which there will be affiliation, even closest cooperation, with the National Implement and Vehicle Association, a large national association which has had more to do with advancing power farming than any other.

At the recent convention of N. I. & V. A. held at Atlantic City, the Coast was represented by President Gardner, Thomas Osborne of Los Angeles and George Collins of San Francisco.

Regarding the Eastern convention and the courtesies accorded the Coast representatives, Mr. Collins writes:

"After expressing extremely cordial sentiments at the interest of the coast associations in being present at the convention, stated their desire to cooperate with the Coast in the fullest manner and afford every facility within their power and that of the committee in helping to solve these problems, carefully explained the inability of the N. I. & V. A., under its present bylaws, to federate any association with it, and suggested that we accept the invitation of President Gittins to be present at this meeting.

"Representatives of the coast associations are mindful of the extreme courtesy that was extended them, both in a social way and in line with the object of their visit here, which courtesy was often at the expense of a personal sacrifice on the part of the men who so graciously received them. Since the convention at Atlantic City the utmost in cooperation and assistance has been given to the coast associations by your secretary, H. J. Sameit, and by his assistant, Robert A. Jones."

Agricultural News Notes of the Pacific Coast

Northern California

Orland and Chico are discussing grain elevator.

San Francisco recently shipped 11,980 dozen eggs to Hawaii.

The Sutter Basin will plant over 1,800 acres of spring vegetables.

The Sacramento chamber of commerce now has a home of its own.

A prune grower at Chico has found market for his prunes at Denver, Colorado.

Northern prune producing counties are generally signing up the new contract.

More than 5,000 pigeons were shown at the recent Oakland national pigeon show.

Alameda County farm bureau is finding success in its 1921 membership drive.

The state engineer has disapproved of plans of the Honcut-Yuba irrigation district.

Tehama County is now in the oil game, new wells being sunk almost every day.

Butte County reports rice acreage not harvested because of storms will show at least 30 per cent loss.

The Contra Costa County Farmers Association has completed purchase of land for elevator and salesroom.

The Lake County Pear Growers Association recently held its monthly social meeting at Finley schoolhouse.

Bulk handling of grain received great impulse by the successful work of the few elevators constructed last year.

The Farm Bureau Elevator Corporation is planning the erection of five grain elevators at Davis, Woodland, Zamora, Yolo and Dunning.

Director Dunlap is having success in his drive for membership in the Prune and Apricot Association. Butte County reports many growers already signed.

The state farm bureau federation is pushing for a measure which provides appropriation of $50,000, preliminary expense in carrying out the California warehouse act.

President Stephens of the Pacific Rice Growers Association is urging members to discontinue harvesting efforts, maintaining that spring time will see the work more successfully done.

Placerville, Eldorado County, Fruit Growers Exchange in annual meeting reported that association shipped last season 166 cars fresh fruit. One hundred sixteen members attended the banquet.

The Iron Canyon survey findings indicate cost of the project as $37,577,000. It is estimated that 225,000 acres of Sacramento Valley land would be irrigated when this great work is completed.

Celery growers of the delta of the Sacramento River announce they will turn their gardens into hog ranches unless there can be a reduction in freight rates on celery. Sacramento grew 6,000 acres of celery this last year.

The Humboldt County farm bureau is making a special membership drive. A big year's work is blocked out, direction of which has been placed in the hands of ten standing committees, on livestock and dairying, on poultry raising, purchasing and marketing, etc.

Central California

The Hickman-Waterford farm center netted $450 from annual dance.

Barley growers are discussing what to do with their light weight barley.

Farm Adviser Smyth of Madera County has tendered his resignation.

Valencia, Santa Cruz County, is organizing a center of the farm bureau.

Fresno is making an effort to secure a branch of the state university in that city.

Fresno County farm bureau's membership campaign netted 100 per cent gain.

Almond growers are contemplating making direct sales of almonds to retailers.

Milk Producers of Central California recently met at Modesto to elect board of directors.

Duroc swine breeders of Stanislaus County held their regular January sale at Modesto fair grounds.

Watsonville reports storage apples as decreasing and as much lower than a year ago this same time.

California dairy council with dairymen from many sections of central California recently met in Fresno.

Ten years ago the San Joaquin Valley produced 70,000 tons of raisins; today its output exceeds 170,000 tons.

Watsonville apple dryers have declared against the proposition of marketing dried apples on a "moisture basis."

The County Supervisors Association of the San Joaquin Valley recently met in Fresno. Chris. Jorgenson of Fresno is president.

The state water commission listened to applications to appropriate waters of Tuolumne River at Modesto on Tuesday of this week.

Direct sale of raisins to jobbers and elimination of brokers is the new policy of the California Associated. The new plan will begin with the 1921 crop.

On February 8 the voters of the Fresno irrigation district will ballot on proposal to bond the district for $2,000,000. This is a step toward the Pine Flat project.

At a recent annual meeting of the Tulare County Mutual Fire Association J. W. McPherson of Orosi was elected president and A. P. Graybill, secretary and manager.

Owens Valley apple producers won many prizes at the fruit show recently held at Berkeley and now feel "Owens Valley apples are without exception amongst the finest and largest."

Annual election of officers of Stanislaus County Poultry Association resulted in selection of president, R. H. McDrew; vice-president, H. G. Brown; secretary, L. Miles, and treasurer, A. C. Drake.

Grape growers are asking as to the wisdom of contracting grapes this far in advance, especially if $100 per ton is offered, and the advice usually given is not to contract unless at least $50 per ton is deposited by the buyer.

The directors of the Modesto-Turlock irrigation district have approved and adopted plans for the construction of the Don Pedro dam. Two years will be required for completion of the project. The dam will have a capacity of 260,000 acre feet and its highest point will be 283 feet from the river bed.

Southern California

Some Limas have been sold as low as $5.25.

Correct dates for the orange show are February 18-28.

Banning almond trees are in bloom and heavy crop is promised.

This is Ventura County farm bureau's membership drive week.

The crop of Navels will be the largest ever grown in California.

Lima beans are looking blue; some sales are reported as low as 5¼.

Orange County has resolved to increase its membership 100 per cent.

Poultry Producers of Southern California holds annual meeting this week.

Orange County claims saving of $11,000 because of state fertilizer law.

Lima bean producers of Orange County met last Saturday at Santa Ana.

Perris irrigators are discussing bringing of water from San Jacinto River.

High school boys of Blythe, Riverside County, are forming potato growing club.

Coachella Valley now has an ambition to be a producer of pure bred cotton seed.

Excessive freight rates have prevented shipping of the Imperial Valley lettuce crop.

Arlington Poultry Association recently held meetings in connection with the farm bureau.

Farmers of Imperial Valley are discussing karakul or desert sheep to be raised for fur and wool purposes.

Covina farm center in annual meeting elected: President, B. F. Thorpe; secretary-treasurer, Grant Chapman.

The advance in freight rates will add more than $9,000,000 to the amount paid by orange growers in 1919.

Escondido Progressive Poultry Club recently elected: President, Mrs. Chas. Hudson; secretary, Mrs. J. A. Runser.

Many lemon growers refused to fire up during the frosty nights because prices of fruit would not justify the expense.

Imperial County's head lettuce is declared exceptionally fine but freight rates still holding much of it from going to market.

The Covina Citrus Association members have authorized the directors to proceed with building and furnishing houses for employes.

The station has been fitted up at Whittier, Los Angeles County, for the breeding of aphycus lounsburyi, the parasitic insect on black scale.

Nuevo, Riverside County, Cooperative Fruit Growers in annual meeting recently reported apricots sold for $85 per ton, while peaches mostly brought $100.

Citrus growers are protesting against 33 1/3 per cent cyanide tariff which they claim will be all for the benefit of one large American manufacturer.

Orange County Cow Testing Association reports great increase in average butter fat production. The best herd average for November was by the 20 cow dairy of F. T. Aitken, with 41.88 pounds.

The Coast and General

Michigan onion growers are demanding a one cent a pound tariff.

Several cargoes of Danish potatoes have been received in New York.

Jackson County, Oregon, farm bureau has a $5 per year membership fee.

Hood River, Oregon, is planting very extensively to berries and small fruits.

Cabbage grown in Denmark is selling in New York City at $12 and $14 per ton.

Walla Walla, Washington, gardeners have perfected a vegetable marketing association.

All small fruit producing sections of the Northwest are increasing their acreage of berries.

Washington state reports material losses to apple industry because of excessive freight rates.

The United States imports 154,820 gallons of green olives and 394,457 gallons of edible olive oil.

Ohio potato planters are finding trouble with certified seed, some of which has been condemned.

Onions are selling in Chicago at $1 to $1.25 a hundred with very free movement from surrounding states.

Yakima Valley, Washington, produced last year about 10,000 cars of apples, 9,000 of which were shipped fresh and 1,000 as by-products.

Yakima Valley, Washington, shipped out fruit during 1920 to the value of $15,500,000. This was nearly $5,000,000 lower than shipments of the preceding year.

Texas farmers are thoroughly aroused on the Japanese ownership situation and Japanese settlers have been urged to move on.

Oregon, Washington and Idaho recently proposed a joint meeting of the three states to discuss uniting of all coast and mountain states in a league to prevent Japanese ownership of lands.

The Chinese peanut crop for 1920 was better and larger than any preceding year. The peanut belt there produces about 400,000 tons annually, of which about 120,000 tons are exported.

Wheat growers of Montana are signing contracts for a six year marketing plan. Over 400,000 bushels have already been signed up. A series of meetings will be held the first week in February.

American National Livestock Association, recently in session in El Paso, recommended to congress enactment of constructive federal legislation regulating the packers, commission men and traders.

The Ohio University Clip Sheet suggests: Lightning rods may be placed on the silo with good effect, as the silo is likely to be the tallest structure in the farm building group and hence somewhat more likely to be struck by lightning." Why is a lightning rod?

Seattle is shipping to London by way of Panama Canal Northwestern grown apples. It has been determined that large quantities of 1921 apples will be shipped by the same route. The freighters now leaving Seattle have a refrigerator capacity of 3,000 tons.

Sixty Years of Beekeeping in California

By J. E. Pleasants

Mr. Pleasants of Orange County is one of the pioneer beekeepers of California, and qualified to touch upon the history of honey production in the state. He has written for the American Bee Journal the following article which touches upon 60 years of beekeeping, but we find his modesty has prevented reference to his own connection with the industry. We believe if Mr. Pleasants would give of his own personal recollections he would add materially to our fund of information as to beekeeping history. There are so many interesting items in the Bee Journal article that we take the liberty of quoting almost entire.

BEEKEEPING was introduced into the West by men of courage and enthusiasm. The distance from the older settled centers was great; travel was slow, accomplished by primitive methods and fraught with difficulties.

We are indebted to that intrepid enthusiast, John S. Harbison, for the beginning of our industry. From Mr. Harbison's own account we get the following data of the pioneer apiary of California. John Harbison came to California in 1854, and for two years he studied the flora of the state, while engaged in the nursery business. At the end of this time, he sold out his nursery and returned to his old home in Lawrence County, Pennsylvania, with the intention of bringing out bees.

Mr. Harbison had learned the care of bees from his father in boyhood, so was well equipped for his undertaking. He tells of the care with which he prepared his shipment, which was to make the long journey by water from New York to San Francisco via the Isthmus. He had the lumber for his hives sawed three-eighths of an inch thick to save on weight, as the freight from Newcastle, Pennsylvania, to San Francisco was very high. The hives, of course, were small, so Harbison added a chamber about 3x8x13, well ventilated with screen, as a place for the bees to get off the combs and carry out the dead.

He started with 116 colonies and lost only six on the journey.

Being a man of pleasing address, Mr. Harbison made friends with all with whom he came in contact, and was accorded all possible assistance by the ship's officers.

His first apiary was located in the Sacramento Valley. He readily sold all the bees that he was willing to dispose of at $100 per colony, and mentions colonies being resold at $200. The cost of bringing the 110 colonies from Pennsylvania to California was about $1,800.

Mr. Harbison made the first shipment of honey that went East from California. This was sent with the first carload of green fruit that was shipped to Chicago. In 1869 Mr. Harbison moved his bees to San Diego County, in the extreme southern part of the state, where he continued in the business until the time of his death in 1914. At one time he kept 3,750 colonies, divided into 12 apiaries. He sent the first carload of honey to go East from his San Diego apiaries. This honey was sold in Chicago at 27 cents per pound.

Mr. Harbison was a producer of comb honey. He invented a hive which was used in California until the introduction of the Langstroth hive here. He used two pound sections. He was at one time one of the largest comb honey producers in the world, and took many prizes for his exhibits at the Centennial and later exhibitions. Even a short time before his death he outlined a plan for a model apiary to be placed on the San Diego Exposition grounds in 1915. He was the author of a book on beekeeping, and his interest in his chosen pursuit never flagged.

Among other pioneer beekeepers were Wm. Muth-Rasmussen, Dr. Elisha Gallup, John F. Corey, R. Wilkin and N. Levering, the editor of the first bee publication on the Pacific Coast. This was the California Apiculturist, which was first published in 1882. Mr. Muth-Rasmussen was probably the first in California to use an extractor. He brought out a Peabody extractor in 1871. Prior to this all honey had been rendered out in sun extractors. Mr. Muth-Rasmussen writes that about three years after this he found others using home made extractors run by gear wheels. In 1873 he and Captain J. T. Gordon called a meeting and organized the Los Angeles Beekeepers Association, the first beekeepers association on the Pacific Coast. Mr. Muth-Rasmussen afterward moved to Inyo County, California, where he has since lived, and is a producer of comb honey.

There is an interesting story told in Gleanings of one of Mr. Corey's experiences, which will illustrate his determination to overcome difficulties. In the early days he was a mail carrier in the mountain regions of Northern California. On one of his trips he bought a small swarm of bees (probably a nucleus). This he carried on his shoulders over 100 miles, part of the way on snowshoes.

The first Langstroth hive was used here in about 1872, by John Beckley.

Among later men notable for their achievements in bee culture are M. H. Mendleson of Ventura County, Andrew Joplin of Orange County, John H. Martin, whose charming articles in Gleanings under the pen name of "Rambler" have been enjoyed by all readers of the magazine; M. C. Richter of the San Joaquin Valley, author of the bulletin on "The Honey Plants of California"; Willis Lynch, instructor and apiarist of Stanislaus County, and Messrs. Hauser and Hogaboom of the Sacramento Valley. Mr. Joplin's crop of extracted honey this year was about 25 tons from sage alone. Mr. Mendleson is probably at the present time one of the world's largest beekeepers. He came to California in 1880, and while he had kept bees previous to this, he worked with the veteran apiarist, Mr. Wilkin, to whom he pays this tribute:

"Mr. Wilkin was one of the most scientific, orderly and practical of men. He was a good and patient teacher and was resourceful and a genius in creating conveniences. It was a pleasure to work in his bee yard, everything was so clean and orderly."

Mr. Mendleson's apiary, at its largest, contained 2,000 colonies, and his largest yield for one season was 101 tons, taking out and extracting as much as three and one-half tons in one day. His Piru apiary of 700 colonies is on a hillside among most picturesque scenery, and is terraced. Each terrace contains two rows of hives facing the alley way in pairs, a numbered stake between each pair, and an individual record kept of each colony. All queens are replaced every year or two with the very best Italian stock.

Among the many younger men who have made notable success as apiarists we will mention only two, for lack of space. L. L. Andrews of Corona, son of the veteran inspector of apiaries of Riverside County, and George J. Brown of Orange County. L. L. Andrews got his start by digging 24 colonies of bees out of rock caves and trees. He added to these by purchase and increase until he now has 1,000 colonies, and his crop this year from orange and sage was 60 tons. Mr. Brown began as a boy, some ten years ago, and now has 800 colonies. His crop this year was 50 tons.

In the beginning of the bee business in California we had several problems to solve. The package problem seemed one of the most complex at the start, but was the quickest solved. We used kerosene cans mostly, though some used barrels. The experience of some of the beekeepers who tried barrels was harrowing to relate. I had two neighbors who stored their honey in barrels, waiting for a better price. They never got it. All through that winter, which was quite dry, the honey leaked out just about as fast as the bees could take it up. My bees went through fine that winter, as they were near enough to my neighbor's honey barrels to use them as feeders. Those of us who used kerosene cans will never forget those days of cleaning and soldering, when preparing for a honey flow. But from the ancient kerosene can was evolved the modern honey can and case, California's bequest to the extracted honey producers of the country.

The price of honey was good at the beginning, for a few years. Then it dropped very low. I remember selling extracted honey in 1877 for nine cents, but from 1877 until about 1884-1885 the beekeepers were in luck if their honey netted them three cents.

The cause of this was exorbitant freight rates on the one hand and the treatment we received at the hands of the commission men on the other. In fact, matters got so bad that producers quit sending their honey to the commission houses. That forced the buyers to come into the field; and while prices were not what they should be, we at least had the satisfaction of selling our own honey. Now the California Honey Producers Exchange bids fair to solve the marketing problem. This was organized over two years ago for the purpose of marketing honey and buying supplies. It was organized with the assistance of the state market director and is modeled to some extent on the plan of the fruit exchanges. There are about 70 per cent of the commercial beekeepers of the state in the membership, with new members coming in regularly. In addition to furnishing honey in carload lots to the buyers, the exchange is now putting up honey in small packages, which are being sold to wholesalers, who do the distributing. The California Exchange is young, but so far is meeting with a fair measure of success.

Up to about 30 years ago most of the honey of the state was produced in the southern part, and exclusively from wild plants. Now beekeeping is a thriving industry in the northern part also, as well as in the large interior valleys. While we still depend upon the wild flora for our mountain apiaries, the bee forage along the foothills and in the valleys has been largely increased by the large acreage planted to oranges and beans in the coast counties, and by the alfalfa fields of the interior valleys. The Sacramento and San Joaquin Valleys have hundreds of thriving apiaries fed by alfalfa and lippia. Alfalfa does not furnish nectar in the cool coast region to anything like the extent that it does in warm inland valleys. Another comparatively new section, rich in the production of honey as well as of other resources, is the Imperial Valley, lying in the extreme southwestern portion of the state. This valley is truly one of the wonderlands of the Southwest. A reclaimed desert, as it were, but of a soil rich in silt washed for ages from the overflow of the Colorado River; soil which only needed water to produce anything in the dry, warm climate in which it lies. Water is now had in abundance, and its alfalfa fields yield an ample supply of nectar to thousands of colonies of bees. While honey is not produced commercially in all parts of California, in the last 25 years the industry has very materially increased. We still produce almost as much from the native plants, and the great increase of forage from cultivated plants has enabled many more to engage in the business. The wild pasturage of Southern California is pretty thoroughly stocked, so there is little room in the sage belt for beginners, unless they buy an old range.

I believe California now leads in the production of honey. The honey for the most part is of excellent quality. There is no more delicately flavored honey than that produced by the sages, and it is of excellent body when allowed to ripen properly. The orange honey is also beautiful to look upon and is of a spicy flavor, recalling the fragrance of the orange blossom itself. It is a very common practice for beekeepers here who can obtain suitable locations to move from orange to sage and thus get two flows in one season. Some then move to the lima bean fields and get three The bees there are largely Italian though Cyprians, Carniolans and Caucasians are used by some. Of course there are plenty of hybrids. Almost all the beekeeping counties have county clubs which serve to keep the members in touch with each other's work and socially.

The state has a good foulbrood law, providing for an inspector for each county where the beekeepers demand one. The system of inspection has been thorough, the inspector giving his whole time to the work during the season, and subject to call at any time. American foulbrood has been greatly decreased, and is altogether under control. European exists in some localities, but is not near the menace that it was.

Grain dust and similar mill siftings appear harmless, but filtered through the air and ignited in a closed structure, they are as deadly as dynamite. Such explosions cost 80 lives and $7,000,000 property damage in 1919. The United States department of agriculture dust explosion investigation service has practically eliminated the evil.

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and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

J. W. Mills — D. F. Reichard
Fred M. Reed — J. B. Neff
G. E. Gordon — Louis B. Stanton
A. R. Gould — M. E. Bemis
E. L. Koethen

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EDITORIALETTES

Only a bit of waste water is shown on the cover this week, and this is in Tulare County, where every drop of water is valuable. The war has forced us to make sacrifices and to study wherein every part of our resources may be conserved in the interests of all the people. It seems today that the need is none the less for conservation, not only that our finances may be of value in advancing the country's interests, but that our soil and our water shall be compelled to do their utmost. Water cannot be forced to do its utmost when it is conducted in sluggish lagoons or in open canals over gravelly soil. Concrete is expensive; water is more so.

* * *

The California State Irrigation Association is making a strong fight for an appropriation to provide means to enable the state engineer to make investigation and report on the feasibility of the Marshall plan. With the Marshall plan proposing an ultimate expenditure which may reach $750,000,000—which is some appropriation for a single state to attempt—there is perhaps sufficient opportunity for activities without other dreams being referred to as having possibilities along that line. The Marshall plan thoroughly covers the great central valley, and even water for some of the coast and bay counties, likewise a liberal portion for the northern part of Los Angeles County. But there are many storage possibilities in other southern counties which should be availed of. There are the Little and the Big Tejunga, San Gabriel, San Antonio, Santa Ana and other canyons, which have never been fully investigated. These should not be used to jeopardize in any way investigation of possibilities of success in the Marshall plan, but the state is big enough to take first steps in conservation in all the counties of the state.

* * *

Mr. Royce is furnishing, on Page 148 of this issue, a number of most interesting notes on legislative matters at Sacramento. Other items will follow week by week.

* * *

Two strong organizations, the National Grange and the National Federation of Farm Bureaus, are watching legislation at Washington. It appears that they are doing some good work and keeping the country informed. The Grange is making a special effort to secure the passage of the Wadsworth-Kahn bill, which provides for the creation of a government corporation to operate the government nitrate plant at Mussel Shoals, Alabama. It is declared that the material on hand as the result of its operation during the war period, if sold, would assure the continuance of this great plant and provide nitrogen to thousands of American farms. The Grange declares that no additional appropriation would be called for.

* * *

The Capper-Volstead collective marketing bill seems to be taking a recess in its activities. This bill provides for release of cooperative farm organizations from the operation of the anti-trust bill, but the enemies of the bill have succeeded in putting on a rider, or amendment, which practically removes all the features favorable to cooperative marketing and leaves the farmer standing where he is today, subject to prosecution similar to that recently undertaken against raisin growers. Cooperators have promised to turn in and defeat the bill if the present amendment is forced through.

* * *

The emergency tariff measure is still stirring up the animals. The importing interests are fighting it tooth and nail. The would-be friends of the importer and some friends of labor are endeavoring to use farm products to beat down the cost of living. The number of farm products to be added to this emergency tariff list has been greatly increased, and all poultry and dairy, wool and meat products have been added to fruits, nuts and farm products which were at first under consideration. The conditions for final passage of this bill are rather more favorable than they were a week ago.

* * *

The California Breeders Sales and Pedigree Company, which has been such a factor in advancing the pure bred interests of the state, announces a change in plan by which it becomes even more cooperative than before. Beginning with 1921, it will refund any surplus accruing in each calendar year from sales of registered livestock, whether consigned by members or nonmembers. Heretofore there has been participation on the part of all members, and as a truly cooperative organization the membership was open to all owners of pure breds.

WHO PAYS TAXES?

Unless the people wake up and say something pertinent, even pungent, to some of the corporation assemblymen who voted down the King taxation measure, they will have a neat little addition to their tax bill. The vote stood 49 for and 30 against, but, being a taxation measure, it requires two-thirds majority for passage, and one of the strongest lobbies which has gathered for years at Sacramento succeeded in defeating the people's measure. The lobby insists that the measure which provides that the corporation taxes shall be increased one-third in order to meet necessary expenditures will only result in the railroads and others passing the burden back to the producer for hauling his products to market or for other service rendered. Perhaps this is true, but why the energy exerted by the lobby at great cost?

The friends of the measure are strong enough to vote for and secure reconsideration. This will probably be one of the first matters taken up after the present interim or recess. Here is the roll call:

Ayes—Anderson, Bernard, Broughton, Christian, Cleary, Cleveland, Colburn, Coombs, Crittenden, Cummings, Eksward, Fellom, Fulwider, Hawes, Heisinger, Hornblower, Hughes, Hume, Johnson, Frank, Johnston, J. W., Jones, G. L., Jones, Isaac, Kline, Lee, George W., Lee, Ira A., Lewis, Manning, Mather, McDowell, McKeen, Morrison, Parker, Parkinson, Pettis, Powers, Prendergast, Roberts, Rosenshine, Ross, Saylor, Smith, Spalding, Spence, Webster, Wendering, West, Windrem, Wright, T. M., Speaker Wright.

Noes—Badaracco, Badham, Baker, Beal, Benton, Bishop, Bromley, Brooks, Burns, Graves, Gray, Greene, Gart, Heck, Hurley, Long, Loucks, Lyons, McCloskey, McGee, McPherson, Merriam, Mitchell, Morris, Pedrotti, Ream, Stevens, Warren, Weber, White.

Some of these assemblymen who voted "No," it may be observed, are representing agricultural districts.

The Taxpayers Association seems to be in for plenty of censure on the part of the people who are in favor of keeping the taxation where it belongs—on the corporations. It certainly is standing loyally by the corporations in their effort to defeat this measure.

EAT OLIVES

George C. Mansfield of the Oroville Register is fathering a little olive eating boom all his own. He calls attention to the blow which was delivered to the industry and appeals to Californians all to aid in reestablishing the olive in public esteem. He speaks of California Olive Day, February 21, and asks all to join in the campaign to:

Restore normal consumption in California.

Start a wave of favorable publicity eastward from the home of the ripe olive.

It may interest you to know that experts state there are 350,000 acres in the Sacramento Valley and its adjacent foothills, 350,000 in the San Joaquin Valley and its foothills, and 100,000 acres in Southern California where the conditions are particularly suited for the culture of the olive. There is no industry that belongs to every part of the state as much as the olive industry. Its ultimate development should mean a state income of at least half a billion dollars. If the consumption of New York City equaled the average consumption of a California city during normal times, New York City would consume California's entire production at the present time.

Time alone is the great testor

As the sands run through the glass of life the things that are real abide while the the unworthy pass away.

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Almonds: Effect of Culture is Quite Marked

By T. C. Tucker

ALL varieties will vary in size from season to season and in the different orchards during the same season, depending upon the plant food and moisture supply available during the time the nuts are maturing. Some varieties will vary more in size than in plumpness, while other varieties are more inclined to produce somewhat shriveled kernels and imperfectly developed shells and the variation in size will not be as great. Exchange members know the great care required to maintain quality, so you can readily understand why Blue Diamond Brand almonds are always full meated, perfectly developed almonds. As the trees bear a larger crop the almonds produced are inclined to be smaller. Young, vigorous trees with a light crop will often produce unusually large almonds with comparatively thin shells. The value of a variety, therefore, will depend largely upon its behavior after the trees reach full maturity and bearing. The Exchange issues to grower members a monthly bulletin containing the latest scientific method of culture.

The almond of commerce is encased in a thin, brittle shell, but on the tree this shell is enveloped in a thick, grayish green hull. When nature begins to open the outer hull of the almond, harvest time draws near.

The harvesting of the crop should be commenced as soon as the hulls have opened to their fullest extent and no time should be lost in completing the work. The nuts in the center of the trees are the last ones to ripen and so may be used as indicators. If harvesting is commenced early, the nuts will cling to the tree rather tenaciously, and knocking must be vigorous in order to shake them loose. On the other hand, if they are allowed to remain too long after they ripen a number of difficulties may be encountered. They may be thrown to the ground by light winds and the cost of gathering be increased, which quite commonly occurs, or the hulls may dry up and in doing so close around the nuts to a greater or less extent and add to the cost and difficulty of hulling. Time of harvesting in California varies according to the district. Strong winds will break off a great many of the nuts of any of the varieties, and promptness is doubly essential where there is any likelihood of such winds during the harvest season. Depredations by birds may cause serious losses, especially with the soft and paper shell varieties.

The crop is gathered by knocking the ripened nuts and hulls with long poles onto sheets spread on the ground under the trees. The knocking should be done near the portions of the trees where the nuts are borne and by striking a number of light, quick blows, rather than by a heavy blow aimed to jar a large branch. This will avoid injury to the bark by bruising and will accomplish the work in less time. The blows should always be delivered squarely against the branch. A glancing blow will tear the bark and break off a great many fruit spurs, thus reducing the bearing surface for the next year. For this reason, harvesters must be watched closely all the time to insure the proper use of the poles. The sheets, two in number, are spread under the trees so they will overlap and catch all the almonds that fall. When sufficiently loaded with nuts to make dragging the sheets from one tree to another difficult, they are emptied into lug boxes and sent to the huller.

The character of the harvesting equipment may vary considerably, depending on the acreage, character of trees and ground, time required, capital available, and the personal wishes of the owner. Some growers use heavy poles of pine, spruce or fir, while others prefer the lighter bamboo poles. The heavy poles are from 1½ to 2 inches in diameter at the base and from ¾ to 1 inch in diameter at the top. Experience has shown that poles of this type over 20 feet in length become unwieldy, and not only swing slowly but do more damage because of the greater difficulty of control. Most growers prefer 16 foot poles with a few 20 foot ones for use in the tops of the tallest trees. Where the tops cannot be reached with these, the men climb into the trees with shorter poles. The bamboo poles used are about 24 feet long and because of their lightness can be used with greater speed. Bamboo, while easy to handle, cracks so badly when exposed to the sun that it can hardly be considered a success. The sheets used are made of duck ranging in weight from 7 to 12 ounces. Sizes of single sheets range from 12x24 to 24x48 feet. Sheets need not be much longer than the longest diameter of the tree.

After harvesting, the almonds, hulls and all, are taken while still moist to the huller to separate them. If they become dry before hulling they must be dipped in water or the shells will be broken. All hulling was formerly done by hand, and this is still done where only small lots are to be handled. The invention of machinery for this purpose has reduced the cost of hulling materially. Most outfits separate the hulls from the nuts before they leave the machine. Some of the hand hullers consist simply of the hulling portion of the larger power machines without the separating screens. Where a man has a small acreage and is too far away to haul to a large huller, a hand machine will greatly facilitate the work, even though the final separation must be done by hand.

There are three different kinds of hulling and separating machines now in operation in California, all invented by California almond growers.

After the hulling operation all almonds must be gone over by hand to remove pieces of hulls and inferior or gummy nuts. Where canvas drapers are not available for sorting directly from the huller, the nuts are piled in hoppers and sorted on benches beneath them.

Headquarters of the Skookum Packers Association has been moved to Wenatchee, Washington.

CITRUS FRUIT FUMIGATION SAFEST BELOW 80

While it has long been known that the presence of light during fumigation of citrus fruit with hydrocyanic acid is one of the factors which cause injury to both fruit and foliage, it has not been known that light before and after fumigation has a similar effect. This fact has been disclosed by recent tests conducted in California by specialists of the United States department of agriculture, who have made a report of the experiments with suggestions for preventing injury, in Department Bulletin 907, "Fumigation of Citrus Plants with Hydrocyanic Acid: Conditions Influencing Injury."

Moisture and temperature, as well as light, influence fumigation injury, and experiments show that fumigation is more safely performed at temperatures below 80 degrees Fahrenheit. It has long been known that citrus trees are less liable to injury from hydrocyanic acid gas fumigation when treated at night. The bulletin points out that in order to prevent injury due to sunlight, diffused light or darkness both before and after fumigation is desirable.

Sunshine fumigation can be conducted with safety, the department's specialists say, only by proper regulation of the amount of gas used and length of exposure. Moisture on citrus plants does not increase the degree of injury, and an application of cold water on plants in hot sunshine immediately prior to fumigation appears to reduce slightly the effect of the gas. Sudden changes of temperature over a wide range during exposure tend greatly to increase plant injury. Trees in wet soil are likely to be more severely injured than healthy trees in dry soil. Therefore, irrigation should follow rather than precede fumigation, according to the bulletin.

Commissioner Collins reports Tulare County's production of grapes as: Raisin, 24,000 tons; table, 60,000 tons; wine, 26,000 tons. The county's output of Navel oranges was 1,390,160 boxes; Valencias, 735,970.

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PIONEER NURSERY OF MONROVIA

This Man Markets His Apples at Home

By Delphia Phillips

THE climate of California is not, as a rule, adaptable to growing apples of snappy flavor, except in the mountain districts, being too soft, and without the freezes that seem to create the tang to the apples of the colder regions; but there are some varieties and some localities that reverse this rule. The varieties are the Pearmain, the Bellfleurs, the Banana, Stark's Delicious, and the Arkansas Beauty. The locality is the strip of coast tableland extending a few miles inland from the ocean.

That well flavored apples could be grown in this section has not been very much appreciated as yet, for few realize that they can be produced outside of the mountain districts.

One of the successful growers of apples on the coast tablelands is Donald J. Dodge, of Costa Mesa (which is Spanish for coast tableland), Orange County. Mr. Dodge is really the pioneer in apple raising in this section, at least in a commercial sense.

Some of his methods in growing and marketing his apples could be followed to advantage in almost any locality in the United States. And the fact that he took up apple raising with absolutely no experience, being city born and bred, and made a success of it in less than seven years ought to encourage somebody.

With nothing but the bulletins and instructions of the agricultural department to guide him, Mr. Dodge embarked in the business of apple raising at Costa Mesa. He has 15 acres planted in apples on his ranch, which is two miles back from the coast and 90 feet above sea level. The soil is a fine, sandy loam.

The first trees were planted in 1912, and the methods followed were those commonly employed in a country where irrigation is needed. Tree holes were blasted out and filled with water before the trees were planted. Mr. Dodge took good care of his trees from the beginning and they were sprayed from the time they began to bear.

After a few years, the people in the nearby beach towns began to realize that some very finely flavored, crisp, local apples were coming into their markets, and to inquire where they were grown. They were surprised to find the source so near at hand.

But Mr. Dodge's plan of disposing of his apples is the most interesting part of the work.

Little by little, he built up a reputation for choice apples, until people from all over the county, and from beyond, began coming to his ranch to buy the Quality apples, as they were called.

Mr. Dodge does not market any of his apples, as he has all the customers he can serve, who come right to his door. It is his belief that shipped apples are always picked too green, and he tests his apples for sugar content as beet growers test the beets.

No culls or inferior apples ever go into the Quality boxes, and the same customers have returned from year to year since he first began to sell apples from his orchard.

The Dodge acreage is near a well traveled public highway and signs point the way to the Dodge orchard. Sometimes as many as 43 machines in one day have stopped at the place to buy.

Mr. Dodge has another plan for his customers which is worthy of note. For those who wish to order apples for later use at harvest time prices, he will place as many boxes as desired in cold storage, to be called for by the customer when desired. All apples are placed in cold storage 24 hours after picking so as to insure firmness.

The writer was privileged to taste some winter Pearmains which had been in storage for ten months. They had been taken out in warm weather, and had been out almost a week, but were still firm and of good flavor. As a general rule, they will stand up for about two weeks after being removed from storage. Some of Mr. Dodge's customers order as many as 15 boxes.

One tribute to the reputation of the Quality apples is the fact that other growers, not so careful about spraying, etc., come to buy apples from the Dodge orchard.

Mr. Dodge sprays about five times during the year. His worst enemy, and yet the easiest subdued, is the codling moth. Trees are whitewashed in December to prevent sunburn. Irrigating is done about four times in the year, depending on the season, and the amount of rainfall, and all cultivation is done with a disk harrow, operated by tractor.

A herd of Duroc-Jersey hogs consume the orchard culls.

In 1919 Mr. Dodge's customers numbered 450, and he sold 350 tons of apples. He expects to about double the latter amount this year. The selling season opens in September and lasts until December.

WRAPPING APPLES IN OILED PAPER CUTS DOWN SCALD LOSS

Wrapping apples in oiled paper has been found to prevent apple scald, a cause of heavy loss during storage and transportation. As a result of investigations by the United States department of agriculture a great many of the fancy packed apples are likely to go out next year in oiled instead of plain wrappers.

Scald, department specialists have discovered, is caused by gases given off by the apples themselves. The gases contribute to the flavor of the apple and recently were segregated and identified by department chemists who even went so far as to build up a synthetic apple odor from chemicals obtained from outside sources. Pending practical use of this discovery, which is attracting scientific attention both here and abroad, the specialists of the bureau of plant industry have applied the distilled chemicals to apples and checked up on

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These trees are grown on new soil never before in nursery stock, are well rooted, clean, healthy and hardy.

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their theory as to the cause of scald.

Scald, it has been found, can be entirely prevented by storing apples in oiled (not waxed) wrappers. A good quality of oiled wrapper can be prepared by hand, but the cost of labor is too great. The oiled paper on the market in 1920 had been prepared for other purposes and was too heavy for convenient use, but manufacturers are now preparing lighter weight oiled papers for the 1921 crop.

Ventilation has also been proven to be a remedy for apple scald, but it has been found extremely difficult to secure under commercial cold storage conditions.

NEW NAVEL BUD VARIATION

The attention of the Cultivator was called to an aberrant type of Navel orange, by V. F. Blanchard of the Los Angeles farm adviser's staff, growing in a Sunland orchard. These trees were photographed and data and photos sent to A. W. Shamel of the bureau of plant industry at Riverside. After visiting this orchard Mr. Shamel replies:

"My impression is that this peculiar leaf condition on these trees bears many of the earmarks of a distinct strain of the Navel orange and the occurrence of single tightly rolled leaf branches in otherwise normal leaf trees points to the origin of this strain from bud variations. Of course we are unable to say definitely whether or not this is the case; however, Mr. Milliken took some buds at our suggestion from one or two of the typical rolled leaf trees and will insert them in seedling stocks in the experimental nursery of the Exchange at Lamanda Park. The behavior of these buds will indicate whether or not this is a strain and as to whether this peculiar leaf characteristic is heritable.

"My impression is, from examining the fruits that they resemble one of the Thomson Improved strains of the Washington Navel orange. The texture of the rind, the color of the fruits and the texture and qualtiy of the flesh of the fruits are very similar to the Thomson type. At the same time, they are somewhat different from any of our Thomson strains which we have studied thus far. I mean by this that the shape and color of the fruits, the texture of the rind, the thickness of the rind and the rag characteristics are somewhat different from that of any of the Thomson strains which we have studied in our performance record plats of this variety. I could not discover from the casual examination which we gave these trees and their fruits any marked difference in the fruits on the trees of the rolled leaf strain and those of the normal leaf strain. Most of our studies heretofore have been concerned with fruits rather than foliage characteristics. Of course, the type of fruit is often correlated with certain types of foliage—as, for example, in the case of the Australian and Golden Nugget strains of the Washington Navel orange.

"I have observed a few cases that were apparently similar to the rolled leaf trees in the Kirschman orchard but have assumed that they have been due to some local environmental or pathological condition. The trees in the Kirschman orchard, however, present such a marked and complete opportunity for study that I believe that it will be well worth while to give them further study, from the standpoint of discovering whether or not this condition is due to bud variation or other causes. As I said in the beginning of this letter, it seems from a casual observation of the conditions in this orchard that this peculiar leaf condition is apparently due to bud variation and is a foliage mutation from the normal Washington Navel variety. It is very interesting and I think may be a very valuable instance of the behavior of citrus trees and I hope that further study will bring out as to whether or not the rolled leaf condition is a heritable or non-heritable characteristic."

INFECTED FLORIDA GRAPEFRUIT

Quarantine Officer Vary reports intercepting at Los Angeles two boxes containing Florida grown grapefruit shipped from Ogden, Utah, badly infested with purple scale and infected with Phomopsis citri. This fruit was wrapped in Florida wrappers and packed in apple boxes, the bottom and sides of which were lined with heavy manila paper. The top of the box was faced with apples which showed through the cover, making them appear to be boxes of apples. They were labeled "Fancy Delicious" and in addition to being securely nailed were tied with heavy cord. These two boxes were included in a lot of about 200 and were destined to parties in one of the citrus growing communities of Los Angeles County. A letter addressed to the consignee informing him that these boxes must be sent out of the state or destroyed was returned to this office by the postmaster marked "party unknown." Everything in connection with this shipment would indicate that it was a willful attempt to evade the law. These boxes, together with several others of grapefruit from the Southern states, were confiscated by this office and taken to the city incinerator and burned.

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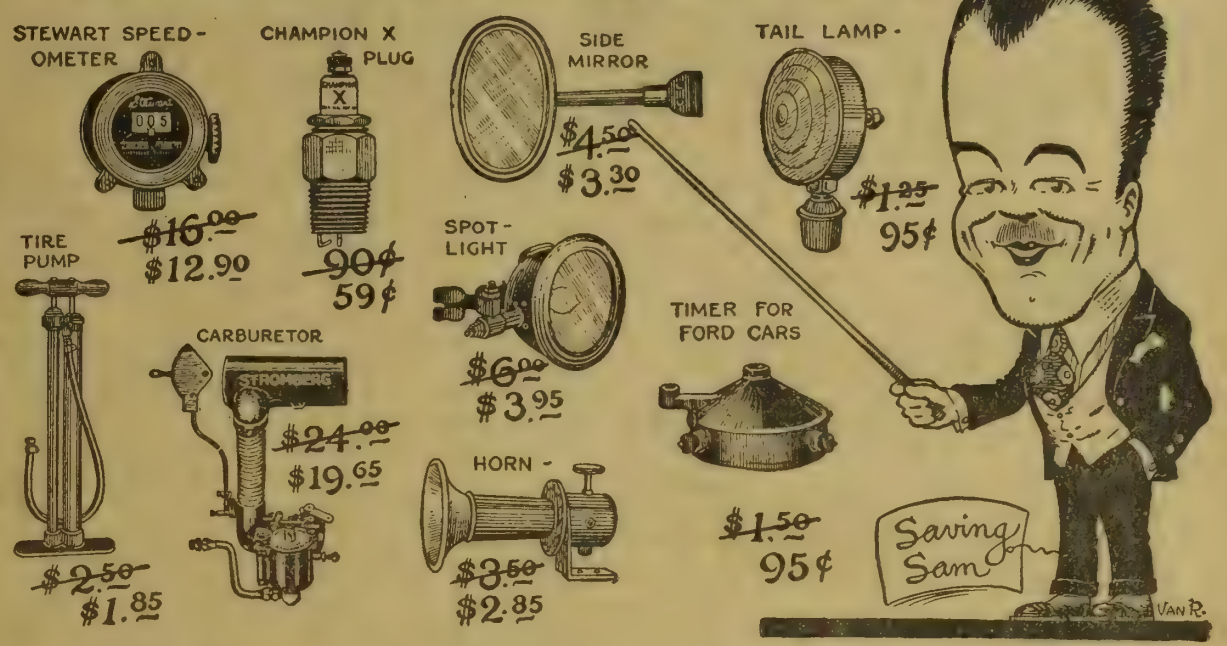

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THE PEAR THRIPS

The pear thrips was first recorded in California as a new species in 1904 and for more than ten years it has been an orchard pest of considerable importance in the counties adjacent to and in the San Francisco Bay region. It first became serious in Santa Clara, Alameda and Contra Costa Counties, but in later years developed importance in Solano, Napa, Sonoma, Monterey, San Benito, San Joaquin, Sacramento, Yolo, Marin and San Mateo Counties.

The appearance of the pear thrips in the orchards is sporadic; no two successive seasons are alike in any particular locality. It becomes destructive in small or in large, widely separated areas and may be very unevenly distributed in these. It is seldom that a large body of contiguous orchards is found uniformly infested; there may be a small district here, an orchard there, or a number of orchards having serious outbreaks, while neighboring trees escape injury. It is true that some individual insects may be found in practically all orchards, but in many they are not found in sufficient numbers to injure the crop. This fact has not been entirely explained, but the chief factors responsible therefor probably are climatic conditions, general orchard practices, artificial control and natural enemies.

The following miscible oil formula has been successful: Miscible oil, 5 gallons; nicotine sulphate, 1 pint; water to make 200 gallons.

This formula for use against adult black thrips to be applied liberally as soon as any considerable number of insects is found. Do not fail to make daily inspections after buds begin to swell.

The development of nicotine dust sprays for aphis control has suggested a method which is proving successful with the thrips. They save in time and money. A five per cent nicotine dust mixture has proved successful.—E. O. Essig in Circular 223, "The Pear Thrips," California College of Agriculture.

BROWN ROT OF APRICOTS

W. L. Howard and W. Y. Horne are authors of the latest bulletin from the agricultural experiment station of the state college of agriculture. It is Bulletin 326 and touches upon the brown rot of apricots.

Brown rot is a fungus disease affecting apricots and various other stone fruit trees. It attacks both the ripening fruit and the twigs; but since the attack on the ripening fruit is serious, it is to this attack that reference is made when speaking of the brown rot. In California, however, the attack on the twigs has attracted more attention. In this the withering flowers become infected and not only the blossoms and young fruit are killed but also the twigs to a distance of several inches. Atmospheric moisture favors the growth of the fungus, which forms spores in gray pustules of about the size of a pin head on rotting fruit and on blighted flowers and twigs. In California it is practically confined to the regions exposed to ocean influences and does not develop except in times of unusually moist weather.

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A. D. Shamel of the U. S. Department of Agriculture says:

"The citrus nursery business is usually conducted by men of experience in growing nursery trees and who specialize in this work. All progressive nurserymen are now agreed as to the necessity for using scientifically selected buds in their business. Ordinary citrus trees grown from guesswork buds are very dear at any price. No intelligent planter or propagator will buy such trees or buds, no matter how cheap their price may be when it becomes generally understood that reliable trees grown from carefully selected buds, and reliable budwood are reliable. The slight difference in price of ordinary trees or buds and the best trees and buds is usually made up, in the improved production of the reliable trees or buds in their first crop."

We Can Still Supply Washington Navels, Valencia Lates and Eureka Lemons

of the quality mentioned by Mr. Shamel, but the supply for 1921 planting is limited, so place your order early and be sure of getting what you want.

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100,000 Raisin Grapes
100,000 Raisin Grapes
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20,000 Peach
50,000 Apple
3,000 Black Walnut
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10,000 Asparagus
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The $150 Tractor—Crating and Freight Extra

"Multiplies Man Power by Five from Seedtime to Harvest"

Why Every Farmer and Gardener Should Use a SPRYWHEEL

Thorough cultivation is the first essential of good farming. Much of it has always been done by hand—and hand hoeing is hard, expensive drudgery.

This is the work Sprywheel enables every farmer and gardener to do economically and as often as necessary. It enables one man to do more and better work than any five men pushing hand tools.

Sprywheel won't do everything from breaking new ground to grinding grain, shredding corn, sawing wood and cultivating onions. We don't know of any machine that will do all of these jobs equally well.

But Sprywheel will do any work a hand or wheel hoe can be used for. It practically eliminates hand hoeing.

The market gardener knows

the necessity for timely cultivation. He often attempts to overcome the excessive cost of hand hoeing by spacing rows wide apart so that a horse-drawn cultivator can handle most of the cultivating work. Or he cuts down his acreage.

Using Sprywheel, every row can be cultivated as often as necessary. Profits per man and per acre simply multiply.

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often cuts down his garden patch because of the difficulty of getting the cultivating done. Sprywheel solves his problem. Besides tools for weeding, mulching, hoeing and hilling, there is the Sprywheel Lawn Mower Attachment. Attached in less than five minutes, it converts the Sprywheel into a power lawn mower.

For farmers who raise staple crops

—tobacco, cotton, peanut and corn growers, sugar beet farmers, etc.—the Sprywheel is quite as valuable. After plants have grown high or spread into the rows so that horses can't be put in without damage, Sprywheel provides continuous cultivation at the very time cultivation is most necessary.

Cost of Sprywheel operation

One gallon of gasoline runs a Sprywheel all day. Enables one man to cultivate fifteen miles of wide, single row, considerably more with the two or three row attachments—used while plants are small with rows planted close together.

Sold by authorized Sprywheel dealers

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"We Had Been Wishing for Just Such a Small Tractor"

Sprywheel Division, H. C. Dodge, Inc., New York City.

HICKS NURSERIES
L. Hicks & Son
Westbury, Long Island, N. Y.

Gentlemen:— Oct. 22nd, 1920

Last summer we were up against it, having had a large area of little evergreens in rows 15 inches apart where the weeds were growing so rapidly that we could not get ahead of them by hand-hoeing or wheel-cultivating.

It was during the above period that your agent appeared with one of your tractors and we lost no time in putting it to work, as we had been wishing for just such a small tractor. We worked Sprywheel in blocks that were planted in squares both ways and on diagonals.

Boys take to the Sprywheel enthusiastically.

Commuters who have gardens of one-half acre or larger should lay them out in rows so as to use a tractor such as yours. They have found it impossible to secure sufficient time to properly cultivate their ground and are especially prone to neglect the cultivation of their fruit trees, which, in this sandy sub-soil, suffer from lack of moisture, and we recommend that they try the Sprywheel.

Very truly yours,

HICKS NURSERIES Per—Henry Hicks.

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TOP-DRESSING TALK No. 5

How to Fertilize the Orange

Rate of Application

For the lighter types of soil the rate of application of *Arcadian Sulphate of Ammonia* should be from 300 to 500 pounds per acre, divided into three applications. On the heavier types of soil about one-half this amount.

Time of Application

The first application should be about four weeks before blossoming; the second when the fruit begins to set, and third about the middle of June. Very often it is advantageous to make a fourth application in September. This not only helps "size" the fruit, but promotes wood and bud growth for the following season.

Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past. *Arcadian* is the kiln-dried and screened grade, made fine and dry for top-dressing purposes. Ammonia 25¼% guaranteed. Made in U. S. A.

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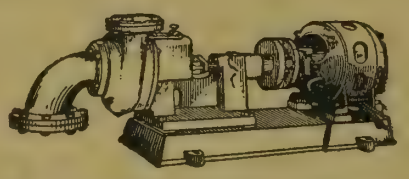
For information as to application write Desk No. 5

The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.



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*Distance to water below surface of ground*_____
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*(Inches)*_____
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*H.P. of motor or engine if you have that equipment*_____
*Give total depth of well*_____
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Napier or Elephant Grass

WE have received so many inquiries concerning Napier grass, its culture, habits uses, etc., that we here give our readers the latest up to date information, furnished us by H. L. Musser, who is giving much attention to its introduction into California.

"It is only four years since our attention was attracted to the exceptional growth of Napier or Elephant grass. Since that time it has been tried under varied conditions of soil and climate. It thrives alike on light or heavy soil, provided ample water is applied. It is also wonderfully drouth resistant. Six hundred dormant joints were planted in moist clay soil May 15, and without any rainfall or irrigation. On November 21 75 per cent were living; many had grown to bloom and were seven feet high with 10 to 20 stools, and never during the summer did they show any distress, like corn with parched foliage.

We have been told by one authority that it is not a beef producing forage for range cattle, but milk cows feeding for two weeks on our demonstration plot, after feeding on alfalfa hay, showed no decrease in the quantity of milk.

Picture No. 1 shows the demonstration plot January 1, 1921, with a second season's growth of Napier before the two cows were turned in to feed upon it. Two weeks later the cows had cleaned it up.

After four years of observation we are convinced that the best use for Napier is in the way of a permanent pasture or browsing field. The cattle cannot destroy it, and if given an abundance of water frequently, it will grow three feet every four weeks. One acre with a good start will grow faster than five cows can eat it. With scant moisture it will give more pasture than any other crop except Sudan sorghum.

If allowed to grow during the summer and early fall when other feed is plentiful it will produce more feed for winter browsing than any other crop, because a branch grows at every joint from the ground up.

As a pasture for chickens, rabbits, goats or cattle, a well established plot of Napier, with sufficient water, cannot be excelled. It withstands much cold. By that we mean that the crowns and hardened stems endure several degrees of frost, as was evidenced at San Jacinto, where it was planted near a water trough during September and by January 1 had grown eight feet tall. Ice had formed on the water trough; only the foliage of the Napier was damaged. The stems were yet green and the crowns uninjured. This was proven on land south of Bolsa, Orange County.

How to plant:

Single eye cuttings are planted with very little difficulty. The operation of preparing it provides a sharp joint at the lower end of the cutting, and this is simply thrust obliquely into the ground, covering the joint to a depth of four or five inches. With canes in good condition and other factors favorable, both roots and sprouts will be sent out from the single joint and a good vigorous plant soon established.

One joint planted during April will grow as many as 20 or more sprouts that may be separated July 1 and planted separately, so that by October 1 the original joint may be multiplied by 400. We advise that no subdivision be made after October 1, but let the crown remain undisturbed until the following April, when each one will again produce 20 or more divisions besides many joints. Thus one joint within 12 months will produce more than 8,000 plants. This is a conservative estimate.

Table comparing composition of green Napier grass with corn and sorghum. Taken from Bulletin 153, Florida experiment station:

Nutrients.	Percent Corn	Sorghum	Napier
Water	78.1	75.1	85.84
Ash	1.2	1.4	2.68
Protein	1.9	1.5	2.58
Carbohydrates	13.00	14.0	14.13
Fat	.6	1.0	.53
Fiber	5.2	7.0	13.24

Napier Grass
Picture at left is No. 1; other is No. 2 as referred to in Mr. Musser's article.

Mr. Musser is also authority for the statement that Rhodes grass may now be seen growing luxuriantly in the Imperial Valley on soil so strong with black alkali that no other crop would grow.

It would seem that stockmen who have alkaline soil going to waste should investigate the possibility of

growing Rhodes grass. This grass is drouth resistant to a remarkable degree and survives our Southern California winters; recovers quickly and grows luxuriantly throughout the summer; cures to an excellent quality of hay and affords abundant pasture.

SULPHUR

It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards six times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of Sulphur, also EAGLE Brand and Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100% pure, in double sacks, for Dry Dusting and making Paste Suphurs.

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $5 per day for making the solution and applying same.

To create additional available plant food and prevent smut in grain, drill into the soil 220 POUNDS PER ACRE of TORO BRAND SPECIALLY PREPARED AGRICULTURAL SULPHUR — or our DIAMOND "S" BRAND REFINED POWDERED SULPHUR. This soil treatment has increased various crops up to 500%. Send for Circulars No. 6, 7 and 8.

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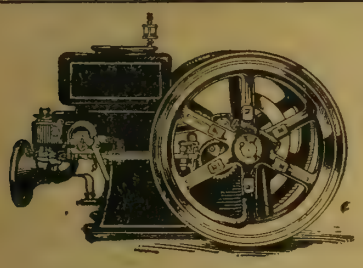
Ask us for prices for Carbon Bisulphide, the surest remedy for destroying ground squirrels.



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8,000 ft. 6 inch Riveted 16 Gauge
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10,000 ft. light wrought iron 8 inch pipe with cast iron collars.

All above pipe thoroughly overhauled and inspected and ready for immediate use.

We also have large quantity standard pipe and screw casing, pressure tested and guaranteed.

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WILL WE HOLD?

A United States consular report from Argentina on "Manufacture of Acids in Argentina," after an account of several, adds:

"Citric acid importations from France, England, Germany and Italy have averaged 132 tons yearly for the past eight years. The United States entered the field in 1914, increasing since then its proportion of the business materially. * * * Only in 1916 did the United States begin exporting tartaric acid to Argentina. * * * In addition to the foregoing acids the importations include several of minor importance, among which are included boric, carbonic, hydrofluoric and tannic. These came from Germany, France and England previous to 1916. Since then a small but increasing percentage of all but carbonic acid was furnished by the United States. * * * The United States furnished less than one per cent of alum up to 1915, but in that year jumped into first place with over 50 per cent, a place which it still holds. * * * The demand for aluminum sulphate maintains its average for the last 12 years of 1,155 tons. Since 1915 about 95 per cent has come from the United States, although previous to that date our exports to Argentina did not amount to five tons a year."

JERSEY POTATO CULTURE

The director of fruit and vegetable supplies at the ministry of food, London, England, thus describes potato growing methods on the island of Jersey:

In Jersey potato growers secure all their seed from their own stocks by digging up the most green and vigorous plants when the potatoes have reached about three-quarters growth. These potatoes are then put in boxes and left in the sun until they get thoroughly green and hard, when they are put away in a shed where they will be secure from frost for the winter. The potatoes are examined about every ten days and prevented from growing sprouts more than one-fourth inch in length by being given more air or being moved into a cooler position.

Early varieties can be planted early in March; late varieties at the end of March or beginning of April. By getting these potatoes green and hard in the sun when planted, wireworm and other pests will be avoided and the potatoes will be much stronger to resist frost and damp. The grower who carried out these instructions will increase his crop by at least 30 per cent.

IN KINGS COUNTY

More than a million dollars increase is shown in the returns to fruit growers of Kings County in 1920 over 1919, according to the annual report of L. O. Haupt, county horticultural commissioner.

The total for 1920 was $7,355,653, as against $6,258,810 in 1919. Grapes led with a total value of $4,615,726, of which, $2,813,100 was for raisins, $1,432,906 for fresh shipments and $369,720 for wine grapes. Peaches, canned, dried and shipped fresh, yielded $1,776,477; apricots, $778,290; prunes, $168,000; and plums, $17,160.

The apricot crop was only 60 per cent of that of 1919 and the prune and plum crops much lighter, with grapes and peaches about equal, the increased return being due to the uniformly higher prices received.

DRIED STRAWBERRIES

A method of obtaining strawberries as a dried fruit has been worked out by an English government plant and has yielded good results. The product, which has the appearance of a small reddish fig and the consistency of raisins or sultanas, retains the strawberry flavor and differs from a fresh strawberry in the same sense as the raisin differs from the grape. The product keeps well, is not attacked by molds, and is one-quarter to one-fifth the weight of the fresh fruit.

FAGEOL

WALKING TRACTOR

Beyond its unusual advantage in positive traction without slippage or soil packing and its definite dust protection, this tractor is so simple in design and so strongly built that there is little breakage, and it can be depended upon to work steadily through more days of continuous service.

An annual inexpensive between seasons overhaul will keep it in shape.

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Increase their operating range
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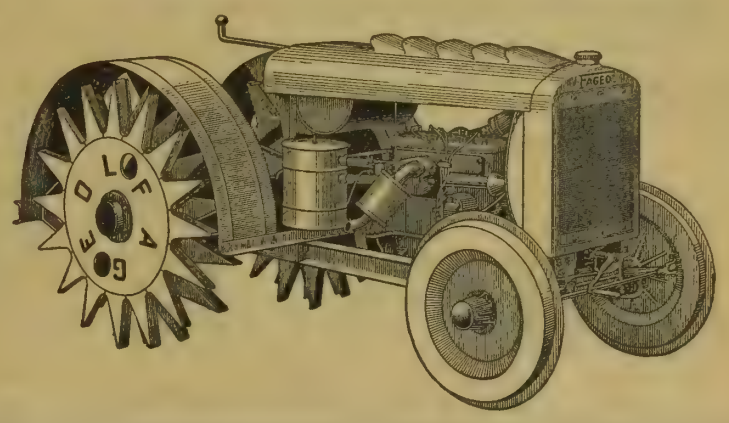


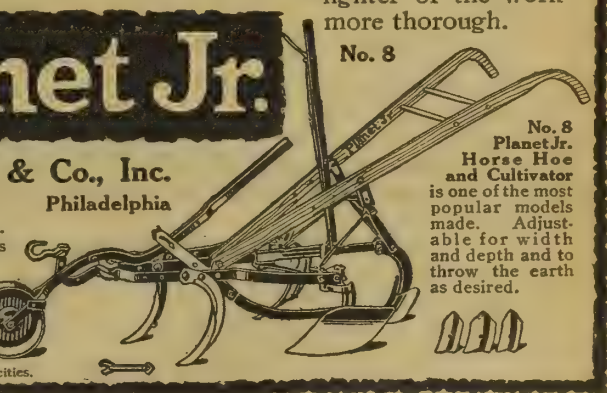
Use a Planet Jr. and more acreage

With a Planet Jr. you can work faster and better than by the old methods, increasing your acreage and growing many times larger crops.

The secret of this efficiency lies in construction, the result of many years spent in study and experiment. During the half century since the first Planet Jr. was made, hundreds of improvements have been added, each one making the labor lighter or the work more thorough.

Planet Jr.

No. 8



No. 8 Planet Jr. Horse Hoe and Cultivator is one of the most popular models made. Adjustable for width and depth and to throw the earth as desired.

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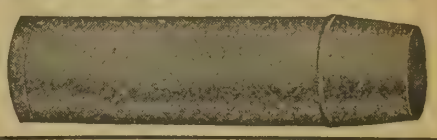

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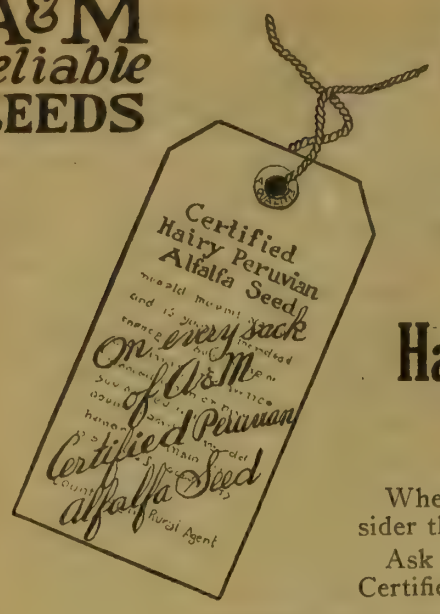

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The Hollis Ranch **Thermal, Cal.**

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Grafting Pecan

Could a pecan be grafted upon an almond tree? If not, what kinds of fruit could be grafted on it?—Subscriber, Eagle Rock.

No, the almond is of the peach family and the pecan of the hickory, two entirely different trees. The almond and the peach are practically the only fruit budded on almond stock. It is a physical possibility to bud the apricot and other stone fruits. However, if the subscriber contemplates working over an old almond orchard we believe he will find it more economical, or at least vastly more satisfactory, to uproot the trees and plant new. Working over an old orchard is work for an expert.

Effect of Saltpeter on Stumps

I read in the Cultivator that saltpeter is used to destroy stumps and wish to know just what effect saltpeter will have on sycamore stumps that are being cut this month and next. How long before they can be burned and how much saltpeter should be used in stumps of various sizes?—Subscriber, Hamilton City.

Saltpeter will not hasten but retard decay of stumps. Its only effect is to make more combustible, and this is done through its absorption by the wood. To hasten this after the auger holes are filled with the saltpeter water may be added, which should be renewed occasionally. It has been asserted that if this absorption is complete the stumps will ultimately, when fired, be consumed to the tips of the larger roots.

Liquid Fertilizer

What is the analysis of liquid horse manure and how does it compare with the manure in solid form? — Subscriber, Santa Ana.

More than half of the potential fertilizing value of manure is usually considered to be contained in liquids, hence the practice of using plenty of absorbents to save this valuable portion of the cleanings from stables. However, there seems to be no table showing analysis of the solid and liquid portions of manure, for their greater value lies in the two being used together. Weir's "Productive Soils" says: "Of the total amounts of the fertilizing elements contained in manure, about one-half of the nitrogen and 60 per cent of the potassium are found in the liquid excrement. Thus, the liquid manure is practically as valuable in fertilizing elements as the solid. This fact emphasizes the need of suitable absorbents to take up and conserve this valuable fertilizing material."

Milo for Dairy Feed

Does milo when fed as a fodder with pumpkins made a good feed for a milk cow?—Subscriber, Santa Ana.

This would not make an ideal balanced ration as neither of these feeds are rich in protein, one of the essentials in milk production. Alfalfa added would increase the value and in case of lack of alfalfa bran, cotton seed meal or similar concentrates should be fed.

Raspberries

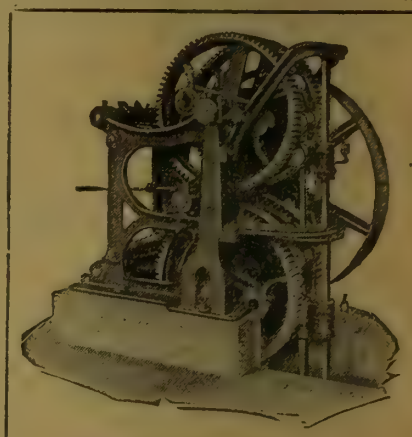
In the wash back of my place is a bench three feet above the bed of the stream and six feet below the top of the bank. The water does not reach so far as that except in such years as 1914. It is 30 feet wide. I wish to plant to either raspberries or blackberries if advisable. It is protected from the cold west winds and I would wish to choose for earliness. I would prefer raspberries other things being equal. I don't want any trailing varieties. It is good soil, not gravel. It is as much to prevent any further washing as anything else.—Subscriber.

Berries or other small fruits will not make as good soil binder as will the giant reed or some other plants which are of no particular value. But as to variety of raspberry the Cuthbert or St. Regis, especially the latter, have given excellent returns. The St. Regis is recommended particularly because of its bearing two crops on the same wood. That is, plants set in the spring will make a summer growth and give a late fall crop and the same wood comes on with the regular spring crop and at the same time makes new growth for another fall. The earliest of blackberries is perhaps the one known as Gardena Dewberry. Other good varieties are the Himalaya and Mammoth.

Misrepresentation

I bought a cow from a man, he representing that she gave two gallons of milk a day, which she does not. He also told me that she would calve in three months. The fourth day I had her I found out she was not in calf. Can I get my money back and return the cow to him?—Subscriber, Fresno.

Quite plainly you have claim for return of your money, that is, providing the facts as stated can be proved to the court, and in addition, the man from whom you purchased is a responsible party.



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Black Locust Trees

Straight Trunks

10 to 12 feet, 12 to 15 feet

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Compton **Phone 483**

Curing Hams and Bacon

Will you please give us the best method of home curing hams and bacon?—Subscriber, El Monte.

This question is best answered by an article appearing in the Cultivator of November 27 on household page.

Grapes

Would you give me some information on grapes, as to the kinds, care, amount of cultivation and irrigation in the Fallbrook district, etc.?—Subscriber, Fallbrook.

The first suggestion would be to decide on the type of grapes, whether table, raisin or wine, then investigate as to which variety has done best in that portion of San Diego County. In addition plant varieties with reference to your own market demands. Once the variety is settled upon, bulletins might be secured from the State Experiment Station, College of Agriculture, Berkeley; also a fund of information from catalogs of nurserymen as to culture and difficulties. Specific questions would be gladly attended to in this department of the California Cultivator. The Department of Agriculture, Washington, D. C., has published several bulletins on grapes and their diseases. A request to the department would secure a list of these publications. Cultivator articles which will be of particular value along this line are those written by Fred K. Howard, especially the two entitled "Planning and Planting a Vineyard," appearing in the Cultivators of November 6, 1920, and December 11, 1920. These give an excellent outline of general cultural methods.

COMING EVENTS

Japanese Exclusion League Campaign Week, February 7-12.
Sixth National Tractor Show, Columbus, Ohio, February 7-12. Manager, E. E. Whaley.
American Honey Producers League, Indianapolis, Indiana, February 15-17.
Eleventh National Orange Show, San Bernardino, February 18-28. General Manager, F. M. Renfro.
Fifth Annual Pacific Automobile Show, (truck and tractors), San Francisco, February 19-26.
Olive Day, February 21.
Citrus Institute, San Bernardino, February 25-26.
Stockmen's Week, University Farm, Davis, February 22-25. In charge Prof. R. F. Miller, Davis.
California State Beekeepers Association, Oakland, March 2-5. Secretary, A. B. Shaffner, 4232 West First St., Los Angeles.
Mendocino County Fair, Ukiah, August 7-13.
Napa County Fair, Napa, August 11-13.
Humboldt County Fair, Ferndale, August 14-21.
Sonoma County Fair, Santa Rosa, August 24-28.
Yuba County Fair, Marysville, August 24-28.
California State Fair, Sacramento, September 3-11.
San Joaquin Valley Livestock Show, Stockton, September 12-17.
Tulare County Fair, Tulare, September 12-17.
Glenn County Fair, Orland, September 19-24.
Kings County Fair, Hanford, September 20-25.
Fresno District Fair, Fresno, September 26 to October 1.
Arbuckle Almond Show, Arbuckle, September 28 to October 1.
Ventura County Fair, Ventura, October 2-8.
Shasta County Fair, Anderson, October 2-8.
Siskiyou County Fair, Yreka, October 9-15.
Southern California Fair, Riverside, October 9-15.
Los Angeles Livestock Show, Los Angeles, October 16-25.
California Horse Breeders' Association, Los Angeles, October 30 to November 5.

Salt Grass

What is best method of killing salt grass other than continually plowing the ground?—Subscriber, Willowbrook.

The plow, cultivator and hoe are by far the best implements for weed control. We know of no successful chemical cure for weeds which does not at the same time, at least for the time being, destroy the soil for other crops. A measure of success has been secured where arsenite and other sprays have been applied, but knowledge must be had as to condition of plants and of weather to secure complete success. The planting of sugar beets, beans and other crops calling for clean culture will succeed best for cleaning up foul ground.

Sweet Potato Plants

Please give information as to growing sweet potato plants.—Subscriber, Madera.

This question is fully answered in an article which appears on another page of this issue, which is really a reprint from a former Cultivator, but is timely and contains very complete information on this topic.

Spraying Trees

What is best time to spray trees and best fluid to spray with?—Subscriber, Willowbrook.

The best answer to this question is given by the California Caltivator of August 9, 1919, which gives nearly half a hundred formulas for spraying all kinds of fruits in different sections, for instance, apples, pears and quinces in one section, under which there are an even score of suggestions for handling insect pest or fungoid and bacterial diseases. More general information on spraying trees cannot be given without knowledge of needs and variety of trees.

Unsatisfactory egg yields, low fertility, poor hatches, slow growth and development of the young stock, and many of the most troublesome poultry diseases are often due primarily to improperly located and poorly constructed poultry houses.

A new Fresno County cow testing association plans membership not to exceed 800 cows, this in order to render better service. Tuberculin testing is a feature of the association's work.

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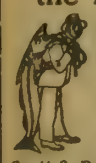

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Household Department

GOOD FRIENDS AND BAD

When your back's to the wall and you've
no hole to crawl
Within, and must win out or perish;
When you've broken your lance, but still
cling to the chance
To battle for all that you cherish,
Then it is that you feel what can hurt
worse than steel,
From the friends who withdraw from
you, sighing:
"We must wash our hands, lad, of a
muddle so bad—
Don't you see you were foolish for
trying?"

Yet, if one in the crowd comes to tell
you: "I'm proud
Of the courage you've shown, and the
chances
You take; I don't care for a man who
won't dare
For his honor to break a few lances.
It is worth a hard fight—which you're
making, all right—
So here's a fresh lance you may win
with."
You've more courage, more pride—and
more friendship, beside,
Than ever you had to begin with.

Oh, the worst friends there are (and,
alas, they are far
From scarce) are the ones timid-hearted
Who shout, when your place is far back
in the race:
"Drop out. You should never have
started."
And the best are the few who are proudest of you
When your heart proves more strong
than your sinew,
When, though running behind and though
staggering blind,
You still give the best that is in you.
—Lee Shippey in L. A. Times.

OVER HER LEFT SHOULDER

(Concluded.)

"Well, dear, we shall have to give it up for tonight. It is time for you to go to bed. Let us hope that it will come to light tomorrow."

The collie still continued to bark and jump, but his mistress was in no mood for play. She searched for the morning paper and it could not be found! "Isn't that too bad?" she exclaimed crossly and looked reproachfully at Ned as though it was his fault.

She knew that the sensible thing was to go to bed and forget the storm and all suggestions of trouble, but she decided to sit up for her husband. Perhaps he was waiting in town to see the owner of the forty on the other side of the meadow, that they wished to buy. But why couldn't he have started home before the storm?

The rain poured down harder, blowing in sheets against the windows. Every few minutes the thunder boomed heavily. Dora began to be thoroughly frightened. She crouched down in Henry's easy chair with her hands over her ears, but even then she could feel the jar of the storm. Around the drawn window shades the lightning played like a frame of fire.

Ned raised his head and walked slowly to the door to listen. Growling, he lay down, with his nose pointed straight at the threshold. His ears quivered, his tail moved back and forth heavily, he held himself keenly at attention.

Dora finally took herself in hand and went to the back of the house to make sure that all windows were closed against the rain. When she returned, Ned was still motionless, listening.

"Good dog, good old Ned!" she said. "If anything should happen, you and I are the only ones to take care of the stock and the house and the children!"

Ned beat his tail sympathetically. He was on guard, he said to her in dog language.

"Cr-cr-crash!" That terrible thunder again! Dora held fast to the door frame to keep from trembling. Then after a moment she said aloud, "I am going to make myself go to that window and look out!" What would Henry say if he knew that I was afraid like this?" As she drew the shade aside, lightning flashed a vivid, forked sign like fiery handwriting across the black of night. Dora gave a little scream and darted away from the window, covering her eyes with her arm as the thunder, louder than ever, followed the flash. "That struck near us!" she gasped. She was walking up and down the room now, her hands clasping each other until the knuckles were white. "Bad luck, bad luck for us!" she whispered with pale lips.

Ned lay motionless by the threshold, following with loving eyes his mistress's every anxious step. Suddenly she stopped beside him and exclaimed, "Oh, it is bad to be scarred! Do you hear, Ned? I do not want to be afraid. I am ashamed of myself." And then, gathering herself together, "I am not going to be afraid! I will not!"

Ned thumped his tail and continued his watch.

Somehow, just saying those words made Dora feel braver, and at the next clap of thunder she clasped her hands together so that she could not clasp them over her ears. Then she went to each window and rolled up the shades. "There, you can stay up!" she declared. She had come to the point where, though still afraid, she was compelling herself to act bravely. In spite of herself, she was fascinated by the majesty of the storm seen through the unshaded windows.

"I believe that when you face things you are afraid of, you are not nearly as frightened as when you try to hide," she said, speaking aloud to the dog.

He beat his tail in answer, then rising slowly, gave a quick, low growl and backed a few paces away from the threshold. The next minute there was a loud pounding on the door, someone vigorously rattled the door knob and a strange man burst into the room.

"Hey, call off your dog, lady!" he shouted, as he shoved the door shut against wind and rain. "I'm a respectable traveler, ma'am, but in a storm like this you would have to let any villain in! I thought each one of those bolts would be the last of me. Terrific!"

The intruder was an elderly man with jolly blue eyes and a ruddy countenance. Water ran down from his hat and overcoat in streams, and settled in puddles on the rug. He went right on talking without waiting for an answer, mopping his face with a large handkerchief.

"Say, it was a good thing when you threw up those window shades. Steadied me, you know, out there in the dark. My car was jumping. Couldn't keep the road. I am on my way to Mr. Benton's place. Can you tell me how far I have to go?"

"Mr. Benton's place! This is Mr. Bentons place. I expect my husband home any minute."

Even as she spoke, the door was thrust open a second time and Henry nearly knocked the stranger over as he literally flew in before the impact of the storm.

"Hello, there!" he said in astonishment. "Who—who are you?"

"My name is Stevens!"

"Well! Well! I have been all this evening at Deer Creek looking for you. Heard you were due there."

"And I have been in Centerville, ten miles away. Thought I wouldn't go home without seeing you about that land. Said I would drive out, storm or no storm, and here I am. Didn't know this was your place. Blew in!"

"This is my wife, Mr. Stevens. How about supper, Dora? Perhaps Mr. Stevens will have some with me."

"Sounds good to me," answered the visitor, "if it is not too much trouble, Mrs. Benton."

A little later Henry followed Dora into the kitchen and whispered gleefully as she poured the steaming coffee, "Good luck, little woman! We closed the deal. The old gentleman is going to California to live and is anxious to wind up his affairs. He held out for more than I offered, but then he came down a little and I guess we can manage. And I can get a whopping crop off that land next summer!"

It was good luck, after all! Henry was home safe and sound. The storm was over. It had blown the owner of the land right to their door and now they were assured of the wish of their hearts. Dora knew just how much difference that extra piece of land would make in their year's receipts.

After supper, Henry escorted Mr. Stevens out to his car, gave him minute directions as to turns, short cuts and bad stretches of road, and in a trice the little man was gone.

"I am going to take a look at the attic roof," he announced upon coming back to the house. "I shouldn't be at all surprised if it were leaking,

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3471. A Pretty Dress.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. The width of the skirt at lower edge is 2 yards. A 38 inch size will require 4⅝ yards of 44 inch material. Price 10 cents.

3491. Girl's Dress.—Cut in four sizes: 6, 8, 10 and 12 years. A 10 year size will require 3⅞ yards of 38 inch material. Price 10 cents.

3469. Dress for Breakfast or Service.—Cut in four sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. The width of the skirt at the foot is 2 yards. It will require 7⅜ yards of 27 inch material for a Medium size. Price 10 cents.

3470. Girl's Dress.—Cut in four sizes: 4, 6, 8 and 10 years. A 6 year size will require 2¾ yards of 36 inch material. Price 10 cents.

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after all this downpour." He lifted a hand lamp from the hall table and disappeared up the red carpeted stairway.

Dora passed lightly back and forth from dining room to kitchen, softly singing as she cleared away the dishes. "Oh, I am glad that Henry is home—I am glad that Henry is home. Everything is all right now—and it was good luck after all!" she chanted below her breath. Once she stopped by the great chimney that went up between the living room and the dining room and listened to a rhythmical drip-drip, drip-drip, and could hear Henry as he set heavy crocks to catch the water.

"We'll have to have new shingles pretty soon," he said, returning to the cosy room. "Perhaps next year we shall be able to afford it. Here is what is left of the morning's paper," he continued. "I found it up in the attic. The children must have taken it by mistake for wrapping apples."

As he handed Dora the paper, a yellow envelope fell from its folds. The lost letter! For a moment as she held it in her hand the shadow of bad luck fell once more athwart her thoughts. Perhaps it contained unhappy news. "It is Cousin Ella's handwriting," she said, "Aunt Martha's daughter. I have not heard from her in ages."

"Well, what does she say?" laughed Henry. "You will never know unless you open it."

This is what she read:

Dear Cousin Dora: Do you know anything about a gold and enamel locket with the initials A. L. W. in blue on the back? I know those were Aunt Alice's initials—your mother's.

We have been changing the old place considerably of late. The latest improvement is a new stone bridge across the brook that runs through the pasture. In digging through the sand and stones to the supports, one of the workmen found this beautiful locket. I have polished it up and really it is hardly hurt at all. It must have been wonderfully well made. The workmanship is exquisite and I consider it a real treasure. Cannot you and all your family come down and see it at Thanksgiving time? If it is yours we shall be glad.

Drive down the day before and let us have a regular, old time family reunion on Thanksgiving. I am giving you notice far enough ahead so that I am sure you can come. It will be so good to see you again. Do not disappoint us, please.

Affectionately yours, Ella.

Dora lay back in her chair for a few minutes without speaking. Then she said solemnly, "Henry! The next time I see an omen that I think means bad luck I am going to get ready for double good luck instead. I have had a lesson tonight. I wish I could tell Aunt Martha."

And then she told him the full story of her superstitious fears and useless suffering, all because she saw the good old moon over her left shoulder. And Henry laughed.

THIS WEEK'S PATTERNS

With the coming of the green on hills and fields come plans for repainting and repapering the home and making new clothes for the spring and summer. "I'm going to get all our summer clothes made this month," announced a capable young matron, "so that next month I can get busy in the garden. There is so much I want to do that I'm planning way ahead." And she went on to describe hers and her two little girls' wardrobes for next summer. By the way, she makes all her husband's shirts, too, and in addition is planning a campaign of painting and tinting and scraping and smoothing floors that sounds very ambitious, but she happens to be one of the people who carries out her plans.

She is now getting cotton materials for the little girls' school dresses. One likes blue; the other pinks and browns. So those are the colors she chooses and the youngsters love the dainty simple dresses she makes. She seriously studies the fashion sheets and the store windows and adds to each little dress an individual touch especially becoming to the wearer.

This department often mentions Devonshires and similar materials for children's clothes, and it is pleasant to note now that these useful materials are descending in price, along with ginghams and percales. Men's shirtings are also excellent for children's clothes and are very often to be had more reasonably than ginghams.

The children's dresses shown this week are all practical and dainty as well. Nothing could be simpler than the litle girl's dress 3470 developed in a pink sprigged percale, and let us suggest as a dainty touch a plain white collar instead of one of the material. 3491 is a style that gives opportunity for dainty additions of lace trimming that any little girl will love. The little apron front is an unusual touch and the whole dress is so simply made that it may easily be kept fresh and crisp.

3471 is an unusually stunning gown with long straight lines, the new rolling collar and attractive touches of embroidery. The braiding of skirt, collar, sleeves and basque like front is quickly done and gives a tailored finish.

HINTS FROM HOUSEKEPERS

I am sending a recipe for use of old bread crumbs that is a decided change from bread pudding. It is very nice and so good for "farmer ladies" like myself when one can't get mince meat. It is better served hot but is equally good cold. This is enough for two pies:

One cup bread crumbs, 1 cup sugar (brown or white), 1 cup molasses, (any kind) ½ cup vinegar. To this add ½ cup boiling water and large piece of butter, and 1 cup of raisins and currants mixed or either separate, ½ teaspoon nutmeg, cinnamon, allspice, and cloves, 3 or 4 tablespoons flour.

Mix hot water and vinegar add butter and crumbs, then raisins or currants then molasses. Mix flour, sugar and spices and add to above. Cook slowly for 20 or 30 minutes or until you are ready for same.

This is a delicious crust for hot pies, or when one wants one in a hurry: 2¾ cups flour, 1 cup shortening (generous cup), ¾ cup boiling water, ½ teaspoon salt, 1 teaspoon sugar. Mix as any crust and roll.—Mrs. Camp, Corona.

HOUSEHOLD QUERIES

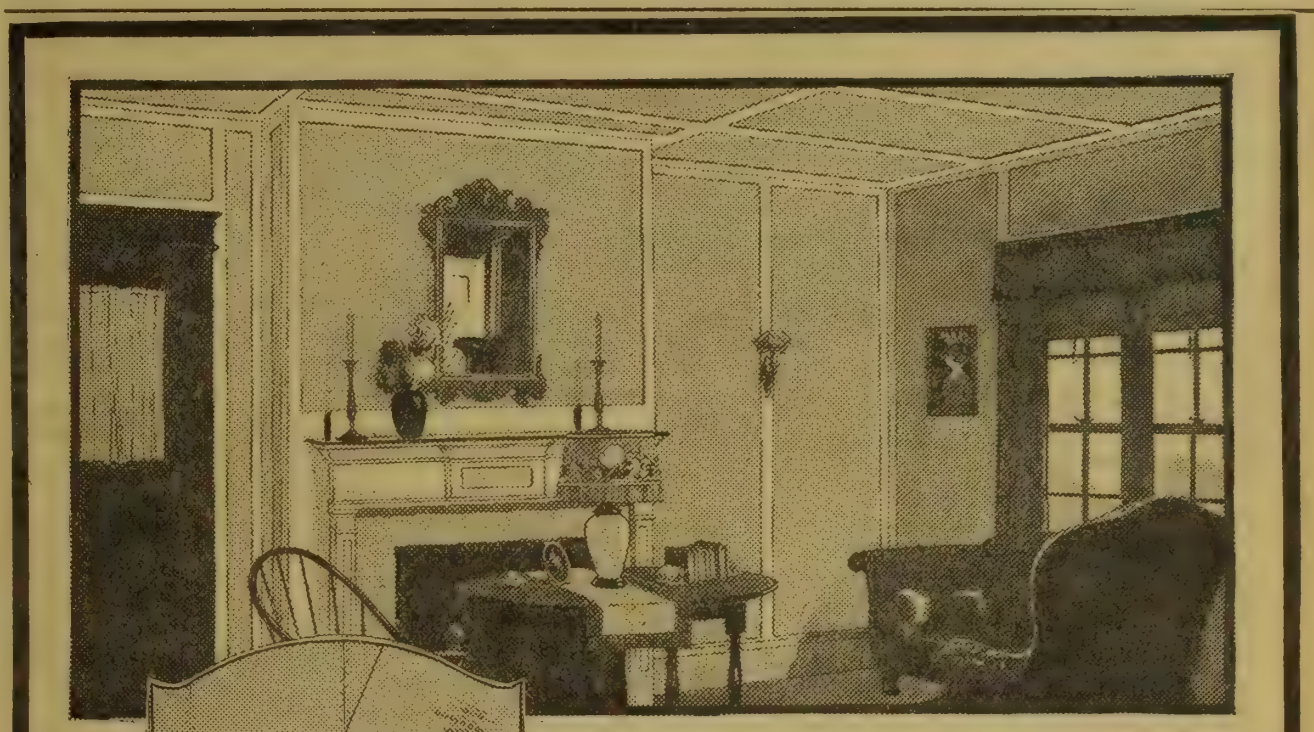
Home Made Yeast

We have inquiry from a mountain subscriber as to best way of making and keeping home made yeast. She expects to use the dry yeast in making her potato yeast starter and asks Cultivator readers who are experienced bread makers to give their best advice. The Cultivator will be glad to extend subscription credit for hints along this line and others of practical help.

Rancid Lard

In your household department please tell me how to sweeten lard that has become rancid. I bought 20 pounds at 40 cents a pound and do not like to lose it.—Subscriber, Napa.

This also we turn over for answer to our practical housekeepers. What can you suggest other than heating and storing in a cool place?



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Legal Queries

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Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Blue Sky Law

What is meant by "Blue Sky Law"?—Subscriber, San Jose.

"Blue Sky Law" is the colloquial term for an act known as the Investment Companies Act, creating the office of corporation commissioner. Briefly, under this law all corporations desiring to sell stock in this state and all stock salesmen are required to submit to the jurisdiction of the corporation commissioner and obtain permits from him, in order to carry on their business.

Ditch Right

My grantor owned 80 acres of land and made irrigation ditches throughout to suit his convenience. He thereafter sold 40 acres to one party and the other 40 to me. A ditch for the irrigation of the first 40 meanders through my property, commencing and ending within the first 40. Since the acquisition of the property, the owner of the first 40 has installed a pumping plant and regularly runs the water therefrom through this ditch. In order to irrigate ten acres of my land it is necessary for me to use this ditch also, and if I have not the use thereof I cannot so irrigate. What period of time is necessary to give him a right to run his water? Can my neighbor take water over my land when I wish to irrigate? If he has not acquired rights, how can I prevent his using the ditch?—Subscriber, Bakersfield.

When an owner of an entire tract of land employs a part thereof so that one derives from the other a benefit of a continuous nature and divides this land into two portions, selling to different persons, the respective grantees will take the portions granted to them, burdened or benefited, as the case may be, by those rights in the nature of an apparent and continuous easement, which the prévious owner had the right to attach. Under this rule the owner of the first 40 undoubtedly has the right to run the water from the irrigation ditches through the ditch running over the second owner's land, but he has this right only for such periods and in such way as it was customary for the former owner to use this ditch for that purpose. It is certain that he passed to his grantee no right for the general use of the ditch for continuous irrigation from pumps, as such pumps had not been installed. The right of way being in derogation of the rights of the second grantee, must be construed strictly to that which prevailed at the time of the grant. However, if the use of these ditches for pumped water has continued for five years openly, adversely, and under claim of right, the owner of the first parcel would doubtless have procured a right by prescription. If he has not acquired such right, the owner of the second parcel would be entitled to install a gate or gates at the boundaries of his premises and shut off the ditch from use for the water issuing from the pumps, as the action of the first owner in sending pumped water through the ditch would probably be a simple act of trespass. It would be well, at the same time, to give the first owner notice that the installation of the gates was without prejudice for the use of the ditch for irrigation water at the times and by the means which were customary under the ownership of the original grantor.

Irrigation District Expenditures

Has the board of directors of an irrigation district the right to overdraw and spend any large amount of the taxpayers' money without taking the matter up with the taxpayers? If they cannot, what recourse have the taxpayers?—Subscriber, Escalon.

Upon the organization of an irrigation district the directors are authorized to expend for the purposes of organization not to exceed one-half as many dollars as there are acres of land in the district and may cause warrants for such expenditure to be issued, payable not later than the first of January after the assessment. For all other contracts in excess of $10,000 for emergency indebtedness the board of directors must procure the assent of the majority of the owners within the district. They do have the right to acquire land, water rights and property necessary for the construction and maintenance of canals and works up to the amount of $10,000 without the previous assent of the land owners. Expenditures in excess of the amounts permitted by the law are by the law held to be void. The party protesting against such illegal expenditures would doubtless be entitled to hold the directors personally liable and would be entitled to bring action to have such expenditures declared unlawful and possibly recover the amounts from the parties to or by whom they were made and also would have the right to petition for an election for the recall of the offending directors. It would be necessary in such a case to consider the exact facts before deciding upon the most appropriate remedy to be used.

Transportation of School Children

Is there a law requiring school districts to furnish transportation for children to and from school?—Subscriber, Simmler.

It is the duty of school trustees with the approval of the superintendent of schools to provide for the transportation of pupils to and from school when in their judgment such transportation is advisable and good reasons therefor exist, and, in pursuance with that duty, to purchase or provide for the operation of vehicles or contract for the transportation of pupils by bid in the usual method of bidding for all school supplies.

"Co-operation is born of Desperate Necessity"

These are the words of G. Harold Powell, head of the oldest and the greatest of our wonderful California co-operative marketing associations; the

CALIFORNIA FRUIT GROWERS EXCHANGE

was born of desperate need of the Orange Growers of Southern California faced with bankruptcy in the marketing of 5000 cars of citrus fruits. Today their annual sales amount to 50,000 cars valued at $75,000,000.

Raisins were bringing 1¾c to 2½c. Vineyards were worthless. Fresno business houses and banks were unable to realize on the growers' accounts and mortgages. Today the

CALIFORNIA ASSOCIATED RAISIN COMPANY

markets a crop three times that of seven years ago at 15c per pound and Fresno is one of the most prosperous and progressive cities in our broad land.

Santa Clara Valley orchards, famed for their luscious prunes and golden apricots, are selling at $2000 an acre. Four years of successful co-operative marketing by the

CALIFORNIA PRUNE & APRICOT GROWERS

is the reason for this wonderful prosperity.

But what of the great Canning Fruit Industry? Today fully five million cases of the choicest fruit, packed by scientific methods in sanitary factories, remain unsold in the warehouses of the commercial canneries. With tremendous new acreages of fruit coming into bearing, with a production three times that of previous years, the canning industry faces demoralized markets. The canneries are suffering staggering losses on the past season's operations and you, Mr. Peach Grower, you, Mr. Grower of Pears, Cherries, Plums, Apricots, Asparagus, etc., will pay the price, unless—

Well, do you intend to stand by quietly, allow your orchards to be fertilized by thousands of tons of perfect fruit, while Europe, China and the rest of the world starves, or—

Do you intend to take charge of your own business, build your own markets and turn your *Desperate Necessity* into your *Co-operative Salvation?*

It will require the united efforts of the growers of canning fruit to finish this job which we have started. A card addressed to Box G, San Jose, California, will bring full information.

CALIFORNIA CO-OPERATIVE CANNERIES

Owned and Operated by the Growers of California

Main Office, San Jose, Cal.

120-1

STATE DAIRY COW COMPETITION FOR DECEMBER

THE prize for the highest production of butter fat by five grade cows entered in the state dairy cow competition for the month of December was won by Earl Graham of Compton, for an average production of 75.96 pounds of butter fat per cow, and the California Cultivator prize for this month was therefore awarded to him.

The production of the individual grades for the month was as follows:

Name	Age, yrs.	Days in Milk	Milk	Butter Fat Pct.	Butter Fat Lbs.	Butter Fat Credit
Peg	4-	29	2241	4.1	91.88	105.66
Tomie	4-	33	2275	3.6	81.90	94.19
Spot White	.. -	49	2331	3.2	74.59	74.59
Emma	6-	5	1866	3.6	67.18	67.18
Mousie	3-6	38	1947	3.3	64.25	75.82
		31	2112		75.96	83.49

This is the second time that grades owned by Mr. Graham have won this prize for him. Other groups of five cows, eligible for competing for the prize, produced on the average as follows:

Napa State Hospital, Napa, 71.47 pounds; L. A. County Farm, Hondo, 62.48 pounds, (credit 72.18 pounds); F. F. Pelissier, Whittier, 63.17 pounds; C. E. Fisher, Hughson, 46.01 pounds (credit 52.97 pounds); J. M. Christen, Pacheco, 47.91 pounds (credit 50.35 pounds).

The summary figures for the month for all cows in the competition, for which reports have been received at this writing, are: 1.042 pounds milk, 53.3 pounds butter fat, equivalent to over 2 pounds of commercial butter per head daily. So far, about 250 cows have been entered in the competition, owned by 34 different dairy farmers or breeders. Professor Woll of the University of California, Berkely, reports that entries are still open, and necessary blanks and further information concerning the competition will be furnished promptly upon request.

(Detailed report of production of 20 best individuals for December next week.)

REVADA GUERNSEYS AVERAGE $268

The first public dispersal sale of Guernseys ever held in California occurred January 20 when the entire herd owned by the Mission Land and Cattle Company, Yountville, was sold. This herd was the remnant of what was once regarded as one of the top herds owned in America. At the time the herd was established by B. E Nixon no expense was spared in securing cattle from the top herds of this country as well as the Island of Guernsey. After several years of operation the former owner turned to other interests and from time to time sold off many of the choicer members of the herd. Finally the Revada Ranch and herd was sold to the Mission Land and Cattle Company. This concern, having other plans for the ranch, decided to close out the complete herd.

The sale attracted wide attention throughout the West and many of the leading breeders were present. The list of buyers serves best to indicate the widespread interest in this breed, the cattle going to herds from Humboldt County to San Diego County. Another feature of the sale was the widespread and active demand for bulls, 15 bulls selling for an average of $238.

Walter H. Dupee of Santee was the heaviest buyer of the better things. Chas. Maurer, representing A. B. Humphrey of Escalon, was a close second. Other prominent buyers were: C. S. Rasmussen of Loleta, Wm. H. Saylor of San Francisco; Inglewood High School, Inglewood; W. H. Rapson of Corona and W. F. LaGrange of Inverness.

The top bull was taken by W. H. Dupee and the top female, Imp. Golden Wish of Revada, by C. E. Potter of Shellville.

The sale was generally regarded as satisfactory in view of the fact that none of the individuals had been given records; none of the young things were from tested dams. An unfortunate feature of the sale was the fact that most of the imported cows had reacted to the tuberculin test and were sold as reactors.

The sale was managed by C. L. Hughes of the California Breeders Sales and Pedigree Company. Ben A. Rhoades of Los Angeles was the auctioneer. A representative list of sales follows:

Bulls

1, Stagenhoe King of Revada, April 1919, W. H. Dupee, Santee, $625.

2, Itchen Daisy's Butter Boy of Revada, Nov. 1918, W. H. Rapson, Corona, $350.

3, Revada Golden Sun, Aug. 1917, W. F. LaGrange, Inverness, $150.

7, Henry of Revada, April 1920, Inglewood Union High School, Inglewood, $220.

9, Coming King of Revada, Oct. 1919, W. H. Saylor, San Francisco, $250.

18, Itchen Sandman of Revada, April 1920, C. S. Rasmussen, Lolita, $425.

21, King John Rose of Revada, January 1920, W. F. LaGrange, $170.

29, Golden Purity of Revada, May 1920, Louis Bidstrup, Suisun, $150.

41, King Milkman of Revada, January 1920, O. C. Struve, Napa, $180.

43, King Britannia of Revada, Nov. 1919, A. L. Hinshaw, Petaluma, $160.

48, Revada Demonstrator, June 1919, F. B. McKay, Standish, $180.

(Continued on Page 150.)

Think of the Auction Sales

Let your mind for a moment turn back to the auction sales of grade dairy cows that you have attended. What sort of cows commanded the top prices and why?

Don't you remember that the cows that were in most demand at the best prices were those that were well marked and showed plainly the black and white imprint of the Holstein breed?

And when a well marked black and white cow came into the ring with the added attraction of a cow testing association record, didn't it make considerable difference in price?

Why raise grade dairy heifers of nondescript blood that are quite certain to develop into the sort of cows that bring the low prices when sold, or become the boarders that have to be weeded out of the herd when the cow test association tester exposes them, when the very small comparative investment in a good, pure bred, registered Holstein bull will assure greater certainty in the productive ability of the heifers you raise?

SIR AAGGIE MEAD

His sire, SIR AAGGIE DE KOL ACME, by a son of Aralia De Kol and out of Aaggie Acme of Riverside 2nd, whose record of 1,331.70 lbs. butter in one year is the world's strictly official record, and she is the dam of Miss Aaggie Acme Burke, the only junior 2 year old in California that ever made over 1,000 lbs. butter in one year, her yearly milk production a world's record when made, and still second highest in class, and now on test again in our herd has 35.38 lbs. butter from over 726 lbs. milk to her credit in 7 days as a junior 4 year old. She in turn is the dam of the $41,000.00 bull King Korndyke Pontiac Acme. The first daughters of Sir Aaggie De Kol Acme to freshen are splendid producers, and as he is being used heavily in our own herd and in the herd of Mr. F. W. Kiesel, Sacramento, he is certain to have a very large list of daughters.

His dam, ARALIA DE KOL MEAD, made a strictly official record of 1,215.20 lbs. butter in one year, and she is by King Mead of Riverside out of Aralia De Kol, with 1,142.3 lbs. butter and the former world's milk record of 28,090 lbs. in one year. She is also the dam of Aralia De Kol Pontiac Mead, 932.43 lbs. butter in one year as a senior 2 year old, and 34.43 lbs. butter in 7 days as a senior 3 year old, who in turn is the dam of the $11,000.00 bull Sir Aaggie Mead De Kol, heading the Arfmann and Amos herds in New York.

The three nearest dams of SIR AAGGIE MEAD average 1,229.74 lbs. butter from 25,274.8 lbs. milk, two of them strictly official records, and his pedigree on both sides represents some of the most dependable high producing blood in our herd.

SIR AAGGIE MEAD carries a high degree of type with his rich breeding, and we have every confidence that he will add substantially to the great production records of his ancestors through his offspring.

He heads the herd of outstanding females owned by

Toyon Farm Association
Los Altos and San Francisco

We have developed a number of families whose productive and reproductive worth is well established through several generations of yearly tests.

Bulls from these families head a large percentage of the most substantial breeding herds of registered Holsteins in California, as well as a number of high class herds in other states and foreign countries.

Visit the nearest breeder to you who has at the head of his herd a bull bred by us in one of our proven families, and learn how reasonably you can add 50 per cent of real producing blood to your next crop of calves.

We have bulls for sale that are just the kind to improve grade dairy herds, at prices that make them first class investments, and we are usually in position to meet the needs of the breeder who wants a real herd header for a registered herd.

Remember that practically all of our breeding females are young, most of them still in heifer form, and every buyer of one of their sons at values based on present records will benefit through any later and larger records we may make.

Come and see our herd if possible, or write your needs if in need of a good bull at a correct price.

A. W. Morris & Sons Corporation
Woodland, California

The Fifth Public Sale of
SHORTHORNS
Under the Auspices of
California Shorthorn Breeders Association
Will be Held at
The University Farm, Davis, California
Tuesday, February 22, 1921
Some Splendid Cattle Have Been Listed in the Sale
50 Bulls — SHORTHORNS — 25 Heifers
CLYDE N. MOORE, AUCTIONEER
Apply for Catalog:
California Shorthorn Breeders Association
222 Sharon Building, San Francisco, Cal.

Buy These Shorthorn Bulls

I have for sale at moderate prices 20 well bred, heavy boned red and roan Shorthorn bulls, from 13 to 24 months old, that are just right for top range bulls. Several are Scotch. Also a few yearling heifers. Come and see these bulls, or write for prices.

H. W. Vaughn **Dixon, Cal.**

JERSEYS
The Profit Breed
"The Key to Dairy Profits" and *"Jersey Facts"* — two important books, telling how farmers are making real profit today with Jerseys—how anyone can do it anywhere. Whether you are interested in one cow or a hundred, these books will show you how to make money.
Free—Write today
American Jersey Cattle Club, 324-HW. 23 St. New York

SELDOM SEE
a big knee like this, but your horse may have a bunch or bruise on his ankle, hock, stifle, knee or throat.
ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.
will clean it off without laying up the horse. **No blister, no hair gone.** Concentrated—only a few drops required at an application. $2.50 per bottle delivered. Describe your case for special instructions, and Book 8 R free. ABSORBINE, JR., the antiseptic liniment for mankind, reduces Painful Swellings, Enlarged Glands, Wens, Bruises, Varicose Veins; allays Pain and Inflammation. Price $1.25 a bottle at druggists or delivered. Liberal trial bottle postpaid for 10c.
W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

HEREFORDS

commanded the top price in the Chicago market 193 out of 248 days during 1920, or more than 77 per cent of the time, including both cornfed and range-bred cattle.

This is only one of the outstanding market and showring records attained by the whiteface breed during the past year, a record of achievement covering practically every condition of raising, feeding, showing and selling.

What would it mean to YOU to raise the sort of cattle that fetch the added margin of price in the market, a margin that may mark the difference between profit and loss?

You will be afforded an opportunity to secure the productive Hereford blood that has produced the market toppers, and sale and showring tops, in the selected offering that will be made under auspices of

Pacific Coast Hereford Cattle Breeders Association

J. I. Cazier, Pres., Wells, Nevada J. A. Bunting, Sec., Mission San Jose, Cal.

the individuals for which are now being personally selected by the noted breeder and judge, Mr. Frank Van Natta, from leading Pacific Coast herds. The offering will total

60---Registered Herefords---60
40 Bulls---20 Females

and in the selections the needs of the rangeman for bulls, and the requirements of the beginning breeder for desirable females, are being kept constantly in mind.

The sale will be held during Stockmen's Week at

University Farm, Davis, Cal. Wednesday, February 23, 1921

A catalog of sale is in preparation. Write for one to sale manager.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.
Auctioneer: COL. H. L. HULL, Des Moines, Iowa

NEVADA HEREFORD RANCH

We always carry a large herd of high-class Herefords and at the present time we are offering:

A splendid lot of young cows with Harris Standard 2nd calves at foot, and many of them rebred.

A nice selection of young cows and heifers bred to our herd bulls.

A choice collection of open heifers.

A lot of good rugged range bulls. These are the real money making kind, and they are priced to make money for the buyers. We will sell them in car lots or in lots to suit buyers.

We also have some choice young bulls of herd-header caliber that we will sell well worth the money.

We invite your inspection.

John H. Cazier & Sons Co.

Otis Cordell, Herdsman Wells, Nevada

Our ranch is on the main line of both the S. P. and W. P. railroads and only a twenty minutes drive from Wells.

SIERRA VISTA HEREFORDS

One of the largest herds in the West. Built on a Repeater and Fairfax foundation. At present we have to offer 24 choice yearling bulls ready for service.

Sierra Vista Vineyard Co. Minturn Madera County Cal. On Highway 16 Miles South of Merced

MERRITT-BOWERS COMPANY, Tagus Ranch, Tulare, California

have just got in two carloads of registered Shorthorns and Hereford bulls, and have a large assortment of draft stallions of all breeds, work horses and mules, as well as Mammoth Jacks, Duroc-Jersey Hogs and Poland China Hogs for sale, with a guarantee on every animal.

DIAMOND G HEREFORDS

A few choice young bulls, big, heavy-boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.

H. H. Gable Esparto, Cal.

ALAMO HERD
(Founded by the Late Gov. Sparks)
Registered Herefords
Herd and range bulls reasonable. Largest Hereford Herd in California.

W. D. Duke, Gazelle, Siskiyou Co., Cal.

Use Hereford Bulls

The Hereford is the range bull without a peer.

My Herefords have size, bone, constitution and are notably thick fleshed. Visit my ranch and get my prices. Send for free literature.

Mission Hereford Farm

John A. Bunting
Mission San Jose Cal.

When writing advertisers, mention the Cultivator.

At Sacramento

By R. P. Royce

The third week of the legislature was characterized by the introduction of an avalanche of bills; two plans for the reorganization of the state government and an honest-to-goodness fight that was precipitated by the proposal to increase the tax rate for corporations. This corporation measure served to bring to Sacramento a lobby that old timers say is one of the strongest that has ever been seen at the captial. After a battle of nearly a week, during which time the measure was approved by the senate, it was finally defeated in the assembly. It is certain that it will come up for reconsideration after the recess.

Governor Stephens has proposed a plan for the reorganization of the state government. In brief the plan if adopted would abolish about 90 existing commissions, boards and other offices and in their place provide for six general governmental departments as follows: finance, agriculture, education, public works, labor and professional standards. The following are the more important boards that are eliminated: State fish and game commission, state normal school boards, boards of the California Polytechnic School and School for Deaf and Blind, state purchasing agent, Carey act commission and advisory board, immigration and housing commission, state bureau of labor statistics and commissioner of this bureau; industrial welfare commission, boards of accountancy, architecture, dental examiners, embalmers, library examiners, medical examiners, optometry, pharmacy and veterinary medicine, two of the three paid civil service commissioners, state dental surgeon and children's agents.

Other agencies which are not interfered with in the governor's plan are the following: Legislative counsel bureau, superintendent of banks, insurance commissioner, building and loan commissioner, real estate commissioner, corporation commissioner, state mining bureau, industrial accident commission, state board of health, railroad commission, reclamation and irrigation boards, state board of harbor commissioners and board of charities and corrections.

The board of health and railroad commission are constitutional bodies.

A somewhat similar plan is being sponsored by the Taxpayers Association of California. The association believes that the governor's plan is not sufficiently thorough. The second plan is based on 13 departments; they are finance, agriculture, labor, harbors, public health, welfare, corrections, education, natural resources, corporations, state, institutions and public works.

A bill that has the support of the agricultural legislative committee has been introduced in both branches of the legislature looking toward the safeguarding of butter fat tests. Through the administration of the state department of agriculture manipulations of tests are prevented.

Senator W. J. Carr has introduced a bill providing for the purchase of a university farm for the use of the college of agriculture and for the development of such a farm and providing instruction for students, said farm to be located in the San Fernando Valley, Los Angeles County.

Senator Jones has introduced a bill establishing standards, grades and standard packages for fruits, nuts and vegetables sold in state and interstate markets. His bill is calculated to supersede existing legislation.

Senator Rigdon has introduced a bill calling for the establishment of a deciduous fruit and nut experiment station to be located in the Paso Robles district or in the Atascadero district.

Assemblyman Isaac Jones has a measure for the control of walnut codling moth.

Senator Breed has introduced a bill proposing a bond issue of $3,000,000, to be voted upon at the next general election, for the establishment of additional land settlement units. Preference is proposed for ex-service men.

Three other measures planned to assist ex-soldiers to acquire land in this state have been offered.

Senate bill 549 introduced by Lyon regulates the baling, ginning and storing of cotton and establishes minimum and maximum weights for bales and places the industry under the control of the department of weights and measures.

Senator Rush has a bill preventing the importation into this state of horses, mules, dairy cattle, breeding bulls, bucks and sheep which are affected with a communicable disease.

Rush also has a bill for the eradication of sheep scabies.

Senate bill No. 500 by Harris amends acts relative to coooperative, nonprofit farmers' organizations to permit the members to receive profits.

One bill has been introduced that requires all state highways to be at least 18 feet wide.

A daylight saving bill to become effective in March, 1922, has been offered.

The assembly unanimously adopted the West resolution for the appointment of a committee to investigate and report on the present status of the college of agriculture and the university farm school. The resolution was also adopted by the senate with but one dissenting vote. The resolution is generally regarded as of great importance and it is expected that the report will serve to shape the future development of the college of agriculture along lines calculated to correct many of the present faults.

Senator Slater has introduced a bill appropriating the sum of $5,000 for the fourth district agricultural fair.

The proposed plan for placing a tax of one cent a gallon on gasoline is meeting with considerable opposition from farmers who own tractors.

Dennett has introduced a bill empowering county fire insurance companies to form reinsurance companies.

FRESNO COUNTY POLAND CHINA BREEDERS' SALE

The Poland China breeders of Fresno County held their annual consignment sale of bred sows and gilts at Fresno, Wednesday, January 19. Although there was more interest manifested by the local trade and the heaviest demand for catalogs of any sale held by the county association, still an all day's rain evidently discouraged the crowd and kept most of them away. Col. Fred Gatewood worked hard on the block but everything was against him. It was hardly possible to sell the entire offering. The sows and gilts sold brought an average of $60 per head. The top of the sale was No. 19, a choice gilt by Liberty Bond, consigned by A. Buckland & Son. She was purchased by Bassett Bros., Hanford, at $100. H. A. Johansen, Fresno, was the heaviest buyer, taking four of the best sows in the sale.

It is doubtful economy to build a silo within another structure, for it amounts to paying for the space twice. It would be more aconomical in the long run to use durable materials, paint, or treat it with some good preservative, and provide a roof for protection.

Milk should be served to children at every meal. If a child does not care to drink raw milk, it should be prepared in some manner to tempt the appetite.

REMEMBER!

Jas. J. Jeffries' Absolute Dispersal

65 REGISTERED HOLSTEINS **65**

Jeffries Ranch **Burbank, Cal.**

Thursday, February 3

at 10 A.M.

KING SEGIS PONTIAC JANNEK, the famous Jeffries herd sire!

BARRON ANNABEL LILITH, the highest 7 day record cow ever sold in California!

MAID TUEBIE SEGIS, the highest record cow ever sold in California!

K S P J PET SEGIS, Grand Champion at Los Angeles, and California record junior 2 year old for milk in one, seven and thirty days!

SEVEN OTHER 27 to 30 POUND COWS, with their daughters by King Segis Pontiac Jannek!

ALL OF THE SENSATIONAL SHOW HERD, that made such a wonderful showing at Los Angeles Livestock Show 1920!

Remember! and Be There!

Guernsey Females

Our herd reduction sale still continues and there is a lot of fine Imported and A. R. cows with high production records and show ring honors left to be sold. We are also offering the choicest lot of young stock ever in one herd in the West. A number of bulls of all ages from the above sired by King of Hollow-Hill and Effie's King.

Also 30 head of females 15/16 Guernsey that will make wonderful family cows.

All T. B. tested and guaranteed breeders.

Everything Priced Reasonably.

Hollow-Hill Farm

Colton, California

Sunny Side Farm

where efficiency is our watchword and the production of extra heavy milking Holsteins and big type Poland Chinas is our specialty. A few choice animals of either breed or sex for sale at all times at reasonable figures. Write for information.

R. F. Guerin **Visalia, Cal.**

GEORGE W. BELL

A BUSINESS AUCTIONEER

When in need of high class auctioneering service I would be glad to have breeders and farmers correspond with me. I have had years of experience, know values and know pedigrees. I am selling for many of the leading breeders of California and am prepared to deliver the same results that have attracted this custom. Terms reasonable. Write, wire or phone.

GEO. W. BELL **Tulare, California**

When Writing Advertisers Mention California Cultivator.

Absolute Dispersal---W. A. Thompson Herd

66 REGISTERED HOLSTEINS **66**

Rhoades & Rhoades Sales Pavilion

Hynes, Cal.

Saturday, February 5, at 10 A.M.

Including an especially well bred lot of cattle, among them some heifers of outstanding breeding. The list includes

A DAUGHTER OF KING MEAD OF RIVERSIDE, out of a half sister to Tilly Alcartra that made 933.49 lbs. butter from 22,675.2 lbs. milk in one year.

A DAUGHTER OF PRINCE GELSCHE WALKER, with 722.68 lbs. butter from 16,142.9 lbs. milk in one year as a junior 2 year old. Her daughter by King Morco Alcartra, son of Tilly Alcartra sells.

A DAUGHTER OF PRINCE GELSCHE WALKER, with 18.25 lbs. butter in 7 days as a 3 year old, her dam a yearly record daughter of a 22 lb. cow.

A DAUGHTER OF KING MEAD OF RIVERSIDE, out of the above daughter of Prince Gelsche Walker.

A 27.86 POUND COW and her two daughters, both sired by King Morco Alcartra, Jr., who is by King Morco Alcartra and out of a daughter of Aaggie Acme of Riverside.

A 22 POUND GRANDDAUGHTER OF KING OF THE PONTIACS, and her daughter by King Morco Alcartra, son of Tilly Alcartra.

MANY OTHER COWS with records up to over 21 lbs. butter in 7 days.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer, except as announced in sale ring.

Management

California Breeders Sales and Pedigree Company

C. L. HUGHES, Sales Manager, Sacramento, Calif.

Auctioneers: RHOADES & RHOADES, Los Angeles

Maxwell Farms' Holsteins

Sir Ormsby Skylark
Sire of the World's Champion Cow

The fountain head of the Ormsbys with over 50 daughters of Sir Ormsby Skylark in the herd which has two sons of Sir Pietertje Ormsby Mercedes at its head. Write for our sales catalog of service bulls.

D. G. Maxwell, Owner

Garden Court, Hollywood, Cal.

King Korndyke Pontiac Mead

Average of his Dam and Sire's Dam (Both Former World Record Holders)

At Average Age of 4 yrs. 2 mo. 10 dys. { 1062.64 lb. Butter
Semi-Official, 365 Days { 21173.75 lb. Milk

Official Test, 7 Days { 31.91 lb. Butter
{ 615.60 lb. Milk

His Sire—King Korndyke Pontiac 20th
His Dam—De Kol of Valley Mead 2d
Four of his seven nearest Dams have held World's Records

LOS ANGELES COUNTY FARM **Hondo, Cal.**

3 miles south of Downey on Downey-Long Beach Boulevard

Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

BURR FARM

Box 220, Route 2. East 26th and Downey Road, Los Angeles

Rhoades & Rhoades

Expert Livestock Auctioneers

Col. Ben A. Rhoades **Harold B. Rhoades**

Sales conducted in all parts of California and adjoining States

REG. DAIRY CATTLE

REG. BEEF CATTLE

We conduct sales of grade dairy cattle and general farm sales in all sections of California. Absolute satisfaction guaranteed. Forty years of successful sales in California and thousands of satisfied customers.

A completely equipped Stockyard and Sales pavilion maintained at Hynes, California.

Write, phone or wire for dates and terms.

RHOADES & RHOADES

1501-3-5 So. Main St. **Los Angeles, Cal.**

SECOND ANNUAL SALE

of Bred Duroc Sows and Gilts

at 10 A.M.

Saturday, Feb. 5th, 1921

The offering consists of 15 sows, 59 gilts and 5 outstanding service boars. Sows bred to California Orion King, King Cherry Orion and California Pathfinder. This sale is on the same day as the consignment sale at Davis. Parties arriving on the train will be met at depot and taken to the Davis sale in the afternoon. All stock guaranteed.

W. G. Harris, Auctioneer

H. M. Berglund and Boyd Harold

Dixon, Cal.

Johnson's Defender Jr.

Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

H. C. WITHEROW Live Oak, Cal.

TIM ANSPACH
Livestock Auctioneer
30th & R Streets Sacramento, Cal.
Write or Wire for Sales Dates

For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

D. G. Cummins & Son
Route 1 Visalia, Cal.

When Writing Advertisers Mention California Cultivator.

GREAT MORRIS HEIFER MAKING SPLENDID RECORD

Miss Aaggie Acme Burke, the noted Holstein-Friesian heifer owned by A. W. Morris & Sons Corporation, Woodland, whose records have been referred to in our recent issues, has apparently reached her best seven day production, and now has to her credit 35.38 pounds butter in seven days from over 726 pounds milk as a junior four year old with second calf.

Miss Aaggie Acme Burke

This great heifer is not only a high class individual, as her picture shows, but is also of royal breeding. She is by Segis Pontiac De Kol Burke, son of the former world's record cow Riverside Sadie De Kol Burke, and is out of Aaggie Acme of Riverside 2nd, whose record of 1,331.70 pounds butter in one year is the world's strictly official record. Curiously enough this heifer has made exactly the same seven day record as her dam, even to the fraction of a pound, 35.38.

As a junior two year old with first calf, Miss Aaggie Acme Burke made 1,034.44 pounds buter from 24,338.8 pounds milk in one year, her butter record being third highest in class, and her milk production a world's record when made, and still second highest in class.

She is the dam of King Korndyke Pontiac Acme, the outstanding young bull purchased by Anita M. Baldwin in the St. Paul sale last year for $41,000, and who was junior champion at California State Fair and Los Angeles Livestock Show in 1920.

Miss Aaggie Acme Burke dropped a fine heifer calf by Sir Aaggie De Kol Acme at this freshening, and is starting off at a wonderful clip, holding well over 100 pounds milk per day.

California Duroc Breeders Association Consignment Sale

Davis, Cal., Saturday, Feb. 5th 1921

An offering that will increase the profits from your farm. We appeal to both the farmer and breeder.

This consigmnent of

45 Bred Sows and Gilts

has been selected from the leading herds of the state. An equal opportunity for the farmer desirous of increasing the efficiency of his pork production and the breeder who is seeking new foundation material.

The production of pork is on the most profitable basis known in years. You can procure some of the best sows in the state at your own valuation.

The following Duroc sales will be held: Diamond Bar Ranch, Spadra, Feb. 16th; Falfadale Farm Dispersal Sale, Perris, Feb. 17th; Berglund & Harold, Dixon, sale at 10 A. M. the morning of Feb. 5th the same day as this sale.

For Catalog and Information Address

J. P. Walker, Secretary, Visalia, Cal.

Col. Geo. W. Bell, Anctioneer

REVADA GUERNEYS

(Continued from Page 147.)

53, Royal Revada, June 1919, Nick Brubin, Bloomfield, $200.
54, King Meadowlark of Revada, Sept. 1919, J. H. McKinzie, San Francisco, $200.

Females

5, Itchen Daisy Fair One of Revada, April 1920, W. H. Dupee, Santee, $475.
11, Pearl Souffle of Revada, Nov. 1919, A. B. Humphrey, Escalon, $325.
12, Imp. Golden Wish of Revada, June 1916, C. R. Potter, Shellville, $710.
13, Pearl Sweetheart of Revada, July 1918, J. C. Eonding, Los Angeles, $225.
20, Cherut Golden Rose of Revada, July 1918, C. B. Hensley, San Francisco, $295.
25, Pretty Dolly of Revada, Oct. 1919, W. H. Dupee, $425.
26, Princess Glynn of Revada, Oct. 1916, A. B. Humphrey, $275.
27, Princess Pat Baby of Revada, Nov. 1918, A. B. Humphrey, $325.
28, Imp. Purity of Revada, Oct. 1916, A. B. Humphrey, $275.
31, Jane Queen of Revada, June 1920, Inglewood Union High School, $200.
33, Revada Cora, June 1920, W. H. Dupee, $400.
34, Ricardo's Girl of Revada, Sept. 1918, C. B. Hensley, $250.
35, Nellie King of Revada, Jan. 1920, W. H. Dupee, $400.
36, Pearl King's Buttercup of Revada, April 1919, S. Christensen, San Francisco, $220.
37, Cherub Primrose of Revada, June 1918, C. B. Hensley, $200.
38, Imp. Hale Vesta, May 1912, W. H. Dupee, $300.
42, Revada Britannia, Aug. 1917, Eliza Sheppard, Glenn Ellen, $335.
44, Revada Lily Belle, Feb. 1918, A. B. Humphrey, $300.
45, Lily Sunrose of Revada, Feb. 1920, C. S. Rasmussen, $200.
49, Faith of Revada, Aug. 1917, A. B. Humphrey, $275.
50, Pearl Faith of Revada, Dec. 1919, A. B. Humphrey, $250.
51, Revada Maid of Yountville, April 1920, Inglewood Union High School, $210.

Lassen national forest office is now receiving applications for livestock grazing for next season.

Merced County's farm bureau is also doubling up.

—quick, sure germination with Germain's proven strain

Complete information about this wonderful strain is given in our free 1921 Catalog. A card addressed to Dept. B will bring a copy of this valuable book by return mail.

Buy Germain's PROVEN Hairy Peruvian Alfalfa Seed from your dealer. Every sack is sealed and stenciled.

Germain
Established 1871
Seed & Plant Co.
N. E. Corner
Sixth & Main Sts.
Opp. P. E. Depot
Los Angeles, Cal.

HAIRY PERUVIAN

Each sack tagged and sealed by County Horticulturist Agent, which guarantees seed TRUE to NAME. Your Government recommends HAIRY PERUVIAN above all others.

FANCY, 31c PER POUND; DELIVERED.

Alfalfa Seed

From Grower to Planter

Fancy Common, 22c; Fancy Smooth Peruvian, 29c; Delivered

W. R. WHITMAN Box 29, Yuma, Ariz.

The Platform Body With Stake Sides and Enclosed Cab — For

Ford One Ton **Truck**

We have a full line of Commercial Bodies for Ford One Ton Trucks and Ford Model T Chassis, specially designed for farm use, strongly built, handsomely painted. They are ready to attach without mechanical alterations to the Chassis.

There's a Model for every use. Write today for Free Illustrated Folder showing Eleven Styles.

ARNOTT & COMPANY

112-118 So. Los Angeles St. Los Angeles, Cal.

Victory Bob, the Greatest Son

of the grand champion Giant Bob heads the Sunland herd of big type Poland Chinas. Some choice young animals of select breeding for sale at all times.

H. A. Johansen Fresno, Cal.

Trewhitt's Big Type Polands

Are the result of careful mating and selection. Size and feeding quality have always been essential features in this herd. Write for prices and information. I can interest you.

W. D. Trewhitt Hanford, Cal.

Fortuna Herd Poland Chinas

Special prices on gilts sired by The Californian, either open or bred to The Skipper by The Pilot. Two sisters to Orange Lady, first prize senior gilt at Sacramento. Also some choice weanling boar pigs. Satisfaction assured.

Hugh C. Shinn Tulare, Cal.

Eastman Ranch Poland Chinas

Herd headed by Buster Bob, Grand Champion at the strong Los Angeles Livestock Show. He is the largest junior yearling in the state and is siring some great pigs. Young stock for sale at all times. Satisfaction assured.

H. L. Graham, Mgr. San Fernando, Cal.

On Tuesday, February 8th, 1921

The Ortega-Underhill-Rancho

Francis T. Underhill, Proprietor

Will Sell at Auction on the Ranch in Montecito

Four Miles East of Santa Barbara

50 Very Choice

Hampshire Sows and Gilts

ALL BRED TO SUPERIOR BOARS

THERE IS NO BETTER BLOOD IN THE COUNTRY

— ALSO —

A Few Fine Boars for Sale at Private Treaty

Send to Thos. T. Dinsmore, Manager
O U R Ranch—Santa Barbara, Cal.
for Catalogs

NOTE: California Farmers have been slow to realize that the packers and butchers all over the country will pay more for Hampshire Hogs than for those of any other breed and incidentally the Hampshires have won the blue ribbon of hogdom, namely, the Championship in car load lots at the Chicago International Livestock Show in 1918, 1919 and 1920—and in the last two years the Reserve Championship as well. Such a record requires no comments.

In the Cornbelt States and through the South, hundreds of breeders identified for years with other well known breeds are now breeding Hampshires only, because they find them the best money makers.

The unprejudiced man who wishes to breed only the best can easily satisfy himself by growing a good Hampshire Sow and her progeny under equal conditions with a good sow and her progeny of any other breed.

LAST CALL FOR

Grape Wild Farm Sale

of High Class Berkshire Hogs

at Escalon, Cal.

Thursday, February 3rd, 1921

30 high class sows and gilts, sired by Big Leader. Winona Champion Leader, Escalon Superb, Grapewild Farm Leader and bred to Escalon Artful Leader 3rd, Wilsonia King Laurel, Grapewild Challenger and Grapewild Leader 4th.
An offering of sows and gilts that will be sure to make money for the farmer and feeder. Write for catalog and arrange to attend the sale.

Col. John Davis, Auctioneer

A. B. HUMPHREY

Escalon Cal.

You Are Invited to Attend Our

Berkshire Sow Sale

35 of the breed's best bred to our great head boars

TUESDAY, FEB. 1

under cover at our ranch on paved highway three miles east of Ontario.

Italian Vineyard Co. Guasti, Cal.

Alex. M. Wilson, Supt. Ben A. Rhoades, Auctioneer

Complete Dispersal Sale of Berkshires

The famous Riverby Orchard herd of Berkshires will be sold at public auction at the farm near Prosser, Washington, on

SATURDAY, FEBRUARY 19th, 1921

Included in the offering are three of the greatest herd boars in the West—BUNTY'S LONGFELLOW, son of Kintyre Bunty, Reserve Grand Champion sow at San Francisco World's Fair; ROYAL DOMINATOR 4th, 1st Junior Yearling, Western Berkshire Congress 1917 and Grand Champion boar entire Northwest circuit in 1919; AMES RIVAL 148, sire of Lord Bacon 9th, Grand Champion boar at International at Chicago in 1920.

60——Head of Berkshires——60

All reserve sows and gilts bred to these great boars for spring farrow and many promising youngsters. Everything cholera immuned. For catalogue and full information write at once to

Chas. M. Talmadge, Sale Mgr. Salem, Oregon — or (Mention this Paper) — D. C. Bunn, Owner Prosser, Washington

Livestock News Notes

LIVESTOCK SALE CALENDAR

Herefords

February 23, Pacific Coast Hereford Breeders Association, Davis.

Holsteins

February 3, James J. Jeffries, Burbank.
February 5, W. A. Thompson, Hynes.
March 17, Holstein Guaranty Sale, Sacramento.

Shorthorns

February 22, California Shorthorn Breeders Association, University Farm, Davis.

Hampshires

February 8, Ortega-Underhill Ranch, Santa Barbara.

Poland Chinas

February 15, Bassett, Ross & Crawshaw, Hanford.

February 26, Kings County Poland China Breeders Association, Hanford.

Berkshires

February 1, Italian Vineyard Company, Guasti.
February 3, A. B. Humphrey, Escalon.

Durocs

February 5, California Duroc-Jersey Breeders Association, Davis.
February 5, Harvey M. Berglund & Boyd Harold, Dixon.
February 16, Diamond Bar Ranch, Spadra.

February 17, Falfadale Farm, Perris.

Percheron Horses

February 17, M. Bassett, Hanford.

One of the most important transactions ever made in California Holstein circles was consummated last week when W. J. Higdon of Tulare sold the great yearling heifer, Miss Aralia De Kol Aaggie, to Fred Hartsook of Lankershim for a price more than double ever paid for a Holstein female in this state. Miss Aralia De Kol Aaggie was sired by Sir Aaggie De Kol Mead and is out of the great cow Aralia De Kol Pontiac Mead. She is one of the two heifers in the world whose seven nearest dams average above 1,100 pounds of butter in a year.

W. M. Bergstrom of Pleasanton, who made his initial purchases of Herefords at the fall sales held at Sacramento, has secured two carloads of very high class herd material from a number of the leading eastern herds. Bergstrom was one of the heaviest buyers at the Mousel Bros. sale in Nebraska, where he selected the young bull, The Anxiety 3d, a son of Young Anxiety, for $5,000. In the same sale four females were purchased for an average of $880. In the Rodwell sale 21 of the better sort of females fell to Bergstrom's bid. The addition of such cattle to the Hereford industry of this state will mean much in our future development and is evidence of the marked growth of our beef cattle industry.

The annual meeting and sale of the Western Berkshire Congress will be held at the university farm, Davis, during the annual Stockmen's Week. Details of the meeting will appear in a later issue.

W. M. Carruthers of Live Oak writes that he has selected seven females and one bull for the annual spring sale of the California Shorthorn Breeders Association and that he has gone pretty deep into his herd for his entries. Among the entries are: Opal Violet 2d, a daughter of Hallwood Villager and out of a Marsh Violet dam that sells with a calf at foot by Royal Knight, a son of Count Avon; Live Oak Secret, a red November two year old daughter of the former champion Count Glory and out of a Secret dam; Crimson Flower 2d, a beautiful white junior yearling daughter of Count Glory, and a full sister to the heifer for which William Bond paid $1,800; Riverside Grace and her full sister that are sired by Hallwood Villager and out of a Generosity dam; a December 1919 roan daughter of Count Glory and out of a Ringmaster cow and a roan daughter of the Villager bull and from a Ringmaster dam. The bull to sell is roan Count Glory Jr. that was shown at the last state fair as a senior calf.

Will Johnson, a member of the staff of the Shorthorn World, is visiting the Shorthorn herds of this state. This is Johnson's first trip to California and he has been greatly impressed with the character of Shorthorns he has found. Johnson says that from now forward California Shorthorns are certain to attract attention in the East and he predicts that many of our top productions will be in demand.

Caledonia Farms, West Sacramento, will be represented at the annual Shorthorn Congress show and sale to be held at Chicago next month with six females all carrying the service of Imp. Caledonia. In addition to the above, two bulls will be consigned. This is the first instance of a California herd being represented in a large Eastern sale.

At a meeting held at Stockton, January 21, Holstein breeders of San Joaquin County met and organized the San Joaquin County Holstein Friesian Breeders Association. About 15 breeders became members and the following officers and directors were elected: A. R. Magruder, Ripon, president; R. Stevens, Stockton, vice-president; R. E. Kilgore, Ripon, secretary-treasurer; J. M. Campbell, Escalon, J. W. Scudder, Escalon, M. H. Newborn, Manteca, and M. H. Cusick, Lodi, directors. The meeting was addressed by C. L. Hughes, secretary of the state association. It was decided that the new organization would work in close harmony with the state association in all matters affecting the welfare of the breed.

Harvey M. Berglund and Boyd Harold of Dixon have planned to hold their second annual sale of Duroc sows and gilts at 10 a. m. February 5. This is the day of the consignment sale at Davis. Anyone from a distance will be met at the depot in Dixon, taken to the morning sale and then in the afternoon taken by auto to the breeders' sale at Davis.

While many hog breeders are still feeling that it is hard to sell breeding stock, D. G. Cummins & Son, Visalia, have been enjoying a brisk trade. They report recent sales of 18 head at satisfactory prices, and have disposed of all the bred sows and gilts they can spare. Cummins & Son feel very optimistic over the future of the swine industry.

M. Bassett & Sons, Hanford, recently sold their fourth carload of fat hogs since September 1 and have another carload to be ready for market and more to take their place when they are gone. With the present prices of feed and fat hogs, Mr. Bassett reports the best profit in feeding the last carload he has made for several years. Few men in the state have had any more experience in feeding operations than Mr. Bassett. He also reports that more sows are being kept to farrow this spring than for many years.

Ratto Stock Farm, Napa, has just sold a carload of brood sows to the Brentwood Farms. This was a selected lot, some of them being registered Poland China and Berkshire sows, the balance all sired by top notch boars. A car of yearling and two year old Durham heifers were sold to B. F. Russi of Halfmoon Bay. This was a splendid lot of heifers from grade Shorthorn cows and all sired by Fanny's Sultan, a son of Sultan Maybower, the university bull. Two registered Berkshires and one Poland China boar were also sold to the California Livestock Company of Colma.

LOS ANGELES MILK RATINGS FOR A PERIOD OF EIGHT MONTHS

By J. C. Marquardt

Milk ratings of Los Angeles dairies based on the results of a milk scoring which started April 1, and which the health department has just finished, are as follows (three highest in each class):

Certified Milk

This is raw milk produced under the supervision of the medical milk commission of Los Angeles County Medical Society. Bacteria limit not to exceed 10,000 per cubic centimeter: Adohr Stock Farms, 99.0; Arden Dairy, 93.8; Cold Springs Dairy, 91.3.

Falfadale Farm Duroc-Jerseys

Mammoth Dispersal Sale

Thursday, Feb. 17

Under Cover at the Farm

Perris, Cal.

40 Bred Sows and Gilts and the Grand Champion Boar, Great Orion Sensation

One of the Finest Show Boars and Best Junior Breeding Boars on the Coast

A son of the world's grand champion boar, Great Orion Sensation, he is also a brother to the world's junior champion boar.

He is the sire of many prize winning pigs in the 1920 shows including Miss Defender Sensation, first at Sacramento in class of 72 and junior champion at Riverside. Never before has such a boar entered the sale ring in the West.

ORION PATHFINDER

By the Ace of Pathfinders, he is out of the $1,500 sow in the A-1 Duroc herd at Visalia owned by J. P. Walker. He is a real boar farrowed March 2, 1920.

The List of Sows Includes

A Daughter of Pathfinder

Daughters of Winsor's Giant Orion, Grand Model 8th, Orion King Gano, Pathfinder's Likeness and Great Orion Sensation.

A Fine Lot of Spring Gilts by Great Orion Sensation Jr.

WRITE TODAY FOR CATALOG

Falfadale Farm

Perris, Cal.

B. H. Wilkinson, Mgr. Col. G. W. Bell, Auctioneer

Mail Your Bids to Jack Klein, Cultivator Representative

Guaranteed Milk

This is raw milk guaranteed by the producer with the written permission of the city of Los Angeles. Bacteria limit not to exceed 25,000 per cubic centimeter: Burr Creamery Company, 98.4; Elliott-Brant Rancho, 97.5; Los Angeles Creamery, 90.0.

Grade A—Raw Milk

This is the raw natural product from tuberculin tested cows. Bacteria limit not to exceed 100,000 per cubic centimeter: Walter Williams, 97.7; Jersey Dairy-Dolan, 96.6; A. Kravchyk, 95.9.

Grade A—Pasteurized Milk

This is milk that has been heated to a temperature of about 142 degrees Fahrenheit and held for about 25 minutes and then rapidly cooled to below 50 degrees Fahrenheit. Bacteria limit not to exceed 15,000 per cubic centimeter after pasteurization and 200,000 per cubic centimeter before: Sanitary Gold Seal Dairy, 95.5; Crescent Creamery, 95.2; Hansen Dairy, 93.3.

Goat Milk

Requirements as to bacteria same as grade A milk-raw: Beverly Hills Dairy, 94.4; Goat Dairy, 91.8; La Corona Dairy, 87.9.

Grade B Milk

This is milk put out in cans to restaurants and wholesale trade and contains less than 1,000,000 per cubic centimeters before pasteurization and less than 50,000 per cubic centimeters after pasteurization: Hansen Dairy, 85.0; Mutual Dairy Association, 83.5; Crescent Creamery, 80.3.

The score card used allowed 35 points for bacterial count, 15 for flavor and odor, 16 for absence of sediment, 15 for butterfat, 15 for solids not fat, 5 for acidity, and 5 for appearance of package. The final scoring for the period was under the supervision of R. J. Posson of the United States department of agriculture, Dr. A. S. O'Banion, head of the Santa Barbara health department, and J. C. Marquardt of the dairy division of the University of California. All classes of milk were scored on the same basis in regard to bacterial content. However, in an effort to further increase milk quality, the health department will modify this system in the future. That is, no points for bacterial content will be allowed to dairies having a higher bacterial content than is allowed for the grade of milk which they are producing. The revised score card of the United States dairy division is used in the work of the Los Angeles health department.

CAUSES FOR BITTER FLAVOR IN MILK

Milk sometimes contains a distinct bitter flavor which may be caused by the action of bacteria, feed which the cow has eaten, an abnormal condition of the cow's udder, or an advanced stage of the lactation period.

All milk is affected to a greater or lesser extent by the action of bacteria. The normal souring of milk is caused by a bacteria which is nearly universally found in milk. Besides the souring type of bacteria there are types which produce very disagreeable flavors and odors and among these are the bacteria which give milk a bitter flavor when they are allowed to grow and develop in sufficient number. They usually gain entrance to the milk with the dirt which drops into the bucket while milking or from dust in the air. Once they are in, they will multiply very fast and as their number increases the bitter flavor becomes more pronounced.

When buckets, pans and other utensils used in handling milk are washed in hot water, most of the bacteria are killed. There are a few, however, which may survive this treatment. If the utensil remains wet after washing, these bacteria which are left will immediately begin to grow and multiply, so that when the utensil is again used it will contain large numbers of them. These then go directly into the milk. If they are present in sufficiently large numbers the bitter flavor may be developed in a few hours, especially if the milk is not properly cooled. After the utensils are once infected the bacteria may be passed on in the milk from day to day providing the utensils are not sterilized. Utensils should be thoroughly washed and sterilized after each using. The milk may first be rinsed out with a small amount of warm water and then thoroughly washed with hot water and soap or washing powder. After they have been scalded with boiling water, or sterilized in live steam, they should be completely dried by then placing on the stove or in the hot sun. If placed in the sun, care should be taken to see that they are not contaminated with dust. If thoroughly cleansed after each milking, utensils will not carry the bacteria from one day to another.

Milk absorbs readily flavors and odors from such feeds as ragweed, onion, cabbage, kale or the highly flavored weeds. These should be eliminated from the cow's ration or at least not fed until just after milking. During the later summer and fall the pastures contain a number of strong flavored weeds which will produce a bitter flavor in the milk. An abnormal condition of the cow's udder is not an uncommon cause for bitter milk. If any irregularity is noticed either in the milk when first drawn or in the udder, the milk should not be used. The advice of a competent veterinarian is always advisable in these cases.

As a cow nears the end of the lactation period the milk becomes more or less abnormal. When within six to eight weeks of the close of the period the fat content begins to rise materially, the fat globules get small and hard and the milk sometimes takes on a pungent, bitter flavor. If the bitter flavor becomes prominent, the cow should be dried up. The cream during the latter part of the lactation period requires considerable churning to make it into butter, as the fat globules are too hard and small to adhere readily.

Cream which is held from three to five days before churning will usually make a bitter, off-flavored butter. Good butter cannot be made from poor cream. If the utensils are well washed and sterilized after each milking and strong feeds are not fed and the cow's udder is normal, bitter flavors will usually not be noticed. Milk from cows in the latter stages of lactation may, however, be bitter even if the other sources of trouble are removed.

THE FIFTH SHORTHORN SALE

A splendid lot of Shorthorn cattle will be offered at the fifth public sale of Shorthorns, to be held at the university farm, Davis, on Tuesday, February 22, 1921. The uncertain condition prevailing last fall prompted a postponement of the fall sale and the breeders have been saving up their best entries for the spring event. So many entries have been received that it is questionable whether they can all be disposed of in the one sale. In any case, the best will be selected for the sale on February 22. Clyde N. Moore of Montana will conduct the sale, which promises to be one of the most eventful yet held under the auspices of the California Shorthorn Breeders Association. The great bull, Maxwalton Lavender, is being entered and it is expected that buyers will come from afar to put in a bid on this magnificent breeding animal.

ACE OF PATHFINDERS

Plan Your DUROC FUTURE NOW!

SATISFACTION GUARANTEED

Every sow in this sale must be safe with pig or your money will be cheerfully refunded. See the generous guarantee in our sale catalog. Most of them are bred for March litters.

Good Sows Bought at the Present Low Prices Will Make More Money Than Hogs Have Made in 10 Years

The best efforts of the greatest Duroc breeders of the entire county have been concentrated to produce the extreme modern type and conformation of the sows and gilts that go into our February 16th sale. A purchase at that time will eliminate years of experiment and uncertainty on your part.

Bred Sow Sale

Feb. 16--at the Ranch

28 Miles East of Los Angeles on Paved Pomona Highway

Some of the sows that are bred to Ace of Pathfinders:

Critic Rose, Grand Champion as a Junior Yearling at the Los Angeles Liberty Fair. Seven daughters of Mammoth Sensation, Jr., that are giants. Mammoth Sensation, Jr., is a wonderful sire of extreme big type Durocs and his blood combined with that of Ace of Pathfinders produces winners. A half sister of the top sow in our last winter sale bought by J. P. Walker of Visalia.

Two daughters of Orion Sensation, a litter mate to the world's champion, Great Orion Sensation.

Others by California's Great Wonder, Great Model, King Orion, Critic D and other well known boars.

Some of the sows bred to Mammoth Sensation, Junior:

Three daughters of Pathfinder, the greatest sire that ever lived. Two granddaughters of Pathfinder.

A daughter of Great Model.

A daughter of Creator.

Look at these Beauties Bred to Diamond Sensation

(An Outstanding Son of Great Orion Sensation Out of a Pathfinder Dam)

Four daughters of Great Pathfinder out of Uneeda Lady 3rd, Model Lucy and Model Maud, the $6000.00 first prize senior yearling at the National Swine Show. She was one of the world's champion herd.

Cherry Duchess 2nd, the great show gilt who won first and Reserve Junior Champion at Los Angeles. She is sired by Ace of Pathfinders.

Write For Catalogue Today

DIAMOND BAR RANCH

SPADRA
Los Angeles County,
California

F. E. LEWIS,
Owner & Manager
R. K. WALKER,
Hog Department

Col. G. W. Bell Auctioneer

Classified Liners

The direct selling method form producer to consumer, and a clearing house for over 40,000 subscribers. Weekly Liner rates: Single insertion 4½ cents per word; 45c per issue minimum charge. Mail all classified copy to Los Angeles Office.

POULTRY

Buy 200 Egg Strain Chick, Pullet Breeders! Customers say: "Pullets raised from your chicks averaged 209 eggs last year;" "114 hens cleared $612 in 12 months;" "lost but 2 chicks of 100;" "get more winter eggs from 50 your hens than from 200 formerly." 140,000 electrically hatched 180-290 egg Leghorns, Reds, Anconas, Rock, Minorcas, Wyandottes, Andalusians, (ducklings, turks) reasonable. Half booked. Hundreds satisfied customers. Repeat orders often. Write (am rarely home). Profitable Poultry, 151 North Fair Oaks, Pasadena.

Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

For Sale—One million S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock for spring 1921 delivery. January prices $5.00 per 25, $10.00 per 50, $18.00 per 100. Special prices 500 and 1,000 lots. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Order early chicks now and realize big broiler profits. Finest hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., 438 Seventh Street, Petaluma, California.

Buy Early Chicks—Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, California.

POULTRYMEN — POULTRYMEN
Both the novice and the experienced poultryman should have a copy of **"Poultry for Profit"** in order to prevent mistakes commonly made in the poultry business. This cloth bound book of 225 pages and 18 illustrations is written by Jean Koethen, a practical authority on all branches of the poultry business in California. Price $1.00 postpaid. Cultivator Publishing Co., 115½ N. Broadway, Los Angeles.

Sly's Old Mission Strain Rhode Island Reds. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. SLY, 1642 (D) Middleton Place, Los Angeles, California.

Quality Barred Plymouth Rock and Ferris S. C. White Leghorn guaranteed hatching eggs. Also Barred Plymouth Rock breeding cockerels for sale. We have good stuff at honest value for you this season. GOLDEN RULE POULTRY FARM, Porterville, California.

Baby Chix—S. C. White Leghorns from open range standard bred parent stock of utmost utility. Protect yourself in having your order booked early. Prices, etc., on application. I. X. L. Hatchery, 519 Upham Street, Petaluma, Sonoma County, California.

Baby Chicks from good layers. Booking orders now for 1921 delivery. R. I. Reds, Barred Rocks, White Rocks, White Leghorns, Brown Leghorns. Safe arrival guaranteed. Write for circular. Stubbe Poultry Ranch and Hatchery, P. O. Box 67, Palo Alto, California.

We Can Supply strong, vigorous chicks guaranteed Tancred Strain from trapnest parent stock, 290 egg male birds, 240 and better female birds. These birds will grade up your flock. Price $20.00 per hundred f. o. b. Seattle. QUEEN HATCHERY, Seattle, Washington.

S. C. White Leghorn Baby Chicks from my carefully selected, pure-bred stock of S. C. White Leghorns. Orders for spring delivery booked now at $15.00 per 100, $140.00 per 1000. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

X L Hatchery, 351 Soquel Avenue, Santa Cruz, California now booking orders for electrically hatched X L Chicks; trapnested Tancreds and Tom Barrons; also other varieties and breeds. This year the demand is greater than the supply. Place your order now.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks—S. C. White Leghorn and R. I. Reds. Bred from paying flocks. Hatch each week. Chicks shipped by parcel post. Order now for early delivery. Write for prices. San Diego County Hatchery, San Diego, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Josch, Fallon, Nevada.

Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

POULTRY

For Sale—Fancy White Leghorn Cocks, year old, single comb, Martin Downey strain. Priced right. Whittier State School, Whittier.

Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made such a remarkable record in the state laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

Baby Chicks—We have 8,000 selected Hoganized hens, all on free range on different ranches, all mated to Tom Barron roosters. We guarantee full count of strong, healthy chicks. Book your orders with us now and avoid disappointment, as orders are coming in fast. 30 years in the business. Lasher's Hatchery, Petaluma, California.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

White Leghorns—hatching eggs our specialty, produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the West. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R. 1 Box 29, Gardena, California.

Chicks — Eggs — Hoganized White Leghorns, Brown and Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, Calif.

White Leghorn Baby Chix from heavy-laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Price for April, May and June, $14.00 per 100. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

Baby Chicks hatched from our utility S. C. White Leghorns, a result of many years selecton and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

Hatching Eggs from trapnested, line-bred, pedigreed S. C. White Leghorns, trapnested 17 years for high production, vitality and consistency. Best foundation stock on the Coast. Our circular tells you why. Waldeck Ranch, Burbank, Calif.

For Sale — S. C. White Leghorn Baby Chicks and Hatching Eggs from 227 egg strain of winter layers. Book your order now for early delivery. Meyer Poultry Farm, Route A, Box 17-C, Modesto, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

"Eastman's Bred-to-Lay" Trapnested Barred Rocks. JANUARY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Baby Chicks — Can book a few more orders for early S. C. White Leghorn and S. C. Rhode Island Red chicks. Tupman Poultry Farm, Box 7C, Ceres, California.

Hoganized Rhode Island Red Eggs for hatching $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Parmentier's Barred Plymouth Rocks—Have the laying and winning qualities combined. Both light and dark matings. Eggs and stock for sale. W. P. Parmentier, Chatsworth, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Baby Chicks from my Heavy Laying pure blood White Leghorns, Silver Campines, Brown Leghorns, Anconas. Oak Knoll Poultry Ranch, Santa Cruz, California.

Minorcas, Black, White and Buff—Utility and Exhibition. None better. Catalog free. Hatching eggs. C. E. Murray, Route No. 1, San Diego, California.

Pheasants—Beautiful Chinese Ringnecks, pairs for sale. Orders booked for eggs. W. Leland Smith, Fair Oaks, California.

POULTRY

For Sale—10,000 W. L. Baby Chicks every week from California's finest layers. Customers of 15 years ago still buy from us. Each year some report 200 egg average in large flocks from our pullets. Lay large eggs from start. $15.00 per hundred, $140.00 per thousand. We ship everywhere. Free circular. Laying hens and pullets. Four week old chicks 40 cents, later 35 cents. Day old Rocks and Reds $17.50, Pekin Duckling 30 cents, Turkeys 50 cents. P. Cook Chick Ranch, Alhambra, P. O. Los Angeles, Rt. 8, Box 45.

BABY CHICKS
25 to 5,000
PARCEL POST or EXPRESS
FULL COUNT—SAFE DELIVERY
GUARANTEED Selected heavy laying HOGANIZED
Mcfarlane, Tom Barron, WHITE LEGHORNS, Anconas, Barred Rocks, Rhode Islands, Minorcas, Buff, Brown Leghorns.
ORDER EARLY. Write for prices.
Doke Hatchery, Established 1908
625 So. Spring St., Los Angeles, Calif.

Successful Chick raising accomplished, using Petaluma Electric Incubators and Brooders. Electricity is life. Modern poultrymen are rapidly adopting our methods with splendid results. Safe, efficient, economical, better chicks. Hatch for yourself, or get chicks from hatcheries using our machines or we will furnish chicks ourselves. Ask for free catalogue or any information desired. Petaluma Electric Incubator Co., Petaluma, California.

Hillview Buff Plymouth Rocks—An American bird for Americans. Splendid layers, fine broilers and fryers, beautiful in color, the ideal for the farm, city lot or show room. Blue ribbon winners 1920, in Oakland, Riverside, and San Diego shows. Eggs for hatching. January baby chicks for sale. Hillview Poultry Ranch, Chatsworth, California.

Don't Make a Hen of Yourself—Charters' Regulator needs filling and trimming only once a week. Frees you of worry, especially last three days of hatch. It has the automatic "light that never fails." Send $12 now for one on 30 day money back trial. Free book. Charters Mfg. Co., 334 Soquel Ave., Santa Cruz, California.

Baby Chicks — Barred Plymouth Rocks and Rhode Island Reds in 25, 50 and 100 lots 20c each. Hatching eggs $2 per 15. We ship by Parcel Post, pay all charges. Write for circular. Hargett & Son, Route 2, Compton, California.

For Sale—Baby chicks every week. Barred Rocks, R. I. Red, Black Minorcas, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose, California.

Go to Town While the Chickens Pip—Go to bed without worrying about temperature. Charters' Regulator with the automatic "light that never fails" takes all grief off your mind. Needs filling and trimming only once a week. Send for catalog or send $12. Regulator on 30 day money back basis. Charters Mfg. Co., 334 Soquel Ave., Santa Cruz, California.

Closing Out Our Celebrated Flocks, R. I. Reds, Anconas, Mammoth Toulouse Geese. No better stock in the country. Goodacre Poultry Ranch, Compton, California.

Cockerels—279 egg strain S. C. White Leghorns. Exceptional quality. Prices $5 and $10. John L. Clelen, Bishop, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

Baby Chicks—White Leghorn S. C. from heavy laying well selected stock. Mrs. E. Decker, 130 Broadway, San Gabriel.

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SALE—BERKSHIRES

Disposal of entire registered herd headed by Grape Wild Chief, 620 pound boar, son and grandson of a world's champion, and by Leaders Invincibella, daughter of a world's champion. Priced right for quick disposal. Whittier State School, Whittier.

ANCHORAGE FARM BERKSHIRES
Orland, California.
BRED GILTS FOR SALE.

Grape Wild Farm—Berkshires, Guernseys, Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Write or visit Lark Meadow Ranch, El Monte, the home of prolific and profitable Berkshires for weanlings, service boars and gilts. Priced to make a profit for you.

Registered Berkshire Pigs—3 months old. Sire Lee's Matomas 2nd, dam Bernice Leader 3rd; CHEAP. Lawrence Bowdle, Hawthorne, California.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

Real Good Berkshires, cholera immune. Frank B. Anderson, Box 724, Sacramento, California.

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Bred Duroc Gilts — Orion Cherry King blood, bred to a good Defender boar. Weaned pigs for sale at reasonable prices. Mayflower Thoroughbred Stock Farm, East Bakersfield, California. John Kincaid, owner.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bred Sows and Gilts and young stock. Pathfinder and Great Wonder I Am breeding. Monthly payments if you wish. Derryfield Farm, Capital National Bank Building, Sacramento.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

Duroc Hogs and Guernsey Cattle—Pure bred stock for sale at all times. Hollow Hill Farm. B. W. Shaper, Manager, Colton.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

For the Best in Durocs write June Acres Stock Farm, Davis, California.

HAMPSHIRES

We Offer Two Hampshire Bred Gilts and a few weanling pigs, direct descendents from General Tipton and Mose Messenger, world's champions over all breeds. Rio Hondo Rancho, Compton, California.

For Sale—Registered Hampshires of all ages, excellent individuals. Also grade Ayrshire cows. H. G. Ranch, Solvang, California.

POLAND-CHINAS

Bargains in Polands—600 pure bred Polands—sows, gilts, boars, feeders, must be disposed of to make room. Take one or more at your own price. Santa Anita Rancho, Santa Anita, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

FARM LAND FOR SALE

For Sale—$8000—Modern 5 room house, bath and toilet, gas, electricity and telephone; 2 acres of land under cultivation, family orchard, 5 Holstein cows, 1 Jersey spring heifer and 4 Holstein heifers and all farming implements. Everything included in the price. Can be bought for $5000 cash, balance on easy terms to suit purchaser at 6 per cent; Cudahy district. Address Owner, D. Ferraro, Los Angeles, California, R. D. 12, Box 744.

For Sale—The show place of the Valley—forty acres; irrigated from 5 flowing wells, also ditch. All kinds of fruit; on Bankhead Highway. Rural mail and telephone. Free bus to graded and high schools. Mild winters, no hot night in summer. Stock and tools seven thousand five hundred. R. W. Boyle, St. David, Arizona.

For Sale—$7000—5 room modern cottage, one acre of ground, 75 fruit trees, big barn and feed room. Place fully equipped for chickens. One brooder house equipped for 2,000 chicks. Consider terms. 924 West Cecelia Street, Cudahy. Mrs. G. B. Weidler, Los Angeles, California, R. D. 12, Box 486.

For Sale—24 Acres, mostly first-class orchard and farm land at Arcadia, California. Ample water, good surroundings, $16,000.00. Also 14 acres at Arcadia, 8 acres best soil; almost new house; ample water, $12,000.00. Horace M. Dobbins, 53 West Colorado Street, Pasadena, California.

Big Money Makers. Grapes, Kadota preserving figs and pomegranates. Forty acres of choice land adapted to above fruits. Ample water, Exeter district, Tulare County. The Phalanx Company, 516 Chamber of Commerce, Los Angeles, California.

For Sale By Owner — 10 acre irrigated alfalfa ranch, Dairy equipment. Good buildings. Implements. Fruit trees and vines. Near state highway, in Yolo County. Reasonable price with terms. D. Sanders, 1121 3rd Street, Woodland, Calif.

For Sale by Owner—160 acres, suitable for alfalfa, beans, beets, grain; good pumping plant, fair buildings, $48,000. Otto Naumann, M. V. R. A., Box 155, Oxnard, California.

For Sale by Owner—50 acres choice budded English Walnuts at $600 per acre. Located in frostless Zelzah Walnut district. Abundance of cheap water. Henry Harwood, Van Nuys, California.

For Sale by Owner—20 acres in alfalfa. Orchard, vines in best fruit and dairy section of San Joaquin. Building, stock implements. Box 192 Cultivator, Los Angeles.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192, Indio, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

TRACTORS

For Sale—Holt Tractor—8-18. Two and four gang P. & O. disc plows with power lift, one reversible disc plow, one point subsoil plow, heavy Clark's double disc harrow, several 2 horse harrows, 4 horse cyclone, 4 row bean and beet cultivator. Everything like new, used only 1 season. B. Lasch, Placentia, California, Kraemer and Madison Avenue.

For Sale-Samson Tractor, model S25 used small acreage part of two seasons. Good order. Three bottom power lift plow, 8 ft. chisel, 10 ft. cyclone, 10 ft. drag trap wagon all complete for $1,000. F. D. Hudson, Van Nuys, California.

Merry Garden Tractors — Circulars and demonstration free. Dwight E. Smith, Southern California Distributor, 1645 North Normandie Avenue, Los Angeles.

For Sale — Holt 45 Tractor. Also new model Samson. Both tractors in perfect condition, only slightly used. Can be bought at a great saving over new prices. Henry Harwood, Van Nuys, California. Phone 117-R-4.

SEEDS AND PLANTS

Berrydale Berries and Roses—"De Roo's Mary Lewis" New Everbearing Raspberry. The finest, largest and best flavored berry grown. Can ship 500 miles in perfect condition. Plants strong and need no supports. Plants ready for delivery now. Price per 12, $3.00; 100, $20.00; 1,000, $150.00. Sample plant 30 cents, parcel post. Write for catalogue, sent on receipt of 5 cents in stamps. Salesmen wanted. Our salesmen are making good up to $600.00 per month. BERRYDALE GARDENS, Dept. D, 1715 Webster Street, San Francisco, California.

Set Your Strawberry Bed with the Gibson—The best and largest and sweetest berry grown. Buy from the grower; far better than any ever bearing. Also Mammoth Thornless Blackberries, Loganberries and Raspberries. Nursery at Bell, California. E. E. Roy, Proprietor. Mailing address, Los Angeles, California. R. D. 2, Box 640.

Strawberries—1,000,000 plants, leading varieties; 200,000 Cuthbert raspberry; 100,000 Black Cap Tips; 100,000 Loganberry Tips. Order now; low prices. Also 100,000 choice peach seedlings — will graft in plums or prunes on contract for fall delivery 1921. Lafayette Nursery Company, Lafayette, Oregon.

For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

Increase Your Potato Yield by planting clean healthy seed. I have some Great Divide seed potatoes of excellent quality at 3 cents. Present crop 200 sacks per acre. Come and see. W. G. Brumund, Cucamonga, California, on Foothill Boulevard.

Cory Thornless Mammoth Blackberry—Strong plants direct from ranch where first discovered and propagated. Dozen $3.00 postpaid. Also Loganberry, Phenomenal Currant, Gooseberry, Raspberry and Giant Rhubarb. G. S. Wills, Jamestown, California.

Berry Plants — Strawberries, Loganberries, Currants, Gooseberries, Blackberries and Raspberries, for immediate delivery. All stock first class and strictly true to name. Write for prices. M. J. MONIZ, Berry Specialist, Sebastopol, California.

Selected Wine Grape Cuttings for field and nursery planting. All varieties. Price $10.00 per 1,000. Let us quote you our low prices on fruit trees. We ship any quantity anywhere on approval. J. F. Miller & Son, Healdsburg, California.

Tomato Seed—Improved Stone, San Jose Canner. 25 cents oz., $3 pound, postpaid. Stamps or Money Order. Thomas Murray, 3209 West Washington St., Los Angeles, California.

Brandywine Strawberry Plants from stock which produced $3,000 worth of berries from acre this season. Price reasonable. Lon King, 1158 West Fourth, Riverside, California.

Rhubarb Plants—Wagner's Giant 1 year, per dozen 50c; per hundred $4.00. Wagner's Giant, 2 year, per dozen $1.00; per hundred $8.00. Seed per pound $5.00. Currier Bulb Co., Santa Cruz, California.

Strawberries six months in the year. Plant Everbearers, Superb, Progressive, Americus, $2.50 per hundred prepaid. Catalogue. Fred Leissler, R. 6, Box 429, Seattle, Washington.

For Sale — Mountain grown Brandywine Strawberry plants, $1.50 per hundred, $10.00 per thousand. By mail postpaid. B. Bryan, Camp Baldy, California.

For Sale—Genuine Red Kidney beans for seed. These beans are bringing the highest price in the market. Norman Johnson, Chatsworth, California.

Grapes—3000 No. 1 vines black Zante Currant, 10,000 Thompson's Seedless. Large carnation plants any color, 25c. C. L. Wilson, 121 E Street, Roseville, California.

Pumpkin Seed — Mixed Pumpkin Seed, good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

For Sale—Good clean common variety alfalfa seed at 22 cents per pound. Chas. A. Haug, Star Route, Corona, California.

$00,000 Grape Rootings $30.00 a 1,000 while they last. Four kinds. Box 501, Fowler, California.

British Queen Seed Potatoes for sale. P. L. Brown, Irwindale, California. Phone Covina 950.

Northern California Black Walnut Seed—Five cents pound. Felix Gillet Nursery, Nevada City, California.

Chilean Alfalfa Seed—Cleaned by most modern method. 22 cents per pound. C. H. Biggin, Redlands, California.

For Sale By Grower—No. 1 alfalfa seed. Write for sample. Chas. Davis, Dos Palos.

For Sale — Strawberry and Raspberry plants. Thos. Mullins, Carmel, California.

California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

For Sale — Senator Dunlap strawberry plants. J. L. Bodwell, Van Nuys, Calif.

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ROOFING PAPER
One ply $1.50, 2 ply $2.00, 3 ply $2.50 complete with fixtures. Rubber roof paint 50c per gallon in 5 gal. lots.
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Broadway 5401

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Closing Out Sale, including P. C. A., Peerless, Old Trusty, Cyphers, Prairie State incubators. Write: Goodacre Poultry Ranch, Compton, California.

TREES

Desert Gum Trees (Eucalyptus rudis)—Between 6000 and 7000 from 1, 2½ ft. high in quart cans and four inch pots. Well established, sturdy plants. Prices on application. Jannoch Nurseries, Pasadena, California.

Buy Your Trees, Grape Vines and Berry Plants of Bishop's Nursery, Highland. Send for circular.

For Sale—1,500 Lovell, 500 Phillips Cling, Dormant buds on Salway root. A. bargain. Frank A. Tetley, Riverside.

TREES

French Prune on Myrobolan, Peach and Almond root.
Imperial and Robe de Sargeant on Myrobolan and Peach root.
Clingstone Peaches, June buds. Fine, stocky, well rooted trees.
Plums in all varieties on Peach and Myrobolan root.
Cherries, full assortment on Mazzard root.
Pears, all varieties on Jap root.
Franquette and Mayette Walnut on Black.
Thompson Seedless Grapes.
General assortment of all fruit varieties for Home Orchard or Commercial planting.
For hardiness, well branched roots and freedom from disease, our foothill grown trees have no equal.
Submit to us a list of your wants for prices.
SILVA-BERGTHOLDT CO.,
BOX 377, NEWCASTLE, CALIF.

Nursery Stock—We are offering commercial lots in Bartlett pear trees, at prices which will save you planters big money. Have apple, pears, prunes, cherry, strawberry, berries, etc. NO AGENTS. Try our Mail Order System. Send for planters List. 30 years in business. CARLTON NURSERY COMPANY, CARLTON, OREGON.

Special Prices on Orange, Lemon and Grapefruit Trees for the next two weeks. Don't despise the lemon. He will be king within the next two years. We have a few choice three year olds, just the thing for orchard resets. Lone Hill Citrus Association, San Dimas, California, Los Angeles Sales Office, 126 South Western Avenue.

For Sale—10,000 Valencias one and two year buds; 2,000 Eureka lemon two year buds; Navels, M. S. Pomelos; 1000 Wonderful Pomegranates; 3000 Texas Umbrellas; 100 Kadota figs; 2000 Mission Olives; Sweet and Sour orange seed-bed stock. Southland Nurseries, 1941 East Colorado Street, Pasadena, California.

For Sale—Fruit trees, all leading varieties, including Bartlett Pears, Royal Apricots, Tuscan Cling and Phillip Cling Peaches, Satsuma and Santa Rosa Plums, Eureka and Placentia Perfection Walnuts. Write for catalog and price list. Orange County Nursery Co., Anaheim, Calif. Salesyard: North Los Angeles Street.

Royal Apricots, Tuscan, Sims and McClure Clings, Elberta and J. H. Hale Freestone Peaches, Santa Rosa and Beauty Plums, Pear, Apple and Walnut Trees. Grapevines, Berries, etc. Order now; leading varieties scarce. Los Nietos Valley Nursery, Downey, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

Special Sale—5000 Improved French Prune on peach root.
6-8 ft. 60c — 5-7 ft. 50c
4-6 ft. 45c — 3-4 ft. 40c
Better trees are not grown. Write for prices on other trees. J. F. Miller & Sons, Healdsburg, California.

Budded Avocado Trees. Leading varieties. Order early to secure best selection. Dr. Stonebrook's Avocado Nursery, 15 N. Raymond Ave., Pasadena. Phone Colorado 208.

For Sale—Walnut trees, fine stock, Eurekas grafted on black root. Prices, 8 to 10 feet in height $2.50 10 to 12 $2.75. La Puente Walnut Nursery, Puente, California. Phone 103.

For Sale — Peaches, Cherries and other fruit trees. Full line of shrubbery and roses, also flowering plants. Write City Nurseries, 109A Orange St., Redlands, California.

For Sale—Citrus trees and grape vines, two years old on Sour root. Valencia, Navel, Pomelo, lemon trees, and rooting vines. J. S. Ogawa, Rt. A, Box 114A, Sanger, California.

For Sale — 100,000 Florida Sour Orange Seed-bed Trees; 100,000 California sweet seedling orange seed-bed trees. SOUTHLAND NURSERIES, 1941 East Colorado Street, Pasadena, California.

I Have Just a Few Thousand Elberta peach trees three to four feet at 50 cents f. o. b. Los Angeles. Wm. Kelly, El Centro, California.

Fine Straight Rooted Florida Sour and Sweet SEED BED STOCK, 10 inches to 15 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Seedling Trees, all kinds. Thornless blackberry, Brandywine strawberries, $1.00 hundred. Box 301, Sebastopol, California.

Seed Bed Stock—Florida sour and California sweet. Nursery 100 Ventura Street. Address Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena.

For Sale—Ehrhardt Walnut Trees. V. Ehrhardt, Minnie Street, 4 blocks south of Gas Plant, Santa Ana, California. Phone 454-M.

For Sale—Several thousand HACHIYA Persimmon grafts from Thales stock. First class condition. Apply to Foreman Chapman Ranch, Fullerton.

TREES—TREES—ALFALFA SEED
Etc. Full stock—best varieties, now. Write J. L. LAWSON, San Jose, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

For Sale—1,650 No. 1 French prune trees, 4x6 almond root, 65c. W. M. Burton Nursery, Box 43, Porterville.

Citrus Seed Bed Stock—Orange, Lemon, Grapefruit trees. L. A. Tuttle, R. 1, Box 385, Pasadena.

For Sale—Placentia and Eureka Walnut trees grafted on Northern Black Root. Box 33, R. F. D. El Monte, California.

For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

For Sale — Seedling Avocado Nursery Stock. Mrs. R. McLeod, Arroyo Avenue, Pomona.

MISCELLANEOUS

Revolution Among Ford and Chevrolet Owners—They are installing the Go-Ite Gas Filler and Gauge, which shows the amount of gasoline in tank at all times and can fill tank without moving seat cushion. Easy to install. Nothing to get out of order. Send for literature. Ask about gasoline saver. J. A. Baker, 1143 West 7th Street, Los Angeles, California.

For Sale—50,000 gallon capacity Redwood Tank with conical cover; used about six months; reason for sale owner has built concrete reservoir. Price $900.00, or will consider any reasonable offer F. O. B. present location at Ortega. Apply Max C. Fleischmann, P. O. Box 647, Santa Barbara.

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Turkeys—"Goldbank"—"Copper King" strain. Selected Giant Bronze toms. Sired by son of famous "Copper King V," First Prize Yearling, N. B. T. Club Show, Madison Square, N. Y., January, 1919. Bred to 20 lb. hens. Egg orders taken. Prices reasonable. Address: BRONZE KING MOUNTAIN FARM, P. O. Box 308, Calistoga, California.

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Wanted, by reliable married man, position on dairy or ranch. A. H. Reynard, Bellflower, California.

Wanted—Walnut Meats. Fred L. Mitchell & Son, 214 French Street, Santa Ana. Phone 551-M.

Royal Apricots, Myrobolan roots, wanted; also Myrobolan seed. Ernest Harrison, Halcyon, California.

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OUR BEET CROP

A "Commerce Report" states, date of November 15: "Regarding conditions in the United States, the output of the beet crop in Ohio is estimated at 45,000 tons, Michigan at 145,000, Colorado 250,000, Nebraska 75,000, Utah 140,000, Idaho 50,000 and California 151,000. In this last state the campaign is so nearly over that the figure given will be very close to the actual outturn. The production of the various other states going to make up the estimate totals 94,000 tons.

"The above estimate is freely confirmed by the United States government, which estimates the crop of beet roots as of November 1 as 8,812,000 tons. Using an average yield of the past three years (including last year's poor outturn, gives a crop indication of 900,000 tons. This year's yield will exceed the three years' average materially, according to present prospects."

Dr. LeGear says

"To get more winter eggs hens must have help.

You must counteract conditions that hens live under in winter by stimulating their egg producing organs and fortifying their systems against disease. Thus you will increase your profits. Dr. LeGear's Poultry Prescription will do these very things. Used successfully by thousands of poultry raisers." For example:

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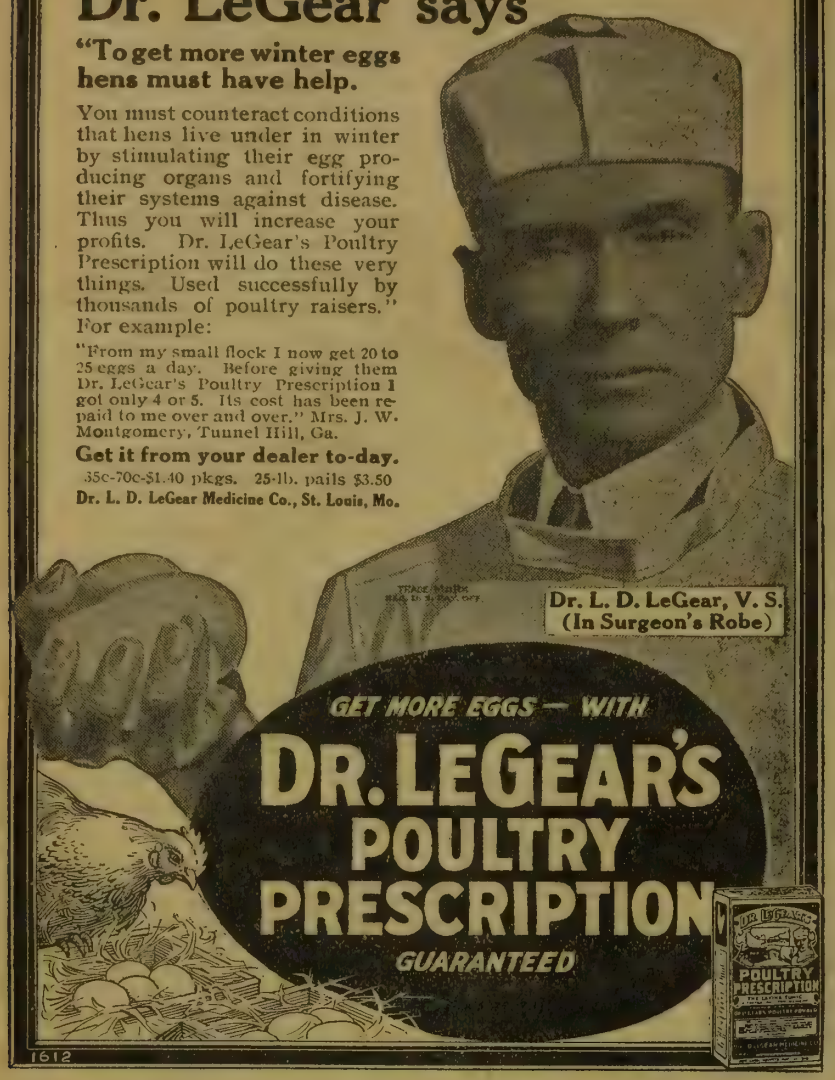

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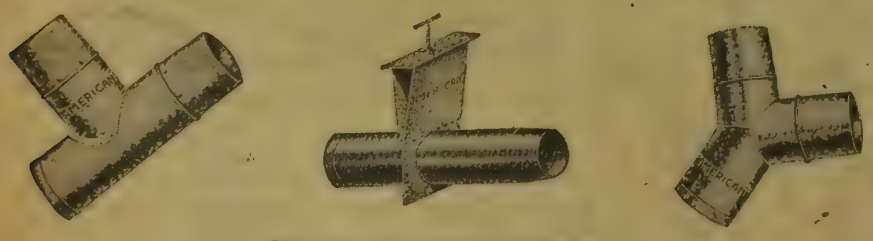

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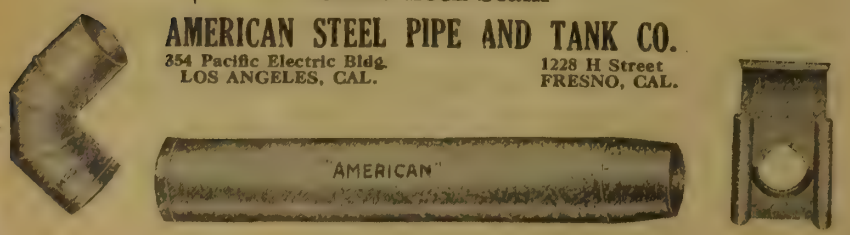


Poultry Queries

Conducted by J. A. Koethen

Triple Yolked Eggs

About May 1 of last year my wife bought five little ducks, a cross between Pekin and Indian Runner. One died, and of the remaining four, two were drakes. When they were five months old the two ducks began to lay. One of them laid an unusually large egg, which when it was broken proved to contain three yolks. A few days later the same duck laid another three yolked egg. We have had two eggs a day from the two ducks with almost unfailing regularity since the first of October. Did you ever hear of an egg with three yolks before?—C. S. P., Santa Ana.

I never did, outside of a book. In "Poultry Diseases and Their Treatment," published by the Maine station, we are told: "Eggs with three yolks are very rare. An egg of this kind laid by a pullet at this station is shown in Fig 42." That, you notice, was a pullet egg. Possibly duck eggs, which are larger, are more frequently triple yolked.

Ration for Layers

Will you please tell me the amount of feed I should give two dozen R. I. Red hens, and how often and what kind? They have free range and I am feeding wheat and barley. I am getting but six and seven eggs a day and it seems to me they should lay more.—Mrs. F., Pond.

Whether six or seven eggs is as many as you should have from 24 hens at New Years depends largely on their age and condition. If they are yearling hens and not quite through the molt, 25 per cent is not bad. If they are old hens it is all you can expect. If they are pullets they ought to do better. Your ration, however, is not balanced, and a more complete ration will probably result in better production. They should have a laying mash where they can reach it at any time. One of the commercial mashes kept by all feed stores will be all right. Then give them morning and night their scratch grain, a little in the morning and the rest at night, feeding about two quarts a day for the 24 hens. No one can lay down an exact rule for the amount of grain to feed a hen each day, but they should always have all they want. See that they go to roost with full crops.

Weak Legs in Poults

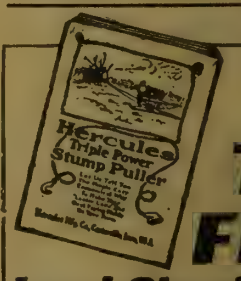
I have eight young turkeys five weeks old. When they were a week old I took them from the mother turkey and gave them to a chicken hen. After a few days she began to shake her head as if she had something in her nostril, and I took them from her and am raising them by hand. They are quite large for their age, but they shake their heads as the hen did, and seem to have little use of their legs. I have kept them warm and dry; they eat well, but their legs are very weak. —Subscriber, Fields Landing.

Your little turkeys are getting more food than exercise, that is to say, the muscles of their legs are not strong enough to hold up their bodies. Better cut down their ration and make them forage for a good deal of their living. Now that there is so much green everywhere, they ought to be able to pick up half, anyway, of their food. You do not say what you are feeding them, so I cannot advise as to that except to say in a general way that rolled breakfast oats are excellent for muscle building, and you might once a week give them a pan of bran containing about five per cent bone meal. The right food is important in developing muscle, but exercise is vital. That shaking of the head I should sooner lay to head lice than to anything in the nasal passage. If they have not been well dusted they should be.

Rice Meal for Layers

I want to thank you for the information given in your issue of December 4 in regard to dry mash. I am now feeding 8 parts mill run, 1 part alfalfa meal, 1 part coconut oil cake meal, 2 parts barley meal, 1 part corn meal, 1½ parts meat scrap. Would it be all right to add rice meal, which is a cheap feed in this section?—E. P. L., Oakdale.

A recent feed letter from the poultry division at Davis says: "Rice bran containing no hulls and not less than ten per cent crude protein, five per cent fat and not more than 15 per cent fiber (guaranteed analysis) as well as rice polish and ground rough rice may be added to the mash mixture, if it can be purchased at less cost than similar and more common feeds during periods of high feed prices. Such rice feeds should not be used to a greater amount than 20 per cent (25 per cent maximum) of the total grain and mash ration, or 20 per cent of the mash alone. Rice feeds are very starchy and quite fattening in character. They have a high oil content and ground rice feeds are apt to turn rancid in a short time. They must therefore be handled and fed with care." As the mash you are now feeding is quite rich in protein you could add 1 part rice, I think, to the mixture as it stands. If you wish to use the maximum 20 per cent, you might omit the corn meal or the barley meal, whichever is more expensive in your section.



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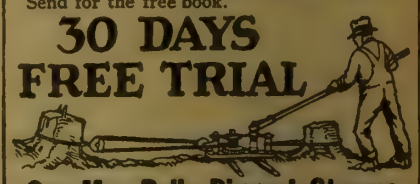

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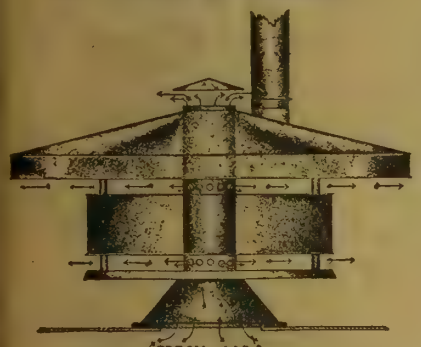

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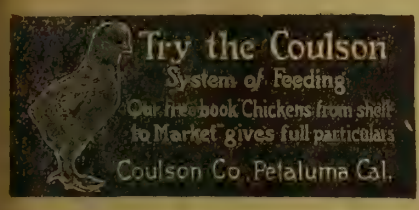
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Why Grain at Night?

I notice in a poultry book the following: "Mash feed should never be fed in the morning and coarse grain should never be fed in the afternoon." This seems just opposite to the feeding of most people. Please tell me which way is right and why. — Subscriber, Fallbrook.

Either that quotation is a typographical error or the person who wrote it knew nothing about chickens. The fact that all experiment stations advise and all poultrymen practice the feeding of dry mash all day and of scratch grain in the afternoon or evening should of itself be pretty strong proof of the rightness of the method, but the reason is not far to seek. If hens are given all the hard grain they want in the morning they will fill their crops and loaf all the rest of the day. If they do not get a good feed of hard grain at night they will go to roost with empty crops. In either case a diminution in production will result. Most feeders give a little grain in the morning (one-third or thereabouts), but they feed it in litter, preferably the night before, so that the hen, as soon as she is off the roost, will go to scratching and will find something to reward her for her efforts. Her crop is not filled, however, and so she consumes a good deal of mash, which she does not find as palatable as the grain, but which is the real egg food, during the day. Late in the afternoon, when her crop is partly filled with mash and greens, she gets her fill-up of grain and should go to roost with her crop stuffed full so that her digestive organs may be kept busy grinding egg material all night. The New Jersey station is now advocating an 8 o'clock supper of grain in winter in addition to the one given at 4:30 or 5, on the ground that hens will lay more and keep in better health without the 12 hour fast from sunset till the lights are turned on at 4 a. m.

DECEMBER REPORT NATIONAL EGG LAYING CONTEST

The 300 hens in the Tenth National Egg Laying Contest laid 4,107 eggs during the month of December, or an average of 13.69 eggs per hen. Pen 12, S. C. White Leghorns, owned by F. M. Emhoff, Springfield, Missouri. won the cup for December by laying 124 eggs during the month.

The number of eggs laid by the different breeds for the month and to date, are: Wyandottes, December, 820 eggs; 10 months, 1,399. Leghorns, December, 753; 10 months, 1,356. Adconas, December, 731; 10 months, 1,329. miscellaneous breeds, December, 651; 10 months, 1,098. Rhode Island Reds, December, 611; 10 months, 1,019. Plymouth Rocks, December, 541; 10 months, 897.

The ten leading pens for December are: S. C. White Leghorns, Missouri, 124 eggs; S. C. White Leghorns, Washington, 119; White Wyandottes, Missouri, 111; White Wyandottes, Illinois, 110; Buff Orpingtons, Missouri, 103; Barred Rocks, Missouri, 102; White Wyandottes, Missouri, 100; Columbian Rocks, Missouri, 99; White Wyandottes, Illinois, 98; Black Langshans, Missouri, 97.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

During the past ten days many of the pullets that have gone through a molt since the contest started have come back into laying again. The long continued spell of wet and unusually cold weather has been quite severe on the molting birds, retarding the necessary quick growth of the new plumage. Following are the high pens for the past ten days:

Hanson's Poultry Farm, Corvallis, Oregon, 75; La Rita Poultry Farm, Santa Cruz, 70; W. H. Marshall, Santa Cruz, 70; S. L. Gibson, Santa Cruz, 69; Hollywood Farm, Hollywood, Washington, 66; W. A. Ford, Umatilla, Oregon, 64; Geo. Gray, Santa Cruz, 62; S. L. Gibson, Santa Cruz, 55; Oregon Agricultural College, Corvallis, 53; S. L. Gibson (Brown Leghorns), 53; Oregon Agricultural College (Barred Rocks), 53. All the above entries are White Leghorns except the last two.

THOUSANDS of young chicks die every year because folks seem to forget that they are just babies requiring food suitable to their baby bodies.

Give your chicks a fair chance. Start them on Globe "A-1" Baby Chick Mash *(containing Dry Buttermilk)* and watch the little fellows thrive.

FOR GROWING CHICKS

After your chicks are about six weeks old change the ration to Globe "A-1" Growing Chick Mash (containing dry buttermilk) and when the pullets are five months old begin to feed Globe "A-1" Laying Mash (containing dry buttermilk) and get ready for the full egg basket.

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No pumping or patching or roadside repairs.

Ford, Maxwell and Chevrolet owners are getting 10,000, 15,000 and 20,000 miles of wear, in all kinds of service—on passenger cars and trucks—under all kinds of driving conditions.

Nothing can happen to Dayton Airless Tires but w-e-a-r.

Nothing stops them until they are worn clear down to the last pier of rubber. Remember — without punctures or blow-outs.

Do you use 30 x 3, 30 x 3½, 31 x 4 tires? If you do, spend your money wisely — buy Dayton Airless. It's true economy.

The next time you drive around our way, STOP—AND LOOK THEM OVER.

DAYTON AIRLESS TIRE CO.
OF LOS ANGELES
Phone 66424 COR. HILL and PICO

ALFALFA SEED

HAIRY PERUVIAN

Buy Direct From Source of Supply

Every bag of our seed came from fields that had been inspected by an official of the State of Arizona Department of Agriculture

Before the Seed Crop Had been Harvested

Not until then was it possible to have every bag of seed CERTIFIED, TAGGED and SEALED by this same official or one of his assistants under his direct supervision.

This is the Seed You Buy From Us and Our Price is Reasonable Too

$32.00 per Hundred lbs., f.o.b., Yuma, Ariz.

OTHER VARIETIES OF ALFALFA SEED

SMOOTH PERUVIAN.....$28.00 per cwt.
COMMON (Chilian) .....$22.00 per cwt.
F. O. B. YUMA, ARIZONA

Send Your Order by Wire Collect

Delta Seed & Feed Co.

Yuma Arizona

References: First Nat. Bank, Yuma, Ariz.; Yuma Nat. Bank, Yuma, Ariz.

When Writing Advertisers Mention California Cultivator.

Los Angeles Markets

Los Angeles, January 26, 1921.

BUTTER

Butter, creamery extras, Produce Exchange price 48 cents.

Jan.	19	20	21	22	24	25
'21 ...	48	48	48	48	..	46

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 46 per dozen. Case count produce Exchange closing price 46 per dozen; pullets, produce Exchange closing price 44 per dozen.

Dairy Exchange price last week on extras:

Jan.	19	20	21	22	24	25
'21 ...	58	56	51	51	..	46

Eggs are steadily declining with today's local quotations at 46c. New York is quoting today at 65 cents. California shipments to New York now aggregate about 10,000 cases weekly. Freight requires around two weeks and costs some 7 or 8 cents per dozen.

POULTRY

Price to producers: Hens, lt. 35; heavy 35; colored, 35; broilers, 40@50; roasters, 35; old roosters, 14; fryers, 40; ducks, old, 23; ducklings, Pekin, 3½ up, 25; others, 23; geese, 25; turkeys, live, young tom, 45; dr., 50; old, live, 40; dr., 41; hens, live, 45; dr., 50; squabe, 45@47.

Belgian hares, live, 16@21; old, 9.

LIVESTOCK

Los Angeles, Jan. 25.—Weighed and delivered off cars without food or water:

Hogs, (hard grain). 125 to 175 lbs., 12.00; 175 to 225 lbs., 12.50.

Cattle (on foot, gross weight): Steers, good, 9.50@10.00; medium, 9.00@9.50. Cows, good, 8.00. Calves, 125 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 6.00; lambs, 12.00@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, January 25, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Demand and movement slow. Stocktons: Burbanks, 2.00@2.25 according to quality; few high as 2.40. Idahos: Russets mostly 1.80@2.00. Local: Mostly 85@90 per lug. Sweets, best, mostly 1.60@1.75.

Carlots: Stockton Burbanks, 1.50@2.00; Idaho Russetts 1.50@1.60.

Onions: Supplies heavy, market dull. Stockton: Whites, cold storage, 2.50@2.75; Browns mostly 1.25@1.35 per 100 lbs.

Garlic, lb., 14@1?.

VEGETABLES

These are the actual prices obtained January 25, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Beets: Doz., 40@50; sk., 1.60@1.75.

Cabbage: Supplies heavy, market firm. Best mostly 1@1½ per lb.; per field crate, mostly 90@1.10.

Carrots: Doz., 30@40; sk., 90@1.15.

Cauliflower: Supply liberal, field cr., best, 1.40@1.60.

Carlots: Poor wire inquiry. Supplies heavy. Market weak. Carloads f. o. b. usual terms, 1.15@1.25, cash sales low as 1.00. Growers being paid mostly 50@60 per packed out pony crate.

Celery: Cr., best 2.00@2.50; poorer low as 1.30.

Cucumber: Hothouse, best, 2.50@3.00

Egg Plant: Lb., 9@11.

Lettuce:

Carlots: F. o. b. usual terms. Too few sales to establish market. Mixed cars mostly 1.60@1.65. Growers being paid mostly 55@65 per packed out crate (field delivery). Brawley: Supplies moderate. Carloads f. o. b. usual terms, mostly 2.00 @2.25.

Peas: Sk. sales, 9@11 per lb.; small lots 10@12 per lb.

Peppers: Bells, 8@10; Chilis, 15@17.

Radishes: 15@20 doz.

Rhubarb: Crimson Winter, best bx., 1.25@1.40.

Spinach: Doz., 30@35.

Squash: Local Hubbard, lb., 1½.

Tomatoes: Local lugs, mostly 85@1.25 lug; few best 1.50@1.75.

Turnips: Per dozen 25@30; sk., 1.10 @1.35.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 1.75@2.25; special packed brands, 2.50@3.00.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.25 @2.00, few high as 2.75; loose, bx. 75@ 1.25; lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack large size 2.50@ 3.00; small low as 1.75; special brands mostly 3.00@3.75 according to size and quality, grove run 75@1.00 loose; small low as 50. Tangerines, best, 6@8.

HONEY

Wire inquiry light. Demand slightly better, movement slow. Market unsettled, prices lower. Very few sales are being made and an uncertain feeling is prevalent as to whether still further declines may be experienced. Carloads f. o. b. usual terms: per lb. white orange blossom 16@17; white sage 14@16; light amber sage 11@13; light amber alfalfa, 9@10. Beeswax: in l. c. l. 35@37.

NUTS

California Walnut Growers' Association announces prices on 1920 walnuts: No. 1, soft shell, 12¼; No. 2, 18½; Budded, 25½; standard budded, 22½ per lb.

GRAIN AND FEEDS

Grain Exch. price bid January 25:
Milo: Carlots, 1.90; Eastern, bulk 1.60.
Kafir: Eastern, No. 2, 1.60.
Corn: Bulk, No. 2 Yellow, 1.70@1.75.
Barley: 1.70.

San Francisco Markets

San Francisco, January 25, 1921.
Quotations made daily by the San Fran-

ATTENTION COMMERCIAL GROWERS

We offer special lines of the standard varieties

High Quality

Vegetable Seeds

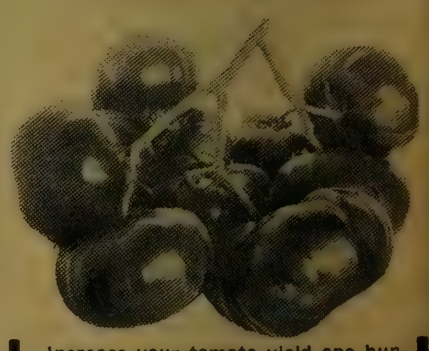
Lettuce Celery
Cantaloupes Peas
Other Vegetables

We desire the best grade of vegetables for shipment and exercise extra caution to secure the best possible seeds. We cater to the requirements of commercial growers. Growers requiring large supplies should get our prices.

California Vegetable Union

712 Union Oil Building
Los Angeles, Cal.

The Diener Tomato



Increase your tomato yield one hundred per cent by raising the new DIENER TOMATO. 30-40 tons of ripe fruit to the acre.

This tomato was raised last year all over the United States and Canada with the greatest satisfaction.

As smooth as an apple and of a magnificent dark red color. Single tomatoes weigh up to 3 lbs. each. The flesh is more solid than that of any other tomato. The fruit contains very little seed and is solidly filled out. This tomato is free of the acid taste, and for dehydrating, catsup, and canning it is the best tomato in existence today.

The DIENER TOMATO is blight-resisting as well as drought-resisting. It will not crack from the rain and will not rot while lying on the ground in wet weather. This tomato will grow in almost any kind of soil and it commences to ripen the first part of August.

It is the greatest novelty in the tomato line, and it will soon crowd out the present varieties from the market by its far superior qualities.

Price of the DIENER TOMATO SEED: Sample pkg., 25c; one-quarter of an acre pkg., 50c; one acre pkg., $1.50.

OUR 1921 CATALOGUE, describing our many other novelties in flowers and grains, is free on request.

Richard Diener Co., Inc.
Kentfield, Marin County, Cal.

cisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 45

Dairy Exchange prices extras this week and year ago:

	18	19	20	21	22	24
Jan.						
'21 ...	45	45	45	45	..	45
'20 ...	..	..	59½	59½	..	67

CHEESE

Dairy Exchange quotations:
Jack, full cream, street price.....22@26
Jack, half skimmed, street price...17@20
Ore. Y. A. 34
Oregon Trips 32½
Ore. Trip 31½
Cal. Y. A. 32½
Cal. Flats 26½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 52½
Extra Pullets 50
Undersized 48½

Dairy Exchange prices, extras this week and year ago:

	18	19	20	21	22	24
Jan.						
'21 ...	63½	64	61½	56	..	52½
'20 ...	..	..	63	64½	..	64½

POULTRY

Wholesale prices are:
Hens: Colored, 37@38; White Leghorn, 36@38; strictly young roosters, 37@38; old roosters, 22@23; fryers, 45@50; broilers, 55@58.
Ducks: 30@35.
Squabs: 70@75 per lb.
Turkeys: Dressed, fancy, 53@55; poor quality 45@50 per lb.; live 43@46.
Geese: 32@35 per lb.
Pigeons: Old, 2.50@3.00 dozen.
Belgian Hares: Live, 23@26 per lb.
Jackrabbits: 2.50@3.00 per doz.

LIVESTOCK

Western Meat Co. prices:
Cattle: Steers, No. 1, 9@9½; do, second quality, 8@8½; do, thin, 5½@7.
Cows and Heifers: No. 1, 7@7½; do, second quality, 5½@6½; do, thin, 3@4.
Calves: Light weight, 10½@11½; medium, 8½@9½; heavy, 7½@8½.
Lambs: Milk, 10@11; yearlings, 8@8½.
Sheep: Wethers, 7@8; ewes, 4@5.
Hogs: Hard, fat, grain-fed, weighing 100 to 150 pounds, 11½; 150 to 225 pounds, 12; 225 to 300 pounds, 11½; 300 to 400 pounds, 10½.

California Farm Bureau Marketing Association reports:

No. Hogs	Av. Wt.	Dock	Price
Turlock, January 18			
73	194	...	$11.50
8	140	...	10.50
1	310	...	10.50
1	480	...	9.50

One car, 15 consignors, 77 hogs $1,820.70.

Fresno, January 21			
82	213	...	11.30
18	216	...	11.00
13	139	...	10.30
4	364	70	9.00

One and one-half cars, 13 consignors, 117 hogs $2,747.96.
Total for the week, 2½ cars, 194 hogs, 28 consignors, $4,568.66.

POTATOES AND ONIONS

Wholesale prices:
Potatoes: Street prices: River, 2.00@2.25 for No. 1; do, Oregon Burbanks, 2.25@2.50; Salinas, 3.15@3.25; Idaho gems, 2.25@2.50; sweet potatoes, 5.25@5.50 per 1.00 lbs.
Onions: Australian brown, 75@1.00 per cental.
Garlic: New, 7@10 lb.

VEGETABLES

Wholesale selling price:
Artichokes: Doz., 75@1.50.
Beans: Limas, 15@17.
Brussel Sprouts: 5@7 lb.
Carrots: 1.00@1.25 sk.
Cauliflower: Doz., 90@1.00.
Cucumbers: Hothouse, bx., 3.00@4.00; Eng. doz., 2.50@2.75.
Cabbage: Lb., 1.
Celery: Cr., 1.50@2.50; fy. 3.00@3.50.
Lettuce: L. A. cr., 1.75@2.00.
Mushrooms: Small bx., 1.00@2.00.
Olives: Lb., 7@8.
Onions: Green, per lug, 1.00@1.50.
Peas: Lb., 8@15.
Parsnips: Sk., 1.75@2.00.
Peppers: Bells, Southern 15@16; Chili, 10@15.
Rhubarb: 3.00@3.50 bx.
Spinach: Lb., 5½@6.
Tomatoes: Southern 90@1.25; hothouse, lb., 20@22½.
Turnips: Sk., 50@1.00.

CITRUS

Navel oranges, 2.00@3.75; lemons, 1.50@3.25 per bx.; lemonettes, 1.50@2.00; grapefruit, new crop, 2.50@2.75; do, Arizona, 4.00@4.25; limes, 1.25@1.75; tangerines, 2.50@4.00 per half orange box.

NUTS

Peanuts: Japanese, 9.
Pecans, 25.
Almonds: California Almond Growers Exchange quote:
Nonpareil 26
I. X. L. 26
Neplus 25
Drake 18

BEANS

Below Cal. Bean Growers' Association shippers prices Jan. 25:

	Per 100 lbs.
Pinks	5.85
Large Whites	4.25
Small Whites	3.70
Mexican Reds	5.85
Blackeyes	5.90
Red Kidneys	9.00
H. B. Limas	5.25
Bayos	10.00
Crans	6.00

RICE

Receipts for two days ending January 17, 8,025 bags.
Fancy California Japan rice offered f. o. b. San Francisco, immediate, spot, 3.70; February, 3.20; March, 3.10; April, May and June, 3.00.

HAY

Alfalfa Growers of California under date of January 26:
There were 967 tons received in San Francisco the week ending January 22.
No. 1 Dairy Alfalfa.....21.00
Standard 19.00
Under date of January 22, A. W. Scott Co. says:
Receipts of hay for the past week 967 tons. Weather conditions have kept consumption in the country reduced and offerings have been heavier in every direction than the general demand. There is, however, a more healthy tone and feeling to the hay business which seems to be reflected from the same sentiment in all lines. Alfalfa has been extremely dull for the last two or three days with heavier offerings from Nevada interfering with the movement of our California stocks. A little inquiry from some of the larger dairies has stimulated trading somewhat but at a lower range of prices than have been ruling up-to-date.
We quote today wholesale prices in carload lots as appear from dealers' transactions upon the hay market in San Francisco (for prices to consumers charge of cartage, commission and handling expenses must be added, according to conditions).
Wheat Hay, Fancy.....20.00@21.00
Wheat Hay, light 5 wire bales.17.00@20.00
Tame Oat Hay, fair to choice..17.00@19.00
Wild Oat Hay.....12.00@15.00
Barley Hay .....12.00@15.00
Alfalfa Hay .....17.00@20.00
Stock Hay .....10.00@14.00

Citrus Markets

Los Angeles, January 26, 1921.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 3,498 cars; lemons, 1,191; total 4,689. To same date last season: Oranges, 5,189; lemons, 960; total, 6,149. From Central California to date, this season: Oranges, 3,950; lemons, 59; total, 4,009. To same date last season: Oranges: 3,400; lemons, 158; total, 3,558. From Northern California to date this season: Oranges, 301; lemons, 3; total, 304. To same date last season: Oranges, 260; lemons, 20; total, 280.

Our New Nursery Catalog

ROEDING TRUE TREES FRESNO, CAL.

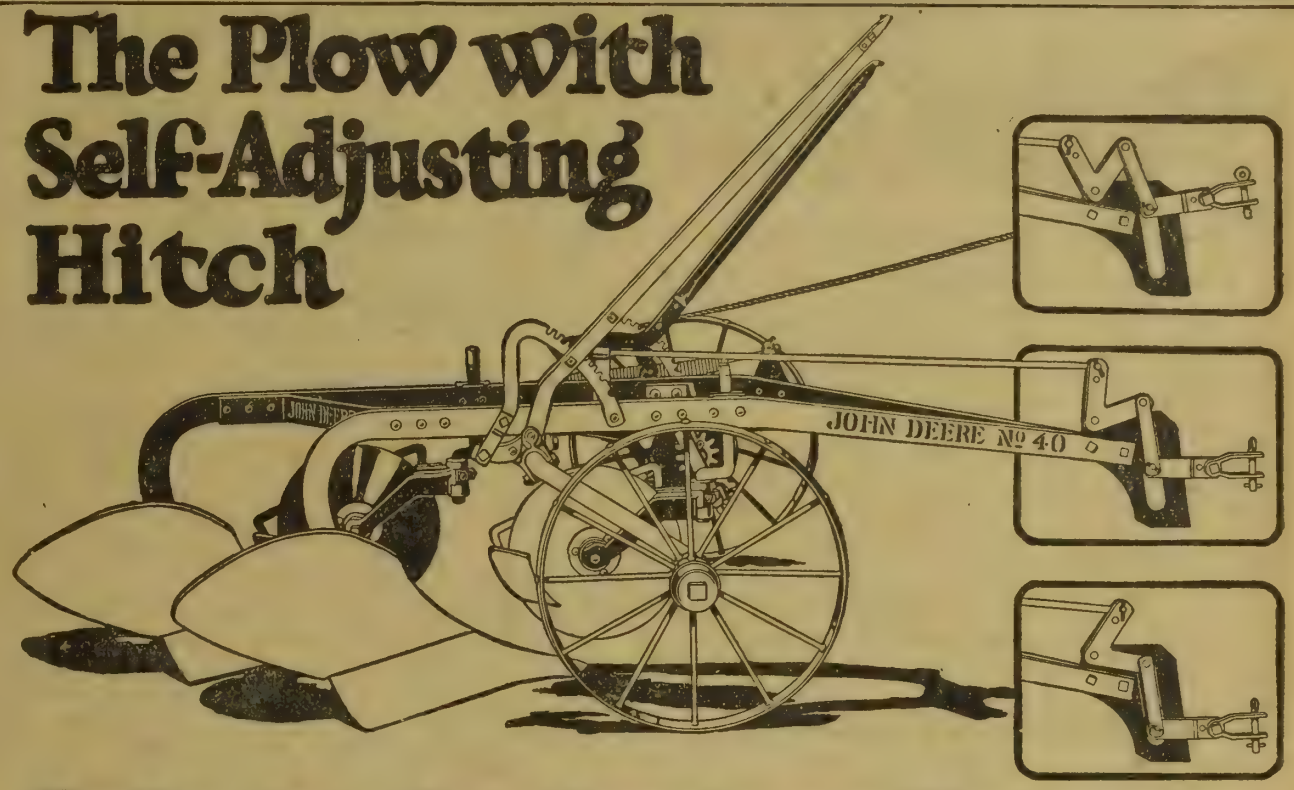
Now Ready for Distribution

It describes and prices the most complete stock of Deciduous Fruits, Small Fruits, Vines, Citrus Trees, Olives, Ornamental Plants and Roses on the Coast.

Sent Free for the Asking

FANCHER CREEK NURSERIES
FRESNO, CALIFORNIA

The Plow with Self-Adjusting Hitch



Built for the Fordson Tractor

YOUR Fordson needs a plow with self-adjusting hitch. That's one of the original and important features of the No. 40—the plow that John Deere built for the Fordson. Because of this hitch, the No. 40 automatically maintains proper line of draft as depth is varied with the depth lever. Bottoms always have the proper suction—"no nosing in", no "hopping out", no "bumpy" furrows.

JOHN DEERE No 40
The PLOW with the SELF-ADJUSTING HITCH

The self-adjusting hitch goes with unusual light weight and light draft plus great strength in making the John Deere No. 40, "the plow that fits the Fordson".

Built of John Deere New-Process Steel, the No. 40 is lighter than the average horse-drawn sulky; and it has tremendous strength to withstand severe plowing strains.

Beams are guaranteed not to bend or break.

Pulls extremely light—Because of proper line of draft at all times, the scouring qualities and general high grade construction of its genuine John Deere bottoms, light weight and the rigidity of its frame, the No. 40 is exceptionally light draft. It's a real fuel saver.

Simple, Positive, Power Lift—lifting parts move only when plow is being raised or lowered—practically no wear.

Does High Grade Work. The genuine John Deere bottoms insure good turning, scouring and pulverizing. They do the work the way you want it done. You can get your No. 40 equipped with John Deere bottoms of the shape and type to suit your soil.

Get Acquainted with the No. 40. You will find it is the plow your Fordson needs. Remember, the plow is the "business end" of the tractor plowing outfit. The tractor furnishes power; the plow applies that power in making the seed bed. Be sure to get a good plow for your Fordson. Write today for a folder describing the John Deere No. 40.

Any plow for use with the Fordson needs a self-adjusting hitch. Only the John Deere No. 40 has this hitch. Note the illustration above showing how the hitch of the No. 40 automatically adjusts itself to the proper line of draft as depth is varied with the depth lever.

Get This Free Book

"Better Farm Implements"—114 pages—describes full line of high grade farm implements and machinery—gives valuable information on implement operation. Write for it today. Address John Deere, Moline, Ill. Ask for Package F—46.

JOHN DEERE

JOHN DEERE MOLINE, ILL

THE TRADE MARK OF QUALITY MADE FAMOUS BY GOOD IMPLEMENTS

what do you buy—"feed or feel"?

Even the most expert poultryman can't tell the quality of a feed simply by looking at it or feeling it. Because a feed can be light or dark, fine or coarse, and yet not vary one-tenth of one per cent in net feeding value.

That's about the least important feed test in the world—texture! For example: Some wheats grind up rather coarse—others rather fine. That makes a big difference in "feel." But does it make a difference in feed value? No!

YOU can set it down as a pretty pat rule that the "feel" of a feed means *nothing*. Texture is about the least important thing in the world when you buy feed. Color is about the least important thing, too. Feed value is the *most* important thing. For *feed value* is the thing you're buying—nothing else and nothing less.

Experience has taught us that proprietary feeds cannot be manufactured in an economical way if color and texture are strictly adhered to. A change in the manufacture of different colored corns, different colored wheats, different colored sorghums or different colored meals immediately shows a change in the color of the by-products. But here's the essential point: *there's no change in feeding value.*

So, why fuss over the "feel" of a feed when the thing you're paying for—the thing your hens are praying for—is feed value? Seasoned poultrymen who use SURELAY year in and year out know this. They know that, regardless of "looks" or "feel," SURELAY is a uniform quality-feed that makes hens pay by making them lay. And that's the only test that interests them—or you!

You can't "go wrong" on SURELAY because our daily laboratory tests make sure that every batch of the feed "goes right" in the blending. That cuts out guess-work in the making and guess-work in the feeding.

Thousands of successful poultrymen have witnessed the profit-performance of SURELAY season after season. They have quit worrying over color or texture. As a matter of fact, they have quit worrying over the feed question altogether—thanks to the uniformly high standard of Sperry Feeds.

That's why we're anxious to bring *you* into the fold. If you haven't seen our booklet, "Make Hens Happy," mail the coupon for a copy of our new edition. You needn't bother to write a letter—although we're ever ready to discuss your feed-problems with you.

STOCK & POULTRY FEED DEPT. **SPERRY FLOUR CO.** STOCKTON, CALIFORNIA

SURELAY

"A Sperry Product"

STOCK AND POULTRY FEED DEPT.
SPERRY FLOUR CO.
208 WEBER AVENUE, STOCKTON, CALIFORNIA

Please send me, without obligation, your booklet "Make Hens Happy."

Name _____

Address _____

SPERRY PRODUCTS IN EVERY HOME SPERRY FLOUR

"There's a Sperry Feed for every stock and poultry need."

And remember—every sack is guaranteed.

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

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Vol. LVI — FEB 10 1921 — February 5, 1921 — No. 6

Keep the Wires Hot to Washington

Form 1206

CLASS OF SERVICE DESIRED	
Telegram	X
Day Letter	
Night Message	
Night Letter	

Patrons should mark an X opposite the class of service desired; OTHERWISE THE MESSAGE WILL BE TRANSMITTED AS A FULL-RATE TELEGRAM

WESTERN UNION TELEGRAM

NEWCOMB CARLTON, PRESIDENT — GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

Receiver's No.

Check 65 Charge

Time Filed 955AM

Send the following message, subject to the terms on back hereof, which are hereby agreed to

RECEIVER JAN 28 1921 R-FX

HON BOIES PENROSE

SENATE WASHINGTON D C

CALIFORNIA CULTIVATOR REPRESENTING ONE HUNDRED EIGHTEEN THOUSAND FARMERS APPRECIATES YOUR SUPPORT OF FORDNEY EMERGENCY TARIFF BILL IN FINANCE COMMITTEE STOP CALIFORNIA PRODUCERS OF LEMONS WALNUTS ALMONDS PEACHES APRICOTS GRAPES RAISINS PRUNES OLIVES COTTON DAIRY AND POULTRY PRODUCTS AND ALL OTHER CROPS APPEAL FOR CONTINUED SUPPORT STOP ALL FARM CROPS CANNED AND DRIED FRUITS IN FACT CALIFORNIA'S WHOLE PRODUCTIVE INDUSTRY JEOPARDIZED UNLESS IMMEDIATE RELIEF IS GIVEN

CALIFORNIA CULTIVATOR

HON HIRAM JOHNSON

SENATE WASHINGTON D C

YOUR SUPPORT FOR EMERGENCY

THOUSAND CALIFORNIA FARM

AMOUNTS TO ELEVEN

ADDITION C

JEO

RECEIVER JAN 28 1921

GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

Time Filed 956A

HON JAMES D PHELAN

SENATE WASHINGTON D C

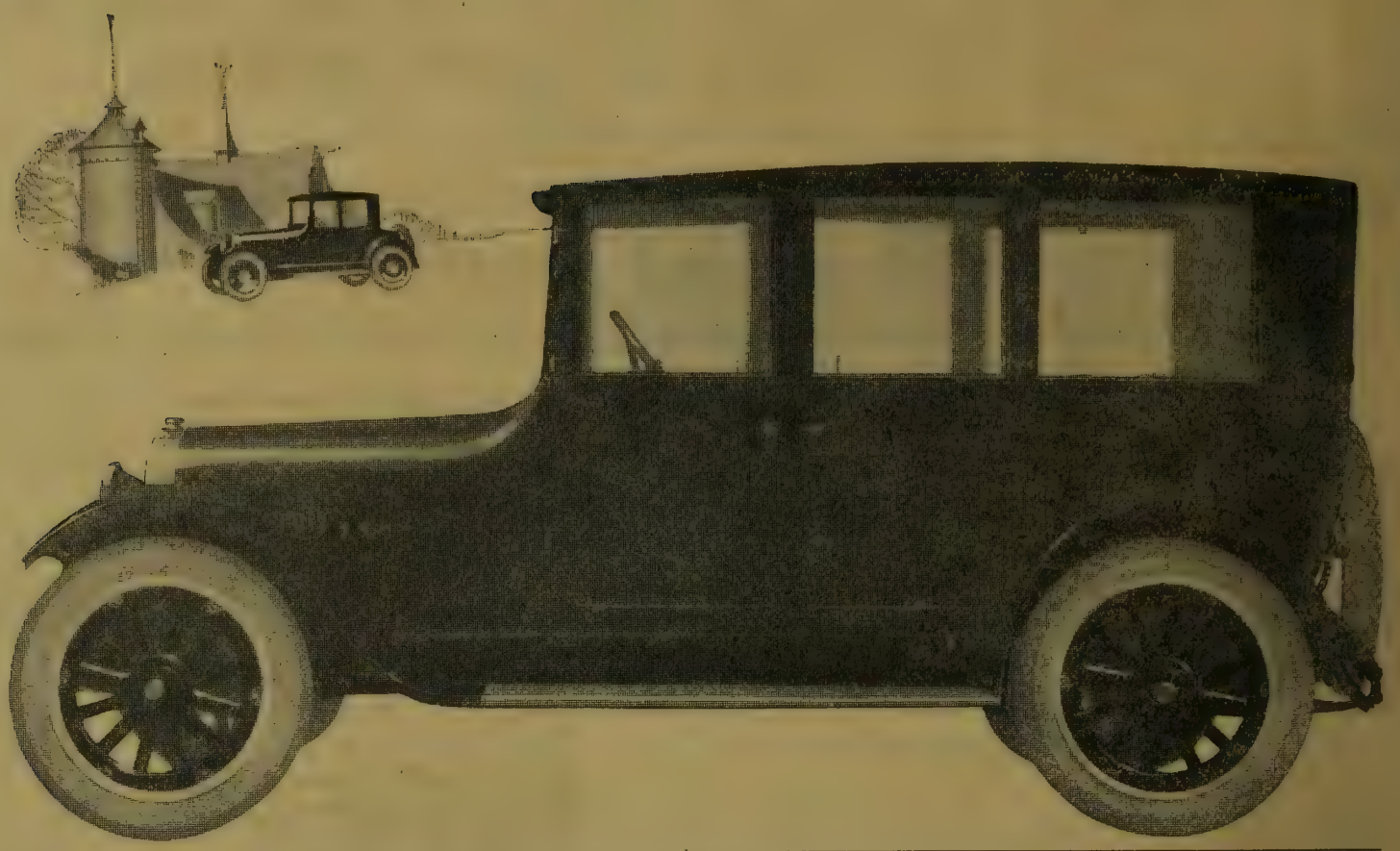
YOUR SUPPORT FOR EMERGENCY TARIFF MEASURE IS APPRECIATED BY ONE HUNDRED EIGHTEEN THOUSAND CALIFORNIA FARMERS STOP ENTIRE NINETEEN TWENTY FIELD AND FRUIT CROP PRODUCTION AMOUNTS TO ELEVEN MILLION TONS WITH FARM VALUE OF FIVE HUNDRED MILLION DOLLARS STOP IN ADDITION CANNING AND OTHER MANUFACTURING INDUSTRIES POULTRY AND LIVESTOCK OF STATE JEOPARDIZED UNLESS IMMEDIATE PROTECTION IS FURNISHED

CALIFORNIA CULTIVATOR

B 9 Gs. DD. KR. 10. AM

Oakland

OAKLAND OWNERS REPORT RETURNS OF FROM
18 TO 25 MILES PER GALLON OF GASOLINE
AND FROM 8,000 TO 12,000 MILES ON TIRES



THIS OAKLAND SENSIBLE SIX SEDAN IS POWERED WITH THE FAMOUS 44-HORSEPOWER, OVERHEAD-VALVE OAKLAND ENGINE

Summer or winter, over country or city roads, every mile in an Oakland Sensible Six Sedan is a comfortable mile. And an economical mile, also. For this efficient car delivers its reliable service at the very minimum of cost. Consider carefully these things about the Oakland, then contrast against them the very moderate price at which this Oakland is sold. Certainly no earlier type of motor car offers equal value, whether as an investment or as a means of satisfactory personal transportation.

OPEN CAR, $1395; ROADSTER, $1395; FOUR DOOR SEDAN, $2065; COUPE, $2065
F. O. B. PONTIAC, MICHIGAN. ADDITIONAL FOR WIRE WHEEL EQUIPMENT, $85

OAKLAND MOTOR CAR COMPANY, *Pontiac, Michigan*

OAKLAND
SENSIBLE SIX

California Cultivator

Vol. LVI, No. 6 | Los Angeles, February 5, 1921 | One Dollar Yearly

Planning and Planting a Vineyard: Phylloxera

By Fred K. Howard

PHYLLOXERA is perhaps the most serious pest of the cultivated vine in the world. California has her share of this insect and it is impossible to even estimate the annual loss caused by its insidious attacks. It is an established fact that the insect may be present for years in a vineyard and the grower not realize the cause of his failing vines. Even though the insect works slowly as a rule, nevertheless it works surely, and sooner or later the vineyard will be a memory instead of a source of revenue to the grower. Nor is this pest confined to a few small areas in the state. No one who has given this matter any

As Phylloxera Appears

Upper photo: Vine roots showing the swellings caused by phylloxera. The degree of damage is usually determined by the character of these swellings, as they usually rot very quickly. Lower: An Emperor vine in midsummer. The short stubby growth on this vine is typical of phylloxera injury.

study will say at this time that any district where vines are grown is free, except perhaps the district south of the Tehachapi.

For this reason the prospective grower should use every precaution to prevent the vines he is planting from being infested with this insect. The presence of even one insect on a vine would undoubtedly mean the destruction of the entire vineyard in due time.

What Is Phylloxera?

First of all let's get acquainted with this little fellow and then we will consider how he works. Almost everyone is familiar with the soft bodied, comparatively long legged plant lice which pester the life out of milady's roses every spring, and for that matter appear on most of the garden truck in the back yard. Some of these clumsy looking fellows are green, while another kind may be black, or possibly lavender, or even white. Well, phylloxera really belong to the same family of insects as do these common every day plant lice or aphids. Like the rest of the family they are sucking insects, that is, they feed by puncturing the tender tissues of the plant with a sharp beak or probosis and suck out the juices. But they are much smaller than most of the family and are in fact only about one-twenty-fifth of an inch in length. All of which means that they are so small that they can just be seen with the naked eye. They are greenish yellow in color, getting a little darker in the winter than in summer. They will feed on the roots of practically all the varieties of grapes. In a nutshell then phylloxera, or phylloxera vastatrix, if you please, is a very small plant louse, greenish yellow in color, which feeds on the roots of grape vines. Now we are acquainted, but we are not pleased to meet you, Mr. and Mrs. Phylloxera.

How Did It Get Here?

According to Prof. G. C. Husmann of the United States department of agriculture, the phylloxera is not a native of California but probably is a native of the states east of the Rocky Mountains. He gives an interesting account of it in Bureau of Plant Industry Bulletin No. 172 as follows: "The phylloxera, which is not a native of California, was introduced into that state either from east of the Rocky Mountains, where it is indigenous on wild vines, or from Europe, or possibly from both sources. In 1880 it was found to exist in Sonoma, Napa, Solano, Yolo, Placer and Eldorado Counties. No careful investigation had been made at that time of the region much farther south in the state. It probably existed in Sonoma County as early as 1873, and it is possible that it occurred in the Sonoma Valley and on the Orleans Hills at least 20 years before that time.

The insect was probably introduced into Europe on American vines and taken there about 1858 to 1862, when the destruction of the French vines from oidium was feared. From that period until 1885 it became widely scattered throughout Germany, Switzerland, Austria Hungary, Italy, Russia, Turke and Australia."

From this small beginning in California, after having been spread slowly but surely almost around the world, we now have in this great state a very serious pest which is known to exist in this line-up of counties: Glenn, Butte, Sutter, Eldorado, Sacramento, Yolo, Napa, Sonoma, Marin, Solano, Contra Costa, San Joaquin, Calaveras, Tuolumne, Alameda, San Mateo, Santa Clara, Santa Cruz, Fresno, Tulare, Monterey, Kings and Santa Barbara. It has been aptly said that simply because the rest of the counties of the state are not listed with these is because either grapes are not grown there or that no one who was interested and knew what to look for has spent any time in these counties investigating the conditions. At least those districts which claim to be free of the pest need to look out for their laurels.

No Control Methods Known

In spite of the fact that the pest has caused the destruction of vines for all these years and almost everything has been tried to control its ravages when they are once established, nothing so far has proven successful. It is indeed a problem that deserves the attention of every one in the state, it matters little whether we are vineyardists, dairymen, merchants or bankers. For the very fact that this insect is present in such numbers is a menace to one of the great industries of California. Since there is no method of control it is evident that every effort must be made to prevent its spread in the older vineyard districts, and it should if possible be prevented from entering into the great new districts which are being developed every year, especially in the San Joaquin and Sacramento Valleys. And by all means it should be kept out of the districts south of the Tehachapi Mountains.

Phylloxera Spot and Vacuum Treatment

Upper photo: A characteristic phylloxera spot in a Muscat vineyard. Lower: A portable vacuum fumigation outfit which is being used by the state department of agriculture to determine if vines may be disinfected in this manner without injury.

Resistant Roots Only Salvation

In those districts where the phylloxera is already established the use of resistant roots grafted to the desired commercial varieties is the only chance the grower has if he wishes to stay in the business of producing grapes. Unfortunately, by far the best work in the studies of resistant vines with reference to soil adaptability and the congeniality existing between them and the commercial varieties has been done on the wine grapes, and at the present time the greatest planting interest centers on the table and raisin varieties due to national prohibition. This situation, together with the fact that the establishing of a vineyard on resistant roots, even when the proper root is used, is both expensive and difficult, will probably result in a great financial loss to the grower and to the districts where such steps are necessary. If work could be started at once to determine the proper root stocks for the table and raisin varieties, and the soil requirements of these different roots, as well as the other problems which will naturally enter into any consideration of work of this sort, it would be years before anything definite in the way of recommendations could be given out that a grower might accept with any degree of certainty that he was doing the very best under his particular conditions. A bill has been introduced in the legislature this session by Senator Harris which makes provision for this work, and in addition to this the United States department of agriculture and the University of California will undoubtedly continue with the work they have been doing for some time.

Spread May Be Prevented

All of this discussion leads to one conclusion. The continued spread of the phylloxera must be prevented. By far the most frequent means of spread is on rooted vines, and it is obvious that if some method can be used to thoroughly disinfect all of the rooted vines grown, it matters little where, we can then hope to check, in a measure, at least, the spread of this pest.

It has been determined, both in

(Continued on Page 170.)

Agricultural News Notes of the Pacific Coast

Northern California

Sacramento County almonds are blooming.

There are 800 colonies of bees in Napa County.

Sacramento County is holding farm management schools.

Sonoma County poultrymen are appealing for tariff on eggs.

Nevada City, near Grass Valley, has just organized a farm center.

Bowman, Placer Conuty, farm bureau is studying poultry problems.

Sacramento County farm centers are discussing green manure crops.

The state convention of Beekeepers will be held at Oakland, March 2-5.

The weather bureau reports 114 inches of snow on the ground at Summit.

Trinity County proposes to hold a county fair at Weaverville some time this summer.

Orland, Glenn County, will add 2,500 acres to its vineyards by this season's planting.

Moisture test shows California rice to be well within department of agriculture requirements.

Applications for grazing permits in Tahoe national forest will be received up to March 1.

Yolo County will plant extensively to figs. Commissioner Gould reports acreage will be close to 500.

Fred A. Ellenwood was reelected president of the California Wool Growers Association at a meeting recently held in Davis.

Sonoma County farm bureau is insisting that American producers and consumers shall be protected against the cheap Chinese egg.

The Pacific Rice Growers Association at a recent meeting placed all its 1920 crop rice in the hands of executive committee with full power to act.

Placerville Fruit Growers Association recently held annual meeting attended by 125 members. A $25,000 rebate or return was made to members.

Manager Davidson of the state irrigation association recently made address before the chamber of commerce of Colusa, urging endorsement of the Marshall project.

Hop men of the Sacramento Valley are investigating as to costs of production and have declared that if the labor costs of 1920 are continued it will be impossible to grow hops.

Sacramento County Pomona Grange has investigated cost of almond production and finds it to be $86.50 per acre. The average production in the state from 1910 to 1919 was about 700 pounds per acre.

The proposal to move the agricultural college from Berkeley to Davis called forth little opposition from the first session of the state legislature, but we are promised "one pretty little fight" when the legislature reconvenes, February 24.

Petaluma shipped last year 22,223,923 dozen eggs; the preceding year, 1919, total shipments were 16,047,355 dozen, a net gain of over 6,000,000 dozen, the greatest of any year in Petaluma's egg producing history. She also shipped 240,041 dozen of poultry in 1920, or more than double shipments of 1919.

Central California

Modesto held a fat hog auction, February 1.

The value of California's annual prune crop is $5,000,000.

The San Joaquin Valley has been visited by drenching rains.

Lodi vineyardists staged an immense rabbit drive, January 23.

Stanislaus County's crops for 1920 are pronounced worth $43,417,000.

The water of La Grange dam is now the highest it has been since 1911.

Tulare County is after noisy motorcycle riders; closed mufflers is the rule.

Merced County boys and girls calf clubs are looking for pure bred Holsteins.

Fresno reports 30 fires during 1920, traceable directly to carelessness of smokers.

California's distribution of auto plates has already reached the 400,000 mark.

Tulare County's fair dates, September 12-17; Hanford fair dates, September 20-25.

California Bean Dealers Association recently met in annual banquet in San Francisco.

Stanislaus County's farm bureau membership drive has been held up by continued rains.

Tulare County's squirrel drive called forth the ever present movies to take pictures of the drive.

Farm bureaus of the San Joaquin Valley are making drive for greater number of grain elevators.

A bill has been introduced into the state legislature making appropriation for campaign against grape mealybug.

Tulare County is more or less concerned over the changing of the routing of the Naranjo-Lemon Cove highway.

The San Joaquin Light and Power Corporation proposes to increase its capitalization from $25,000,000 to $150,000,000.

Chester Rowell has resigned his position with the federal shipping board and accepted California railway commissionership.

Tulare's fat hog auction sales disposed of 182 cars, or 15,141 hogs, and total sales amounted to nearly half a million dollars.

Terra Bella irrigation district expenditures during 1920 were $202,000. The outstanding indebtedness is nearly a million dollars.

The water committee of the Bakersfield Civic Commercial Association is endeavoring to secure adequate water supply for that city.

Max Thelan is making addresses in the interests of the Fresno irrigation district. The campaign began January 31 and is still continuing.

Farmers Union, Stanislaus County division, annual meeting was held January 21. C. W. Johnson was elected president and Mrs. E. C. Whittemore, secretary-treasurer.

Orange growers of Tulare County are advised to meet at Lindsay, February 9 to discuss picking, packing, shipping and cultural methods. It is presumed tariff protection of olives and lemons will be urged at this meeting.

Southern California

Brawley has shipped out about 400 carloads of lettuce.

The Oxnard farm bureau is conducting a membership campaign.

A new drainage district is proposed for Oxnard, Ventura County.

Riverside County claims an output of 820 tons of honey in 1920.

Brawley, Imperial County, shipped 200 carloads of tomatoes last year.

Farm bureau of Orange County is planning to establish a labor bureau.

Many lemon growers are reported to be planning to bud over their lemons to oranges.

The California Walnut Growers Association is asking congress to put a duty of four cents a pound on imported walnuts.

Two hundred and fifty tons of Lima beans were shipped last week from Hueneme to San Pedro for reshipment to New York.

The Riverside Beekeepers Association is urging necessity of a uniform law throughout the state to control movement of bees.

Beekeepers of Riverside County are protesting against the leniency of the courts in dealing with people who set fire to bee ranges.

Most of the apricot acreage in Orange County is reported to have been signed up in the California Prune and Apricot Growers Association.

Demonstrations in pruning grapefruit were given at various points in the Imperial Valley last week. They were in charge of the farm bureau.

Almond growers of California are also urging a protective tariff. They want five cents a pound on almonds in the shell and 16 cents on the shelled nuts.

Directors of the dairy department of the Orange County farm bureau met February 1 to elect officers and discuss the county dairy cow competition.

At the annual meeting of the Garden Grove Walnut Growers Association last week W. E. Schnitzer was elected president; C. K. Lee, secretary and manager.

During December 88 cows in the Riverside County Cow Testing Association won place on the honor roll for production of 40 or more pounds of butterfat.

Horticultural Commissioner Waite of Imperial County reports a larger acreage planted to tomatoes this year than last; also that the crop will be earlier this year.

At the recent annual meeting of the Santa Paula chamber of commerce a committee was appointed to attend to making shipment of beans to the Near East Relief Association.

The Riverside Press estimates the citrus crop of the state at 53,000 cars. For Southern California, 39,500 cars of oranges and 8,700 cars lemons; Central California, 4,300 cars oranges, 200 lemons; Northern California, 300 cars oranges.

At the recent meeting of the Riverside County Beekeepers the frequency of thefts of bees in that section was discussed and it was decided necessary to form a Southern California counties beekeepers vigilance committee and to recommend that all beekeepers brand their hives.

The Coast and General

Arkansas is certifying sweet potato seed.

South Florida fair will be held at Tampa late in February.

Texas tomato growers are organizing a marketing exchange.

California yielded during December 10,000,000 barrels of crude oil.

Perris Valley farmers are meeting and discussing cotton production.

Chicago and other Eastern centers are showing declines in price of gasoline.

Truck farmers about Chicago have organized and are securing more just treatment in marketing.

An irrigation congress at Portland reported 60 irrigation districts in the state including 1,209,000 acres.

Hillsboro, Florida, is shipping quantities of berries and other small fruits through cooperative association.

Florida reports lettuce going to seed and being plowed under because prices do not pay for the cutting.

Utah state legislature urges the national congress to enact legislation that will restrict immigration of Asiatics.

One hen in the egg laying contest being conducted at Corvallis, Oregon, produced during December $1.55 worth of eggs.

Storm which visited all California also gave to Arizona heavy precipitation, and livestock ranges are now reported as promising good feed.

It is claimed that railways are becoming restive under domination of the express companies, and there are manifestations of a breaking away.

Wheat growers recently convened in Pullman, Washington, and devoted most of the time in various sessions to discussing marketing problems.

Oregon wool men are urging the organization of the Wool Growers Association of the Northwest, which shall include at least 60 per cent of the sheep.

An orange company of Tulare County recently sued a nursery agent for damages because of selling trees untrue to name and secured an award of $2,000.

The Southern Tariff Association held meeting at Atlanta, Georgia, last week, at which over 2,000 delegates from various Southern states were in attendance.

The Deglet Noor Association of Coachella Valley reports 65 cents per pound net for first quality Deglets, 40 cents for second, or a field run average of 54 cents.

The International Apple Shippers Association, meeting in Cincinnati, spent much of its time discussing legislation and transportation, especially present embarrassing freight rates.

California-Oregon Power Company has applied to the California railroad commission for permission to reorganize and to issue $10,000,000 in bonds to be used in paying debts and extending power plants in the two states.

Hood River orchardists have been stung by dealers disposing of large quantities of worthless spray material. Analysis showed it to contain only a small quantity of lye and sal soda and to have no beneficial qualities whatever.

The Motor Truck and Transportation

By Arthur L. Dahl

BACK of every advancement there is a fundamental reason. If we look to such fundamentals we find that the basis of all rural development is transportation. The slender rails of our steam roads open up the way for the social and economic expansion of farm life, for they bring to the producer of food ready markets for those products, and they likewise keep him in touch with the refinements of the city. With the development of our public highway systems, new transportation problems are being solved by the advent of the motor truck into the competitive field of the railroad.

With the coming of the automobile the farmer learned how to be independent of the train in the matter of going to and from the town or city. Now, with his motor truck he can be independent of the steam cars when it comes to selling his farm products, and if he has not a farm large enough to justify the keeping of a truck for his own exclusive use, he will find plenty of operators who will handle his produce on a commercial basis. The new mode of transportation of farm freight has many advantages over the old, including the saving of time, loading and often expense. In certain industries, such as dairying and poultry raising, the motor truck is revolutionizing things, by enabling the owner to conduct his business far beyond the city limits, where lands are cheap and operating conditions favorable, and yet get his fresh produce to market in less time than formerly.

Competitive motor transportation is only possible on good roads, where maximum loads may be carried with minimum operating and replacement expenses. The spending of vast sums of money by the federal and state governments in the building of good public highways is reflected in the increased number of cooperative and commercial projects for the establishment of motor transportation.

California ranks as one of the leaders in good roads construction and most of our rich producing districts are now honeycombed with well built roads, and when the $20,000,000 or more now available for new highways have been expended, there will be few farms that are not within striking distance of a permanent highway. Accordingly the California producer, whether he raises grain or fruit, hay or hogs, or produces milk or eggs, will find the motor truck an efficient servant in solving his transportation problems.

The office of public roads of the department of agriculture has conducted some interesting experiments to determine the cost of hauling in rural districts and the effect of improved roads in those districts. It was found that improvement of roads in eight selected counties in different sections of the United States resulted in the aggregate in a total gross annual saving in hauling costs of $627,409. The studies extended from 1909 to 1915 and the counties selected were chosen because they had just issued bonds for road improvements when it was decided to make the studies, and it would therefore be possible to cover the road improvements from commencement to completion. The average gross annual saving in hauling costs due to the road improvements in these eight counties was found to be 17.9 cents per ton-mile, while the net saving was found to be 11.6 cents. In Spotsylvania County, Virginia, one of the counties studied, 76 miles of road were improved at a cost of $173,000. The average loads hauled in a two horse wagon increased materially after the roads were improved, and ton-mile costs dropped from 30 cents to 13.7 cents. This meant a gross ton-mile saving of 16.3 cents, or a net ton-mile saving, when charges were made for interest on bonds and maintenance of roads, of 14.9 cents. Similar examples could be enumerated from all the other districts included in the study.

Following the completion of good roads in a community the motor truck, as a medium for the carriage of farm products, assumes a permanent place in the general scheme of transportation. It is proving of special value in solving the problem of the short haul, one of the most difficult ones which confronted transportation experts during the last decade. The steady growth of our larger centers of population and their increasing demands for larger quantities of food have stimulated the development of producing areas adjacent to these consuming centers. These producing areas have been pushed farther and farther from the centers of population by the encroachment of the city proper. Gardeners and dairy farmers who a few years ago were faced with a short haul to the nearby market now find that the horse drawn vehicle of other days is entirely inadequate to cover the increased distance to market. Here the motor truck has offered itself as a transportation medium capable of working effectually within a much wider radius than the horse and wagon. The development of rail facilities for the short haul has not kept pace with the development of crop producing districts near the larger centers of population, and the necessity for double handling when the railroad is used often results in increased cost and excessive loss in certain classes of perishable commodities. With the truck a load can be carried from producer to consumer with only one handling. The average dairy farmer uses trucks to carry his milk to the distributing centers in the city, and by maintaining regular schedules it is possible to make these deliveries in less time and for less money than under old conditions when part of the journey was made by train. The milk is delivered in better condition, too, for during the hot days the trucks are covered and the cans protected from the glaring sun or else the runs are made during the night when it is cooler.

The truck gardener is likewise using trucks to carry his fresh vegetables to market, and with good roads he is able to carry capacity loads, often hitching a trailer behind the truck where no steep grades are encountered.

In rural districts which are pretty well built up, and where a variety of products are available for hauling, a number of commercial routes have been established and regular rates charged for hauling. The trucks operate on a regular schedule and the farmers bring their produce to loading stations along the way, where it is picked up by the truck on its way to the city. On the return trip the merchandise deliveries of the city stores are taken care of.

As an example of the enormous tonnage which can be handled by a single truck when in constant operation, the case of a six ton motor truck, entered in a national truck efficiency test by the Pennsylvania Utilities Company of Easton, Pennsylvania, is interesting. In three months this truck hauled enough freight to make up six trains of 50 cars each, or the equivalent of a train three miles long. The truck was in operation 92 successive days and nights and transported 11,827 tons of coal, ashes, sand and brick. The daily average was 128 tons, or the equivalent of three freight cars of 40 tons capacity. The truck covered a total distance of 7,851 miles during the test.

In Iowa a number of commercial truck routes have been successfully established, some of them operating in and out of cities within a radius of 85 miles. The trucks haul all sorts of farm products, including livestock, as reports show that in Iowa over 158,000 hogs, 18,488 cattle and 37,130 sheep were moved by trucks in 1918.

In a trial trip made from Mason City, Iowa, to Albert Lea, Minnesota, a distance of 42 miles, a three-quarter ton truck carrying 2,800 pounds and a one and one-half ton truck carrying 3,300 pounds made the round trip in a driving storm in six hours and 40 minutes, at an expense for both trucks of $24.80, including depreciation and interest. It is said that there are almost 400 motor trucks operating regularly in Iowa over established routes.

In Maryland we have an example of a successful cooperative truck service, known as the "Farmers Cooperative Company of Harford County, Incorporated." This association appears to have met the needs of the community it is serving in a very satisfactory manner, and at the same time has eliminated effectively the problems of profit and destructive competition.

The association operates in Harford County, Maryland. Its motor trucks provide a daily round trip service from Churchville and Bel Air to Baltimore, taking milk and other farm products to Baltimore and bringing back to the farmers feedstuffs, salt, seeds, fertilizers, farm implements and other articles for use on the farm, together with merchandise shipped from the wholesale houses of Baltimore to members of the association. The distance covered by the route is about 60 miles.

The territory served is a very productive agricultural region, many of

(Continued on Page 171.)

California's Use of the Motor Truck

By C. B. Messenger

CALIFORNIA highways have encouraged the extension of automotive transportation and, as a rule, to the advantage of producers. Generally, large quantities, carlots or more, and for long distances, are still handled by the railways, but the handling of smaller quantities has induced the extension of the use of auto trucks in every section of the state. Running between Los Angeles and Bakersfield during one week there were counted 264 auto trucks, many with trailers, or an average of 37.6 per day. The average load was about three and a half tons per truck and trailer. All told, there are 1,032 carriers conveying freight from Los Angeles to outside points. Doubtless traffic out of Fresno, Stockton, Sacramento, San Francisco and other distributing centers of the state is proportionately as great, but we have been unable as yet to secure the figures. These figures have nothing whatever to do with the passenger traffic, which calls for an even greater number of machines.

Something over nine per cent of these trucks were registered and under the jurisdiction of the state railway commission, and therein is cause for somewhat of contention on the part of the large operators. Companies of individuals which establish a regular schedule between cities or between a city and interurban points are compelled by the auto stage and truck transportation act of 1917 to register and file with the railway commission schedule of charges, dates of regular service, amount of capital invested, and, in fact, complete statement of their business. Once installed, companies are compelled to continue regular service and, within reasonable bounds, exactly on schedule as filed with the commission. Then comes the fly-by-night, or irregular expressman, and hauls special loads, sometimes at less than the rate charged by regular installed companies, and these companies are forbidden to meet the cut, at least without permission from the state commission. This creates a condition which is hardly fair to regular established transportation business, but, at the same time, the highways are public property and regulation of this carrier service with entire justice and to the satisfaction of all seems very difficult.

These questions of regulation, however, concern Cultivator readers but little, at least so long as fair transportation rates on products from producing to consuming centers are maintained, and this makes up the greater portion of the business of these carriers. For instance, there is daily service of trucks from Fresno and other portions of the San Joaquin Valley carrying dairy products alone to Los Angeles.

But there is another form of truck service which is more particularly dwelt upon by Mr. Dahl in the article which follows. This is the service on the farm or from the farm to warehouse, elevator or nearby distributing point. This calls for individual ownership of trucks, but where there is scarcity of capital or insufficient business to justify one farm's ownership of a truck then comes cooperative ownership.

One trouble in California specialized community production, however, is the fact that the service is heavier comparatively during a small portion of the year. For instance, take an apricot producing community. A period covering, perhaps, six weeks would call for heaviest service of the trucks, while the remainder of the year the service would be extremely light if required at all. Incidentally, we may remark that this is a proof of the wisdom of diversified farming. However, the purpose of this article is not to fit the farming to the implements, but the reverse. We still believe there is opportunity for the apricot grower to unite with the prune grower, the raisin grower, the dairyman and others to secure through minimum expense maximum service. In any case, there is opportunity for farm bureau meetings to discuss how cheaper transportation may be secured by the farmer.

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

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EDITORIALETTES

When lemons are not worth anything, so far as net cash to the grower is concerned, and culls are worth less, their economical disposition becomes a prime factor. The citric acid factories have been of material value to the lemon industry during the past two years and have made thousands of tons of cull lemons into a high grade product shipped to all parts of the country. The price paid for the lemons has been around $20 a ton, but this left little to the grower after payment of freight and handling costs. When freight rates were raised the situation was still further complicated. Lemon orchards only 50 to 100 miles from the factories found it practically impossible to transport their fruit, then entered the motor truck and gasoline did the job, saving a net of $3 per ton in one of the largest lemon growing sections. Three dollars a ton is not much, but it means much to an industry already prostrate.

* * *

Another relief from excessive railway rates has been given in small measure by water shipments. Another week we hope to have a story of oranges to Philadelphia by way of the Panama Canal. This fruit was shipped about the middle of January and so far as any reports have yet been received, arrived in good condition. Meantime another and longer shipment has been made of California Navel oranges, this time from Los Angeles harbor direct to London. While the Philadelphia shipment required 15 days to arrive at destination, the London shipment will require about 33 days, but the perfect control of refrigeration on shipboard, it is thought, will make up for long time in transit.

* * *

"The Southern Tariff Congress is perhaps the first movement in the history of the South that meets with the unanimous approval of all political, agricultural, industrial and commercial factions." This is the statement of the Southern Tariff Advocate, organ of the Southern Tariff Congress. Excepting for an effort in congress to make political capital out of the present situation, there is little partisanship in the present protective tariff movement. As one speaker has said, "It is no longer possible to speak of a tariff for revenue only in the sense that we were wont to speak of it in the past." Certainly the revenue needs of the government at this moment are such that a good stiff tariff can be put upon all things produced by farmers and still work no injustice on anyone.

* * *

The emergency tariff bill now before congress is intended to give justice and an opportunity to dispose at home of surplus stock of American producers. Fortunately, this measure is receiving fullest support of our ablest senators and representatives. It has passed the house and, as we write, it has fair promise of passing the senate with a number of amendments. The reproduction of telegrams on the cover of this issue is given in the hope that it may prove a reminder to many of our subscribers to use the wire to encourage renewed effort on the part of our friends in the senate.

* * *

Just as a reminder about "Who Pays Taxes." We discussed this question somewhat in last issue, calling attention to the defeat of the taxation measure. The state legislature has adjourned and there is nothing doing, not above board, at least, until February 24. Farmers who are not anxious to have the matter of taxation come back to themselves might look over the list of "Noes," and if any assemblyman is found to be in wrong his name should be placed on the calling list. Without question the bill will be reintroduced, or rather the whole question reconsidered, and an opportunity given those who did not fully understand the question before to vote right.

* * *

The trouble with a lot of essential legislation is that it becomes involved in such an awful mass of stuff included in the 2,000 bills introduced that it is impossible to secure sane treatment. There were introduced in the lower house 1,200 bills and in the senate 800. It is stated that practically all the bills which have been introduced and defeated for several years have been reintroduced.

* * *

One little economy which is promised to us by the federal congress is the saving of $363,000 in the free seed fake which has been fastened upon the country for a period of somewhat less than a century. This free seed stunt has given the congressman opportunity to think that he was pleasing his constituents by sending stuff of no agricultural value and yet with it carrying the idea that the aforesaid congressman had the individual voter's best interests so at heart that he was sending him a memento of great value. It is said that this custom has cost $828 for the district of every congressman. If there is a single district that ever got 828 cents worth of good seed it should be reported for the Congressional Record.

* * *

York state dairymen are using the movies to educate consumers of milk as to the value of the purest and best food on earth. It is done through the Milk Queen Fairy story, with much of fiction and more of truth. The Milk Queen Fairy is the heroine and other little fairies who live in the Milk Castle are Billy Lime, Chubby Butter, Susy Sugar, Fairy Ice Cream. Another character, who is a giant, is Vitamine. He is a for-sure full grown fairy of wonderful strength. The movies afford opportunity for education possessed by no other agency in our country today, but this agency has been so painfully abused that its influence is largely in the wrong direction. There is no call for a goody-goody moral to everything that goes on the screen, but there is call for reduction of some of the vice suggestions in too many of the reels. As we recently heard it expressed. "The time has come when the country should capitalize virtue and cease capitalizing vice as has been done so long."

THIS WEEK'S COVER

The larger business interests of the country realize that if maximum production is to be secured during the next crop producing season there must be given the farmer a reasonably stable market and assurance of prices which will at least cover costs. A situation much more serious than is admitted by many confronts us. Probably the great majority of the farmers of the United States are unable to dispose of their 1920 production at sufficient to cover its actual cash cost. Elevators and warehouses are still overfilled; transportation companies find it difficult to move the products and, worse than all, foreign exchange and financial conditions are most embarrassing.

Would-be political economists are presenting thousands of suggestions, but little action has as yet been taken. Congress has, however, started something and are considering what is known as the Fordney emergency tariff. This measure was taken up immediately on the convening of congress and before the end of December had passed the house. It then went to finance committee of the senate, and its troubles began. It has now been reported out and is on the floor and amendments almost by the score are being proposed. Some of these are simply the addition of agricultural products to the protective list; others are intended to embarrass and cause the death of the entire measure.

Partisanship has entered into the fight to a certain extent, but very fortunately the South comes up with its claim for protection and partisan opposition is almost a thing of the past. The wires are being kept hot to Washington, and the Cultivator has endeavored to represent California farmers by sending wires, as may be seen by reproduction on the cover, to two California senators and to Senator Penrose, chairman of the finance committee and one of the strongest boosters for this protection to America's producing interests.

DO IT NOW

The Agricultural Publishers Association has set aside a week to be considered on the part of the producers of the country as National Repair Week. Or, rather, there are three separate weeks, one to be observed in each of three zones. It is announced that the first zone observed January 31 to February 5; the second zone, February 29 to March 5; and the third, April 4 to 9. Which zone California or any other state is in we are not informed as yet, but we think the suggestion valuable enough that it is well worth the California producer's time to immediately take up the observation of National Repair Week. The idea is to overhaul plows, disks, drills, mowers, reapers, tractors, in fact, all implements in use on the farm—when they are not in use—paint, restore lost parts, where necessary order from factory or dealer, and have everything in shape for the campaign, which may not begin for some weeks. It is hoped by this campaign to induce not only greater production on the part of the farmers, but to encourage dealers to get their repair departments stocked up with all necessary parts and so prevent the crowding of all repair business into limited harvest or other short season.

Do it now; don't wait for the busy season.

SUPREME COURT DELAY

We are going to let William J. Bryan write this editorial. We regret that he has been a bit thoughtless and used it first in The Commoner, but that is immaterial, for he says so emphatically and so truly some things regarding certain interests causing the downfall, or at least great embarrassment, of the federal farm loan that we quote his editorial entire:

"The delay of the supreme court in deciding the case testing the constitutionality of the farm loan bank law focuses attention on a situation no longer bearable. Many months ago a group of interested parties brought suit to test the validity of the law establishing the farm loan bank. The farm bank interfered with interest rates and commissions of the banks and insurance companies, and the suit suspended competition. They have already profited, but they have brought an enormous loss to the farmers. The suit ought to have been heard and decided at once. Every day's delay has cost the farmers hundreds of thousands, if not millions, of dollars, while it has enabled banks and insurance companies to raise interest rates and commissions.

"Remedies are never applied until suffering compels action. The farmers have suffered enough to justify a demand for legislation giving to such cases an immediate hearing and requiring the court to render a decision within a reasonable time.

"If the federal farm loan bank act is unconstitutional, congress and the people can remedy the defect. If the act is constitutional, unreasonable delays are exasperating and very harmful. It is to be regretted that the supreme court docket is so choked with business, but provision should be made that cases of great public importance could be determined without delay.

"Where a few having a pecuniary interest adverse to the interests of a multitude, attempt to invalidate a law, the law ought not be suspended during the hearing unless the complainants protect from loss those who may suffer while the case is being heard. Here is an opportunity for senators and members of the house to render a real and permanent service to their constituents."

RELIEF FOR THE GROWERS

The railroads are not going to lower the freight rate unless forced to, and neither pussyfooting nor withholding shipments and allowing produce to rot on the farm will force a reduction. Meantime the consumer is paying practically the same old prices. In advertisements and otherwhere there is continual reference to reduction in the cost of living, but in actual purchases the home maker is as much embarrassed as ever. The larger cooperative organizations must take the initiative for railway and commerce commissions are having pressure brought to bear to raise rather than lower the rates. Touching this matter of rates, the Tampa, Florida, Tribune says:

"One of the most direct and far reaching steps toward reducing the high cost of living has been taken by the Florida Citrus Exchange in its movement to have established an 'emergency freight rate' for all food crops that must be moved by rail or water. It is also the most unselfish movement that has been started in the country since the war began. The West demanded relief for its wheat, and the cotton states demanded relief for their cotton. The Florida Citrus Exchange demands, and shows how it can be given, relief for every man, woman and child in the country.

"It is almost impossible to estimate the excessive charge total for the movement of foodstuffs in the country now over pre-war rates, but the Exchange shows that in the one thing of Florida citrus fruits alone the excess is above five and a half million dollars on this season's crop. What it will amount to for the vegetable crop of Florida for the year can hardly be given, as there is nothing to gather the exact statistics of this industry as there is for the citrus. But it is evident from the amount of perishables shipped annually from Florida that the total for the citrus crop will not exceed that for other perishables.

"The country needs every possible assistance in its getting down off the stilts of excess costs for everything. The mere cutting of wages will not help any, if labor is forced to pay the same high price for living needs. The railroads have been given all demands they made in the shape of guarantees of earnings and are now cutting down labor costs and number of employes. It is entirely logical that if the railroads reduce their expenses they should accept reductions in rates to even up things all around.

"With volume of business increased, with freight rates 40 per cent or more advanced, and with wages cut 20 per cent, and roll of employes cut ten per cent, it follows as a reasonable sequence that freight and passenger rates should be lowered in a just proportion.

"The railroads called for an emergency increase and got it. The food producers and shippers of the country need an emergency decrease in freight rates, and should have it.

"The press and the entire representation in congress of this state should get back of this Citrus Exchange proposition for the relief of the country and make it a special charge until it is granted. Unless it is granted, Florida farmers and growers stand to lose in crops which cannot be handled because the excess rates of freight will be the difference between profit and loss to the grower."

TEHAMA COUNTY FARM BUREAU MEETINGS

The regular meetings for the farm centers of Tehama County are scheduled as follows for February: North Capay, 2; Henleyville, 4; Squaw Hill, 7; Dairyville, 9; Antelope, 10; Oak Park, 11; Corning, 17; Bend, 18; Richfield, 21; Proberta, 23 Liberal, 24; Manton, 25; Bowman, 26; Los Molinos, 28. Directors meeting, 26, 10:30 a. m., Red Bluff.

PLANTS IN MARKET

A canvass of seed stores discloses plants and roots for sale as follows and may suggest to readers something needed in the garden which it is now timely to plant.

In economic plants: artichoke, asparagus, cabbage, chayote, horse-radish, lettuce, onions, parsley, rhubarb and Swiss chard. In ornamentals: Canterbury bells, carnations, larkspurs, pansies, poinsettia (dormant rooted cuttings), stocks, verbenas and violets. Suggesting arbor covers are grape vines, evergreen raspberries, thornless raspberries and rambling blackberries.

MISTAKE TO BE AVOIDED

An early morning customer in an optician's shop was a young woman with a determined air. She addressed the first salesman she saw:

"I want to look at a pair of eyeglasses of extra magnifying power."

"Yes, madam," replied the salesman; "something very strong?"

"Yes, sir. While in the country I made a very painful blunder which I never want to repeat."

"Indeed! Mistook a stranger for an acquaintance?"

"No, not exactly that; I mistook a bumble bee for a blackberry."—Unidentified.

COMMERCIAL TRUCK BODIES

ELEVEN MODELS COMPLETE READY TO ATTACH

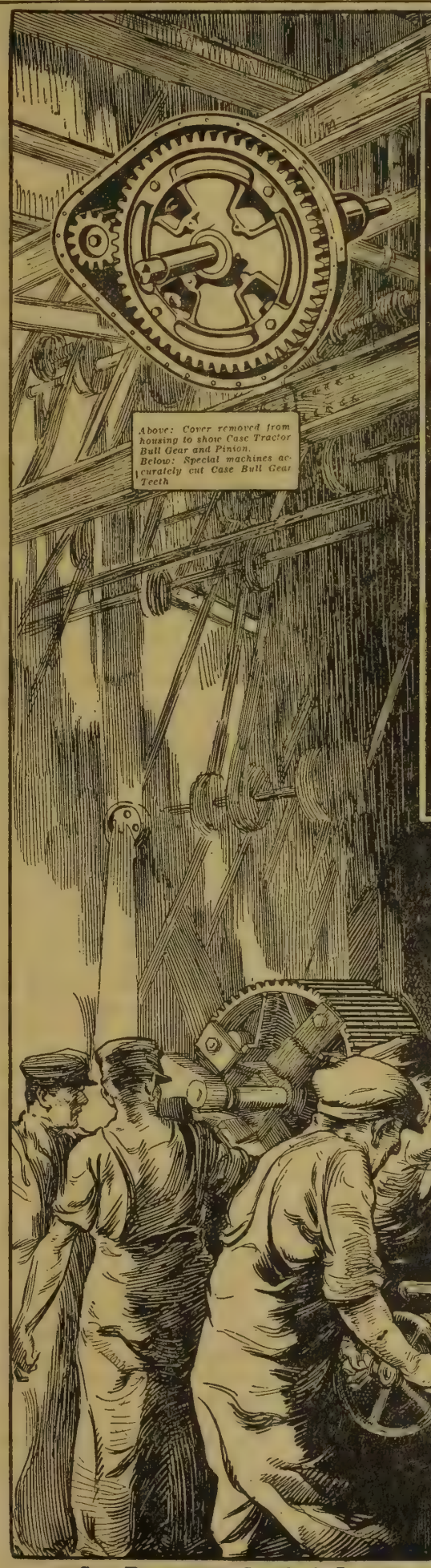
CONVERT YOUR OLD FORD INTO A TRUCK

Three styles on one platform for Model T chassis. All styles for Ford 1-ton trucks. Flareboard, stake, stock rack or combination grain and stock bodies with inclosed cabs. Write for illustrated folder.

ARNOTT and COMPANY 112-118 So. Los Angeles Street LOS ANGELES, CAL.

PLANT FIG and PEAR TREES For PROFIT

Order Fruit Trees NOW—Stock Scarce
Write For Price List—Full Line—Good Stock
CITRUS, TROPICAL and Full Line of ORNAMENTAL PLANTS
PIONEER NURSERY OF MONROVIA



Above: Cover removed from housing to show Case Tractor Bull Gear and Pinion. Below: Special machines accurately cut Case Bull Gear Teeth

Why Case Tractor Bull Gears Resist Wear and Breakage

CASE Tractor Bull Gears are made from high carbon steel billets, forged into one-piece, weldless rings. The method of manufacture — Case patented — is such that only steel absolutely free from flaws and defects can withstand, successfully, this process. If there is going to be any breakage, it occurs *in the factory*, before the gear is completed — not after it is on the tractor and the machine working in the field.

Hydraulic forging, annealing, heat treating, tempering in an oil bath, machining and cutting teeth to the accuracy of less than the thickness of a human hair — each of these important steps in the process of manufacturing Case Tractor Bull Gears contributes materially to the true-running qualities, smooth operation, and long life of Case Kerosene Tractors.

The wear-resisting hardness, breakage-defying toughness, and permanently perfect mesh of Case Bull Gears, are features characteristic of Case manufacturing thoroughness in all details.

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Decay of Citrus Fruits in Transit

By O. F. Burger, Florida Experiment Station

WITH most fruit it takes 51 weeks to produce a crop and one week to market it. In this one marketing week 51 times more care should be taken than in any one of the previous producing weeks. However, here is where many growers fail—they take less care in marketing their fruit than in growing it.

During the fall and winter of 1918-19 from 10 to 15 per cent of Florida fruit decayed on the way to market. This was a loss of at least 890,000 boxes of fruit. This decay was due largely to blue mold. It has been shown repeatedly that this decay is not caused by inherent weakness of the fruit, but by bad handling. During the war it was impossible to obtain good help, but that condition has been remedied and good labor can now be obtained. Scientific workers have proven that a wound in the fruit is necessary before blue mold fungus can enter.

The foreman of the picking crew is responsible for much of the decay. It is his business to see that each picker leaves no long stems or makes clipper cuts. He must also examine field boxes and see that all protruding nails and splinters are removed and sharp corners rounded. Care must be taken in emptying the fruit from the picking bags that the fruit is not injured. As far as results are concerned, every injured fruit is a rotten fruit.

In the packing house the fruit must not come in contact with sharp edges of machinery. Washers and bins must be so constructed that the fruit is not crowded or given violent motion. The packers must wear gloves to avoid injuring the fruit with their finger nails.

Blue mold fungus lives on organic matter. In many groves dropped and split fruit are sources of infection. Mashed fruit and culls left lying about in the packing house furnish ideal conditions for the multiplication and growth of blue mold. All drops in the groves should be removed. Packing house and field boxes should be cleaned. Crushed fruit and culls should be kept out of the packing house.

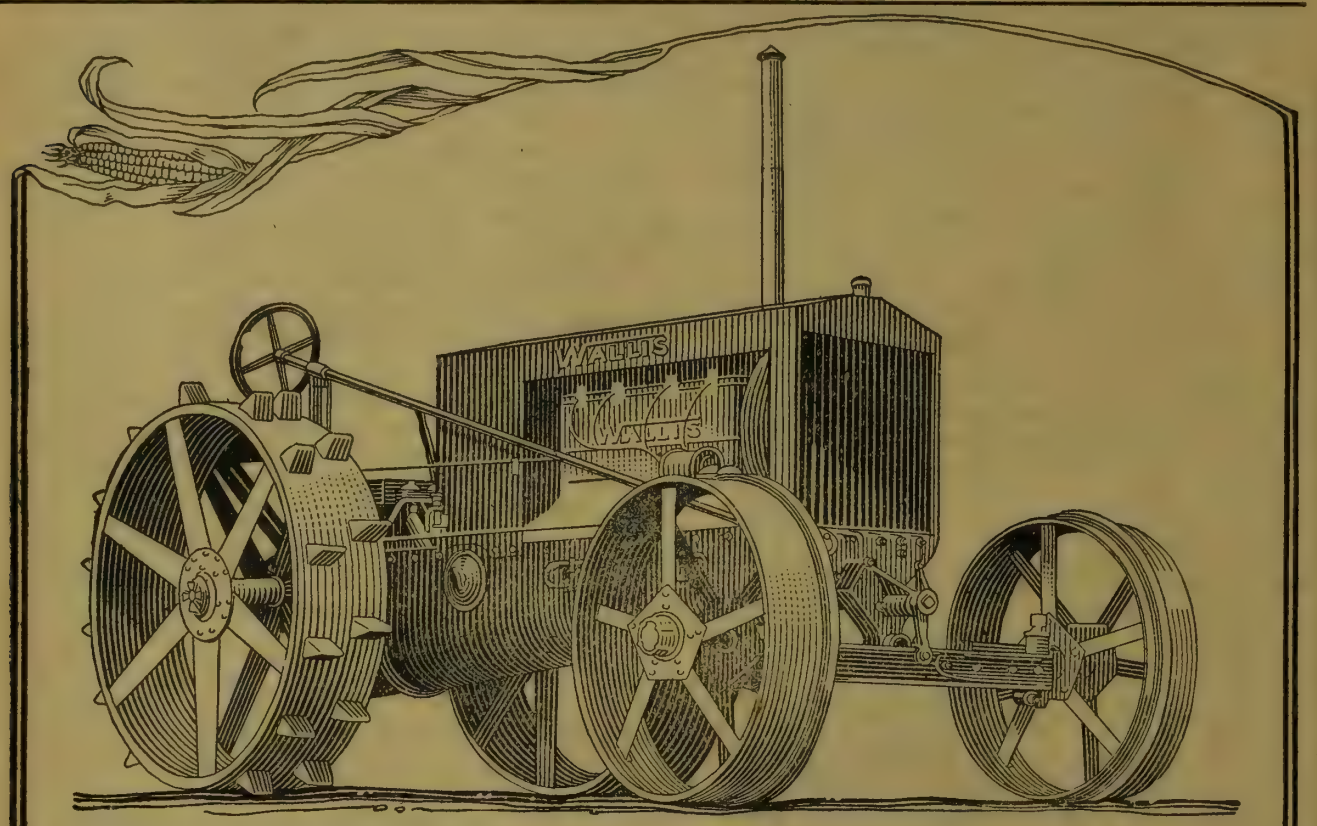
Most fruit is sold by auction companies. Each lot is graded and sold according to general appearance and the amount of rot. A few decayed oranges will greatly affect the price. A little care at the time of picking and packing will make a great difference in the returns.

Several years ago the cause of this decay was not fully understood. Many theories were advanced by growers and shippers to explain their losses. Some attributed the decay to the influence of a certain type of soil, causing a possible degeneracy in the fruit as the trees grew older. Others believed it to be due to climatic conditions, such as fogs and rains. Many thought it due to inherent weakness of the fruit. Some believed it due to faulty methods used in packing houses. All believed and agreed that improper and inadequate transportation was largely the cause of the decay.

A certain grower in Florida was losing 30 per cent of his fruit in transportation. He thought it the fault of the railroad companies. He found by investigating that it was due to clipper cuts and long stems.

Railroad companies are not responsible for decay, if cars have been properly handled during transportation. They have a right to fight claims for loss in such cases.

If the produce arrives on the market in an unsightly, decaying mass, it sells as such. Good fruit sells for less if there is decayed fruit in the same box.



WALLIS—International Champion

Once again has the Wallis Tractor offered convincing proof that Wallis power means "more acres per hour." In the great international demonstration held recently by the ROYAL AGRICULTURAL SOCIETY OF ENGLAND, the Wallis performed with such thoroughness and power that it was awarded the FIRST PRIZE AND GOLD MEDAL in the three-bottom plow class. The trials lasted seven days and covered every phase of field and belt operation.

The leading English engineering journals, commented very favorably on the constructional features of the Wallis—AMERICA'S FOREMOST TRACTOR. Its sturdy strength, light weight and remarkable pulling power were commended. The famous Wallis U-shaped frame, made of one-piece boiler steel, was the object of especial approval among the judges and engineering experts. The low-speed, heavy-duty motor; compact, dustproof construction, and non-friction bearings, were other features that received high praise. Wallis was accorded unquestioned leadership in the three-bottom plow class.

"More Acres per Hour" is built into every vital part of Wallis. Thousands of farmers throughout the country have increased their production and lowered their costs with the Wallis. Its great power and trouble-free performance add many dollars to the value of the crop. A visit to the nearest Wallis dealer will convince you of the merit of Wallis.

J. I. CASE PLOW WORKS COMPANY, Dept. A3121, Racine, Wisconsin

WALLIS
-more acres per hour

NOTICE: We want the public to know that the WALLIS TRACTOR is made by the J. I. CASE PLOW WORKS COMPANY of Racine, Wisconsin and is NOT the product of any other company with "J. I. CASE" as part of its corporate name.

BETTER WALNUT SEED

Falling in line with the "Better Seed" movement which is sweeping over the country, the California Walnut Growers Association is making an effort this year to get high grade black walnut seed into the hands of nurserymen and ranchers in order to lay the foundation for better trees upon which to build the future of an already great industry.

It is a well known scientific fact that a highly improved breed of stock or variety of trees is somewhat tender, and it has been learned that the best way to offset this tendency is to cross the animal or tree with rugged stock. That is why some of the best orange trees result from grafting improved varieties on what is termed "sour stock."

From a long series of experiments it has been learned that California walnuts of the soft shell variety do not produce sturdy root stock, and experimenters have ascertained that the finest walnut trees in the world are developed by budding the improved varieties of walnuts onto wild or black walnut root stock.

To breed the best type of walnut tree the association thinks it wise for nurserymen and ranchers to obtain the genuine Northern California wild black walnut as a foundation. Last year a quantity of wild walnuts were secured by the association for distribution among the growers, and they were gobbled up with such suddenness that many ranchers did not even get the proverbial "look in" on the campaign for better root stock.

This year the association has gone into the Santa Clara Valley, where the finest type of black walnut grows, and has secured a limited quantity of carefully selected wild walnuts, for sale to the associated growers at cost. This means a price of 12 cents a pound f. o. b. Los Angeles.

The black walnuts are being offered to ranchers and nurserymen at this price, while they last, purely in the interest of better root stock for a stronger generation of California walnuts. Complete instructions for planting and growing are supplied with each shipment.

Carlyle Thorpe, general manager of the association, urges those who desire an allotment of this wild walnut seed to place their orders within the next 15 days to avoid possible disappointment later in the season.

PROGRAM FOR CITRUS INSTITUTE

The annual meeting of the California Citrus Institute will be held at the Elks Club rooms, San Bernardino, February 25 and 26. In addition to the splendid, practical program that has been arranged, there will be the treasurer's report and the election of officers for the ensuing year. Three of the directors' terms expire, including those of C. C. Chapman of Fullerton, J. H. Strait of Redlands and Judge Curtis of San Bernardino.

Friday, 9:30 a. m.—New Information Concerning Control of Insect Pests in Citrus Orchards: Fumigation versus Spraying, J. A. Prizer; Possibilities of Fumigation with Gas Tight Tents, H. J. Quayle; Black Scale Control with Parasites, H. S. Smith. 2 p. m.—Traction Power for Citrus Orchards: Experiences with Tractors on Rancho Sespe, W. H. Fleet; Comparative Costs of Tractor and Horse Work, C. A. Griffith; Cooperative Use of Tractors on Small Citrus Units, J. A. Dennis.

B T S

The dry Barium-Sulphur insecticide and fungicide, in which both the barium and sulphur are available as active ingredients, due to the combination which greatly increases the efficiency of each.

B T S is remarkably effective in killing scale insects, red spiders, etc. It is the spray material to use during the dormant season. It possesses a stability that cannot be secured in dry compounds of either lime or soda with sulphur. B T S is more dependable as a spray and less liable to cause injury to plants.

B T S in powder form carries a higher percentage of sulphur than the crystalline product. Leakage is eliminated. 80 per cent of the weight is eliminated. B T S is practicable and is winning its way by the results obtained. We have watched its effects in California orchards, proving each step and unhesitatingly recommend it.

B T S is economical when used at a strength that will be effective. As a dormant spray it will do all that the solution will do. Recent tests indicate that as a fungicide for growing period it possesses certain properties that make it even more valuable than the solution. It is safe to use and easy to dissolve. These statements are based on the results obtained by some of the most successful producers of fancy fruit in the country.

B T S destroys scale insects; controls peach leaf curl and twig borer; controls apple and pear scab; may be used in combination with arsenate of lead; saves 80 per cent of the bulk as compared with lime-sulphur solution; dissolves readily in water; is economical, convenient and effective.

Other tree-spraying materials manufactured by us and proved effective by long use on this Coast are:

ORCHARD BRAND ARSENATE OF LEAD, standard paste.
ORCHARD BRAND DRY POWDERED ARSENATE OF LEAD.
ORCHARD BRAND ATOMIC SULPHUR (patented)
ORCHARD BRAND BORDEAUX MIXTURE
ORCHARD BRAND LIME SULPHUR SOLUTION
B T S DRY BARIUM SULPHUR (patented)
UNIVERSAL BRAND CRUDE OIL EMULSION
UNIVERSAL BRAND DORMANT SOLUBLE OIL
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Free Beans

Burpee's Stringless Green Pod

That you may test the value of BURPEE QUALITY SEEDS we will, during this month, send entirely free a large trial packet of Burpee's Stringless Green Pod Bean Seeds. With the Beans we will send a Burpee Booklet about the best seeds that grow, both absolutely free.

All we ask is that you send us a two cent stamp to pay the postage. Write for your beans today.

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Have water on your own farm. In spare time make wells for your neighbors. It means $1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

Outfits for Getting Water Anywhere

Earth augers, rock drills and combined machines. Engine or horse power. *Write for easy terms and free catalog.*

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Saturday, 9:30 a. m.—Present Problems of the Citrus Fruit Industry, G. Harold Powell; The Railroads and the Citrus Industry, H. P. Anewalt; Increasing the Consumption of Citrus Fruits, Don Francisco. 2 p. m.—Top-working Citrus Orchards: Should It Be Done, and How?, J. Eliot Coit; Performance of Old Top-worked Lemon Orchards, Everett Henry; Lemon Packing Houses and Packing House Methods, Frank L. Williams.

FREEZING CITRUS PESTS

In a comprehensive article in the "Florida Buggist," W. W. Yothers tells of the effects of the February 2-4, 1917, freeze on citrus pests. The citrus bearing sections are divided into three zones, based uopn temperature records of the United States weather bureau. It is necessary for us to consider only zone one for the reason that only in that zone were pests like the white fly practically exterminated.

"In the first zone, comprising the citrus producing counties of Putnam, Volusia and Marion, with parts of Lake and Orange, in which the temperature varied from 15 to 20 degrees Fahrenheit, there was practically complete defoliation of all citrus trees, many pomelo trees were killed to the ground and oranges were killed back to within four to eight feet of the ground. While the citrus white fly survives on privet in the temperatures of North Carolina, and the recent cold wave did not injure this species in Florida, the defoliation of the citrus trees resulted in reducing the number in many places and localities to the point of almost complete extermination, particularly in zone one. The cloudy winged white fly, which infests only citrus and is found largely on pomelo, was destroyed only in proportion to the extent of the defoliation. The purple scale was almost exterminated in the counties of zone one, but the eggs were not sufficiently frozen to keep them from hatching. The red scale on camphor (Chrysomphalus aonidum) was injured in all stages except the eggs by the frost, and not one insect in 10,000 or more survived."

ONE-TREE ORCHARDS

Commercial growers of citrus trees report an increasing demand for trees bearing two or more varieties of fruits for use principally in city and village backyards. The strongest call in the past has been for a tree carrying three standard varieties such as a branch each of Navel orange, Marsh pomelo, and Eureka lemon. But the demand for greater variety is so strong that one may get them on various combinations up to six varieties on one tree and all seem to thrive. In fact there is a record tree in Los Angeles County that has been top-worked until it bears 22 named varieties, all the owner could find. These standard six-in-one now on the market are most interesting for students of plant life to watch in their development and also provide a wide variety of good citrus fruits.

GIRDLING TO PRODUCE FRUIT

The highest yield per acre will probably be gathered from an orangery where the trees were all girdled with wire during the last flowering season. If this crop can be taken as an average result to be obtained from either girdling or cincturing the Navel orange, and the health of the tree is not impaired by the practice, heavier yields of Navels can be looked for. This question opens up a fairly large field for experiment, as one cannot place much reliance upon one year's results.—Fruit World of Australasia.

GLENN COUNTY FARM BUREAU MEETINGS

Ord, February 2; Lake, February 3; Bayliss, February 4; Westside, February 7; Orland, February 9; Jacinto, February 11; Codora, February 14; Capay, February 16; Plaza, February 18; Willows, February 21; Grapevine, February 23; Larkin, February 25; board of directors, February 26; Elk Creek, February 28.

A bill has been introduced seeking to declare firms engaged in the production, refining or handling of oil and oil products a public utility and subject to regulation.

TOP-DRESSING TALK No. 6

Does It Pay to Top-Dress Grain?

"Considering the state as a whole, it (the College of Agriculture) feels reasonably safe in saying that by the use of 100 pounds of *Sulphate of Ammonia*, an increase can be made of 6 bushels of wheat or 10 bushels of barley per acre, provided it is applied to land adapted through climatic and soil conditions to the crop in question." (*Professor Thomas Forsyth Hunt in California Circular No. 169.*)

ARCADIAN
Sulphate of Ammonia

Arcadian Sulphate of Ammonia is the safest and most economical carrier of nitrogen for California soils. In addition to supplying quickly available nitrogen in a non-leaching form it supplies an abundance of sulphur, a plant food element often lacking in California soils. It is *"The Great American Ammoniate."*

Sulphate of Ammonia is the well-known standard article that has done you good service in your mixed fertilizers for years past.

Arcadian is the kiln-dried and screened grade, made fine and dry for top-dressing purposes. Ammonia 25¼ per cent guaranteed. Made in U. S. A.

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For information as to application write Desk No. 5

The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.

Why you should plant the Proven strain

Everything depends upon the QUALITY of the seeds you plant. Germain's PROVEN Hairy Peruvian Alfalfa Seed is pedigreed, carefully tested, true-to-type and specially treated for quick and easy germination.

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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

BOLTON ORCHARD HEATER

Are you helping to pay the $75,000,000 toll taken from the growers of the country annually by Jack Frost? The Bolton Heater is

The Safest Means of Frost Prevention

Don't experiment with makeshift methods. Bolton Orchard Heaters are sure. They maintain the temperature, distribute the heat uniformly, and prevent frost damage.

Send for Booklet B-2

Tells you all about frost prevention. Filled with valuable information for the grower.

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Eureka Lemon Marsh Seedless Grapefruit
Exchange Buds

100,000 Florida Sour Stock Orange Seedlings
Absolutely Clean of All Scale

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T. J. Walker Nurseries

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When Writing Advertisers Mention California Cultivator.

ANTELOPE VALLEY PEAR GROWERS MEET

On January 28 the pear growers of the valley held a very interesting meeting, with a varied program, touching all phases of farming in that section. W. S. Rosecrans, secretary of the Los Angeles farm bureau, spoke on the subject of the farm bureau and the fruit grower, showing the value of the agricultural extension service. Rodent control in the valley was dealt with by L. S. Neville of the Los Angeles County horticultural commission. A talk and demonstration of fire trailer equipment was given by a representative of the county forester's office. Farm Advisor Hodgson made a talk on the technique of orchard spraying, which was followed by a field demonstration of spray materials, power spray outfits, spray guns, nozzles, etc., representatives of several commercial houses in Los Angeles taking part.

A printed schedule for Antelope Valley pear orchards was distributed. For dormant spraying in early spring at first signs of cluster buds swelling, spray with lime-sulphur one to ten, for scab and blister mite. If latter is absent use Bordeaux mixture 4-4-50. For the first codlin moth: As petals are falling, spray with lime-sulphur, three gallons, water to make 100 gallons, one-half pint black leaf 40, and either six pounds of basic lead arsenate paste or three pounds of basic lead arsenate powder, for blister mite, scab, thrips and codlin moth. If red spider is present, use instead of lime-sulphur, five pounds milled sulphur or ten pounds atomic sulphur to 100 gallons watter. For second codlin moth: repeat 20 to 30 days later.

CITRUS CROP FOR 1921

The Riverside Press estimate of the coming crop shows a grand total of 53,000 carloads of citrus fruit from the state. This is divided as follows:

	Oranges	Lem.
Southern California	39,500	8,700
Central California	4,300	200
Northern California	300	.....
Total for state	44,100	8,900

The various districts of Southern California, according to the detailed estimates, will produce and ship from the various sections as follows:

	Oranges	Lem.
Pomona district	4000	300
Orange district	3500	1000
Riverside district	3500	400
Azusa-Glendora district	3500	250
Ontario district	3100	1025
Redlands	3000	.....
Anaheim	3000	.....
Covina	2000	.....
Highland	1900	125
Whittier district	1650	850
Placentia	1500	100
San Dimas	1400	700
La Verne	1200	100
Rialto-Bloomington-Colton	1150	60
Fullerton	900	.....
Corona	800	725
Ventura County	700	900
Alhambra district	600	.....
Duarte-Monrovia	600	.....
La Habra	400	350
San Fernando	300	400
San Diego County	240	900
Moreno	185	.....
Hemet	100	.....
Santa Barbara County	.....	400
Other localities	275	115
Totals	39,500	8,700

The estimates have all been made on the basis of full carloads which are running now about 462 boxes to the car. Where the estimates were sent in on the basis of 400 boxes to the car, they have been refigured on the full car basis.

STRAWBERRY ROOT WEEVIL

In reply to telegraphic inquiry concerning the areas in Oregon infested with strawberry root weevil and the possibility of the Oregon authorities certifying to point of origin of strawberry plants shipped from Oregon into California, the following telegram was received November 10 from President Charles A. Park of the Oregon board of horticulture:

No strawberry infestation south of line running east and west through town of McMinnville. Anything south of this line may be passed with safety. Shipments can be certified as originating in non-infested area.

In view of the impracticability of inspecting with assurance of safety strawberry plants from the infested area, and considering the value of the strawberry plantings in California, the director of agriculture has signed Quarantine Regulation No. 8, which is now in full force and effect.

PLANNING AND PLANTING A VINEYARD: PHYLLOXERA

(Continued from Page 163.)

France and in this state, that it is possible to kill both the insect and its eggs without injury to the vine, if they are immersed in hot water, held constantly at 125 degrees Fahrenheit for a period of from three to five minutes. This method of disinfection is now generally accepted as satisfactory, and most of the nurserymen and large growers of rooted vines are using it on all the vines they are offering for sale. This work to be effective must be done under careful supervision, and such supervision is given by the county horticultural officials. After the dipping has been completed to avoid possible danger these officials are adopting a system of sealing each bundle of vines or each shipment which guarantees that the vines so sealed have been disinfected in the proper manner. So far as it goes, this method is satisfactory, but it is still up to the prospective grower to insist upon disinfected vines, as there are thousands of vines grown as a side line in all parts of the state which may be transported by automobile or truck from one district to another. The horticultural officials are almost powerless to check this movement without the hearty cooperation of all persons in the county or district over which they have jurisdiction, and it is

Figures of Interest to the Growers of Canning Fruits

The pack of canned fruits in the State of California measured in cases during the past several years was as follows:

1909 to 1913 (Average)	4,083,465 cases
1914	5,968,875 cases
1915	5,731,166 cases
1916	7,021,975 cases
1917	9,995,145 cases
1918	8,943,737 cases
1919	13,696,403 cases
1920	11,382,863 cases

In other words, we have a production from 250 to 300 per cent greater than before the war.

Prominent canners estimate that 6,500,000 cases of the 1920 remain in cannery warehouses and that 5,000,000 cases are unsold today. In an effort to move these tremendous surpluses substantial reductions in prices have been made which in the face of the highest prices ever paid for fruit and sugar means that the canners are absorbing heavy losses. Even with these reductions in prices it is doubtful if all these canned fruits will be out of the way before the next fruit season, even though export markets should be opened.

Production of Fruit is Increasing
Construction of New Plants has Stopped

The situation calls for concerted action by the growers of canning fruits. Co-operative Marketing alone will solve the problem of distribution of our increasing production. Heroic efforts are necessary and action must be taken immediately to avoid disaster this coming year.

Our organization furnishes the nucleus for this co-operative effort to retrieve one of California's greatest industries from a most dangerous situation.

Write us at once, addressing the Organization Department, Box G, San Jose

CALIFORNIA CO-OPERATIVE CANNERIES

Owned and Operated by the Growers of California

Main Office, San Jose, Cal.

120-2

SIMPLE METHOD OF SMOKING MEAT

By L. D. Johnson

In a few minutes anyone can smoke a season's supply of meat without bother or loss. The secret is in using Wright's Smoke, which may be applied quickly, easily and cheaply with brush or cloth. Wright's Smoke is made of smoke from selected hickory and gives a delicious flavor. It saves 20 pounds out of every 100 by preventing shrinkage. If you want delicious smoked meat at less cost and less trouble, get a bottle of Wright's Smoke from your druggist today—big bottle $1.25. For sugar-curing meats you can do away with the trouble of mixing the ingredients and save time and money by using Wright's Ham Pickle, which contains all the necessary ingredients in proper proportions. Simply mix a bottle with 27 pounds of salt, which will cure a barrel of meat.

Get these genuine, guaranteed Wright Food Products from your dealer. If he can't supply you, write E. H. Wright Co., 839 Broadway, Kansas City, Mo., for free booklet.

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plainly the duty of everyone to advise the proper officials if they learn of the movement of rooted vines which they have reason to believe have not been properly disinfected.

In the meantime the horticultural officials are giving this question a great deal of thought and it is probable that before another season rolls around a system of inspection or some method of disinfection will be perfected which will eliminate all of the chances of anything getting by. Until that time these facts are worthy of the very serious consideration of every grower, and particularly those who are developing acreage in the so-called new districts.

Light Soils Do Not Guarantee Immunity

Before drawing this article to a close it might well be mentioned that, contrary to the popular opinion that phylloxera will only be found in the heavier types of soil, it has recently been found in quite sandy soils, so that it is now believed that no soil is entirely exempt. It is true, however, that the spread is much more rapid in the heavy soils, and probably the infestation is more serious to the vines. The only really safe way is not to take chances. Either be sure to plant rooted vines which have been disinfected or use cuttings.

MOTOR TRUCK AND TRANSPORTATION

(Continued from Page 165.)

the members operating dairies while others raise truck or general crops for the city markets. There is but one railroad which serves the district. Prior to the appearance of the commercial motor truck the farmer hauled his product by team to the railroad or to Baltimore. For the farmers living off the railroad this often meant the loss of a team and driver for at least half a day. Where the trip was made to Baltimore it required at least two days' time for the round trip. Several years ago some of the more enterprising farmers of the district bought trucks which they used to haul their supplies to Baltimore, but the average small grower could not afford to do this. Then a young truck owner established a commercial route, picking up milk and farm produce along the road and hauling it to Baltimore. This was more or less of a success, but when he attempted to raise his rates the farmers of the neighborhood got together and organized a cooperative corporation under the name already referred to. Each incorporator took stock in the concern, and the affairs of the corporation are managed by a board of directors.

The association operates several trucks, of two ton and four ton capacity, in charge of an experienced operator. An extra man goes along to do the loading. As the sole purpose of the service is to handle the products of the members without any return of profit the rates are changed from time to time, as experience shows they exceed or are less than the operating costs. A schedule has been prepared to cover the cost of transporting various kinds of freight, and milk takes a certain rate, apples another, etc. A surplus fund is kept by the association to cover replacement charges and extraordinary demands, and proper accounts are kept of all expenses of operation. Loading platforms, the same height as the floor of the truck, have been built along the route, to which the members bring their products, and these are picked up and delivered to their destination. The association maintains its own garage and repair shop where the trucks are overhauled after each trip.

The association has found that not only is it possible to haul their products at rates lower than paid in the past, but the service rendered is superior to that given by the railroad, as they escape the congestion often existing in express or freight shipments, and the loss of milk cans and containers has practically been eliminated. Under old conditions the annual loss from this source was considerable.

The coming years will undoubtedly see a great development in our motor transportation, for the field is a big one and presents opportunities alike to the individual farmer, the commercial truck operator and to the cooperative association.

Where Can You Find a Greater Opportunity Than This?

A Most Favorably Situated Tract for Walnut Growing, With Aqueduct Water, to be Sold in Acre Units and Developed as a Whole.

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Everyone knows that Walnut Land is scarce and valuable. There are only a few places in the world where climate conditions make growing of walnuts possible. The demand is increasing, indicating good, steady prices for the crops. The famous San Fernando Valley is one of the places where Nature has made it possible, in certain sections, for walnuts to be grown successfully.

Walnut groves soon come into bearing and thereafter, if properly cared for, yield big incomes on comparatively small investments.

I am going to develop and bring into bearing one of the highest class walnut orchards in Southern California and am taking this opportunity of extending an invitation to all readers of the Cultivator, who would like to participate in the ownership of such a walnut grove, located in the San Fernando Valley, under the Thirty Million Dollar Los Angeles Aqueduct water system, on the State Highway, in a highly desirable walnut section, to join me.

I am going to plant this tract at once to the highest quality budded trees under the direct instruction of the Field Department of the Walnut Growers Association, and am offering to you an opportunity to purchase units of one acre or more in this grove which will grow into value and be cared for while you are continuing your present occupation.

We invite you to call or write and learn all about this proposition. See the land, the valuable groves beside it and get prices at which some bearing groves near this have sold.

If interested write for an appointment to look over the land and investigate the proposition. More than half of the units have been spoken for. I especially invite walnut grove owners to see the property as the value is easily apparent.

HENRY HARWOOD

Van Nuys, Cal. Telephone: 117 R 4

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February in the Ornamental Garden

Southern California

By Ernest Braunton

OF all months in the year February is the one best for planting, in either seeds, roots, bulbs or plants. It is the opening of the California spring. Buds are swelling or trees are blooming, bulbs are pushing up through the soil and all plant life except the tropical will be putting forth new growth. As nature will now manifest her activities and man may not stay them, we must keep up with natural processes and functions and garden with energy and enthusiasm. The laggard will fail of good results.

Rains have beaten the soil down hard, and if it is of heavy texture it should be well stirred and loosened, but only when it is dry enough so it will remain light and friable. Turn under liberal amounts of fertilizer and all fine small rubbish such as lawn clippings; heavier stuff may be composted or burned. As some pruning will be done, the clippings may be likewise disposed of. If rains still come, work up unused soil as soon as dry enough and leave in rough state until in condition to pulverize. It should not only catch, but hold, all rainfall, and yet be worked down smooth before the sun bakes it hard. In the pruning of ornamentals much material for propagation may be salvaged from the castaways.

Division and Multiplication

Get a box of sand or prepare a place in the garden where soil is lightest for a propagating bed. Do not shirk the proper preparation of such bed or failure will result. Drainage must be good and this may be assured only through deep digging so soil water may easily percolate below the zone of rooting cuttings, for permeation of air to the root zone is necessary to callusing and rooting. Cuttings of hardwood shrubs may be put in, such as crepe myrtle, deutzia, hydrangea, lemon verbena, lilac, philadelphus, snowball and weigelia. In cold sections a few put in rose cuttings, but late autumn brings better results. Rose cuttings should be shaded from sun for a month or six weeks and allowed to remain where rooted until next winter.

Many garden owners still divide carnations, chrysanthemums and violets, but all are best grown each year from cuttings, and now is the best time, though 'mums may be left until the latter part of the month. But golden rod, Golden Glow rudbeckia, larkspur, phlox and Shasta daisies are best divided and replanted. Some advocate division of German iris now, but it is the poorest time for it of all the year, September being a good month, for the roots then get an autumn growth which carries them safely through the winter. If disturbed now few blooms will be had and many roots will rot. After division of roots water well but once, unless weather is very warm, for a damp warm soil is preferable to a cold, wet one.

Sowing the Seeds

At this time of the year it would be more economical of space and paper to note what we should not sow than what with safety we may. All seeds of hardy or even half hardy annuals and perennials may now be sown; some of the resultant plants are autumn flowering. A few include asters in the list, but such early plants should be grown in partial shade or close to the cool or misty sea beach. But as many prefer a constructive program, the following list is timely: Acrolinum, allysum, antirrhinum (snapdragon), calendula, calliopsis, celosia (cockscomb), chrysanthemum (annual), cosmos, eschscholtzia (California poppy), gaillardia, larkspur, linum (flax), lupine, mignonette, nemophila (baby blue eyes and other species), nigella, pinks, poppies, salvia and sweet peas. In more tender plants sow in boxes in house or in warm sheltered spot: balsam, begonia, gloxinia, lobelia, pyrethrum (golden feather, etc.), scabiosa, salpiglossis, salvia (tender species), torrenia, petunia and verbena.

Bulbs and Tubers

Many sorts of bulbs of the early classes may still be sown with assurance of good results, though it is a little late for tulips. As the season is a backward one, all Dutch or Holland bulbs and those native to California still are dormant and should yield fine flower crops. Anemones, amaryllis, callas (several colors), daffodils and jonquils, narcissi), gladiolus, lilies (auratum, speciosum and natives of California), Japanese iris, ranunculus and tuberose are a few samples for February planting. Many now plant, outdoors, the following, but they are better held for the fourth week: Caladium (elephant's ear), canna, cyperus and papyrus. Tuberous rooted begonias are better started in pots or laid on moss kept constantly moistened, in a dark place, until planted about the first of March.

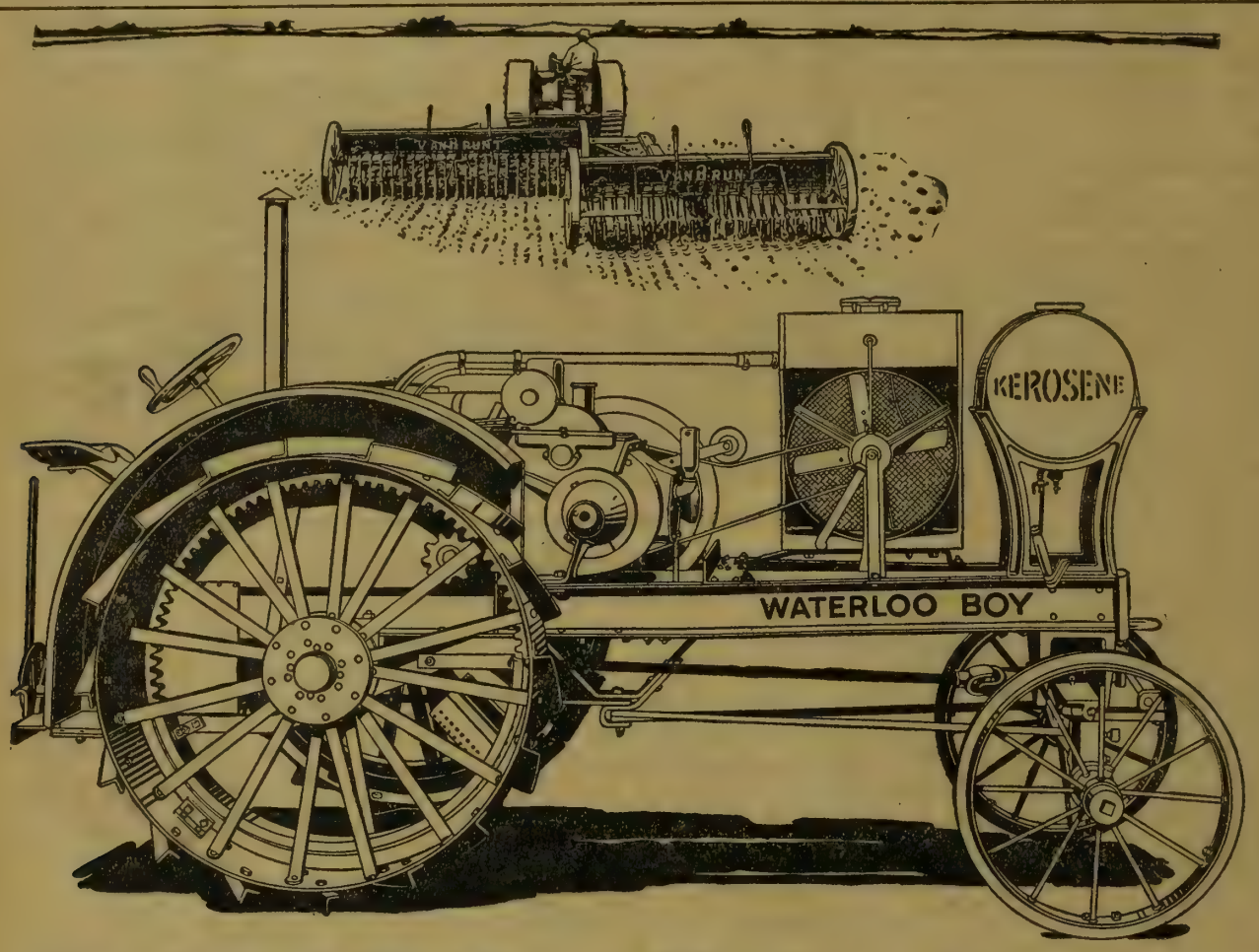
General Planting

Roses, bare root, balled, potted, or in other shape may now be put out; also light pruning of established bushes, but only to the extent of taking out weakly growths or mistletoe like heads. All deciduous trees and shrubs, including fruit trees and grape vines, do best in February plantings. Cypress, eucalyptus, Australian and South African trees and shrubs—all things of hardy type, including conifers or cone bearing trees, are better handled at this time, also palms if of good size, but small ones and tender species should be left for next month. The hardier dual purpose plants; feijoa or Paraguay guava, strawberry guava, sapote, are timely, but it is too early for subtropical stuff. There is no better time in all the year than the present for the fertilization of lawns.

Northern California

By A. R. Gould

THE time has arrived when we must make every preparation for a garden full of flowers, and after the very welcome rains we can look forward to a very successful season. It is very necessary that we put our gardens in order for planting. This means much trenching and manuring and if farmyard manure is used, well rotted material should be dug in. Bone meal and dried blood make excellent fertilizers. Lime should also be used where the ground is of a heavy nature. Lawns may be top dressed with dried blood and bone meal, also bulbs such as tulips, hyacinths and narcissus will be the better for any such assistance. Work it in the surface of the soil lightly and you will get larger flowers. Violets and lilies of the valley may be planted out this month in rich soil in some shady place. Roses



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THE makers of the Waterloo Boy Tractor do not consider it enough that their product is dependable and gives efficient service. They have built it into another feature which means much throughout the years of its profitable use. That feature is Waterloo Boy economy—not only in the use of fuel and oil, but for general up-keep and repairs.

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Back in 1914 Mr. E. F. Rowe, a farmer living near Hampton, Iowa, bought a Waterloo Boy Tractor. It was one of the earlier models put out by its builders. Its gears were not enclosed, its bearings were of the plain type—it lacked many of the improvements found on the present Waterloo Boy.

Mr. Rowe used his tractor for all his field operations and for most of his belt work. In checking up his expense last fall, he found that he had spent but approximately $5 for repairs during his six years of ownership. **Only $5 for repairs during six years of dependable, efficient, service.** And it is still going strong.

This is but one instance of Waterloo Boy economy. There are many, many others. Improvements on the present Waterloo Boy make it a great deal more economical than the one Mr. Rowe owns. The gears are now enclosed and run in oil, Hyatt roller bearings at all important points reduce friction and add to its long life. Every feature of construction makes for economical up-keep and operation.

Find out what a Waterloo Boy Tractor will do for you on your farm. Try it out. Your John Deere dealer will be glad to co-operate.

The Waterloo Boy Tractor and the John Deere No. 5 Tractor Plow make a reliable plowing outfit.

Write for a folder describing the Waterloo Boy fully. Also ask for Better Farm Implements, a 114-page book illustrating and describing the John Deere full line of farm tools. It's free. Address John Deere, Moline, Illinois, and ask for Package WB 76.

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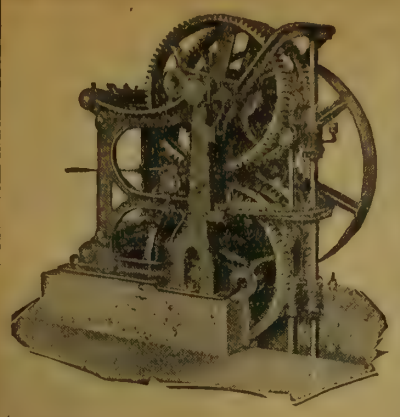

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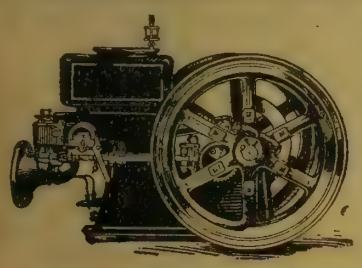

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should be pruned if this work has not been completed already.

Crysanthemums

Cuttings of these should be secured and inserted in sandy soil. Clumps may also be subdivided and replanted.

Annuals for a Bright Display

To obtain a quick showing there is nothing to equal the annuals, and you should lose no time in sowing seed in beds of well prepared soil of the following. Instructions will be given later for their care: Petunia, dwarf marigold, nemesia, calliopsis, ageratum, Godetia Schamini, Clarkia, zinnia, nigella, African marigold, phlox, dianthus, salpiglossis, schizanthus, linaria, linum, scabiosa, verbena, Nice stocks, lobelia and centaurea. This selection will keep your garden gay all summer.

Arbutus Unedo, "Strawberry Tree"

This very interesting tree, native to South Europe, has pretty white bell shaped flowers and red fruits somewhat like the strawberry, hence the popular name. It grows at least ten feet high and is very attractive. It should be more extensively planted. Order this now from your nurseryman and get it in your collection this season.

The Cutleaved Birch

There is nothing more beautiful than these trees with their graceful stems and silvery bark, especially the weeping type. This tree as a specimen on the lawn is ideal and a group of upright type of three or five with a planting of bulbs underneath, such as daffodils, will form a real picture for any garden.

Flowering Shrubs

These, carefully selected with a view to succession of flower, are essential features of the well planned garden. The following will give the desired effect: Berberis Darwinii, a beautiful shrub with yellow flowers of a drooping habit followed by bluish berries; Genista monosperma pendula, a very handsome white flowering shrub of a drooping nature; Chorizema ilicifolium, a charming shrub with orange colored pea shaped flowers in bloom early in the spring; Genista andreanus, with yellow and brown flowers, a free flowering shrub; Duranta plumieri, a very pretty shrub with pale blue flowers followed by bright yellow berries; Diosma ericoides, white flowering, covered with very small flowers and having fragrant foliage; cistus maculatus, of low spreading habit, white flowers with crimson spot; and Daphne, a favorite shrub, having white or pink flowers, very fragrant.

Conifers Worth Growing

Cupressus funebris, weeping type, very graceful; Cupressus glauca, blue cypress (both of these make fine specimens for the garden); Cryptomeria elegans, with fine feathery foliage. Thuya orientalis aurea, the golden arbor vitae, which will provide a charming color effect, planted in groups of three. Among the larger types we always include such trees as Cedrus deodara, C. atlantica glauca, Abies pinsapo, Sequoia sempervirens, S. gigantea, Pinus Coulterii, P. canariensis, P. ensignis and Sciadopytis verticillata, all of which are well worthy of a place in every garden of any size.

Useful Berried Shrubs

Crataegus yunnanensis, a recent introduction from China, Crateagus pyracantha, C. crenulata, Cotoneaster panosa, C. Francheti and C. microphylla, all have red or orange colored berries and should be planted in groups of three or six plants to secure the desired effect, and a bright display of berries when flowers are scarce. They thrive in any good garden soil. C. microphylla is useful for planting among the rocks or on sloping ground.

An appropriation of $250,000 will be asked by Assemblyman Chester M. Kline of Riverside County for the purchase of additional land, installation of water and construction of buildings for the proposed farm school to be located at Riverside.

$5000 SPRAYER

W. P. Clark, of Clark Monitor Orcharus, Wenatchee, Wash., says: $5000.00 could not buy my 'Friend' Sprayer if I could not get another."

Like all "Friend" users, he says a lot of other good things, too.

Of Course There is a Reason

Write to us stating the size of your orchard or grove and let us tell you more about these

True "Friend" Sprayers

The only low built, short turn, cut under, large wheel Sprayer made. Manufactured in four popular sizes.

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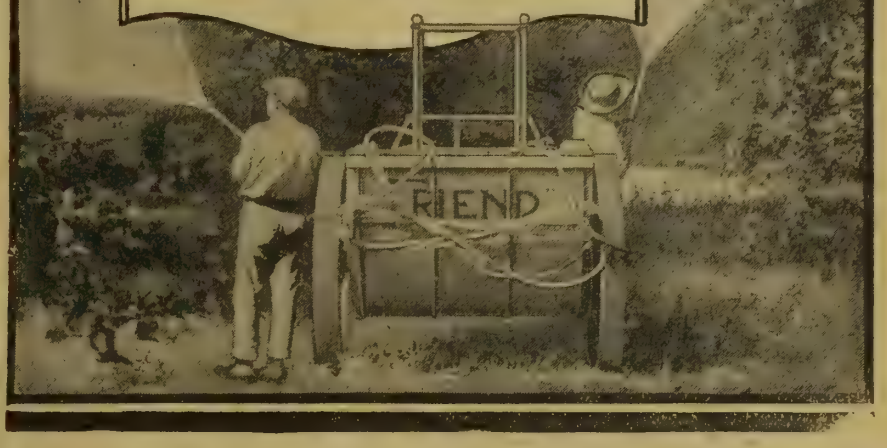

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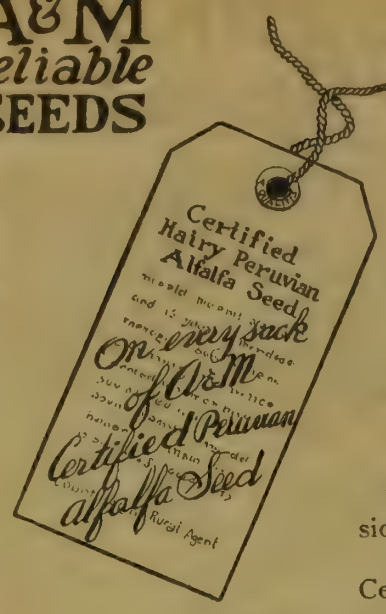

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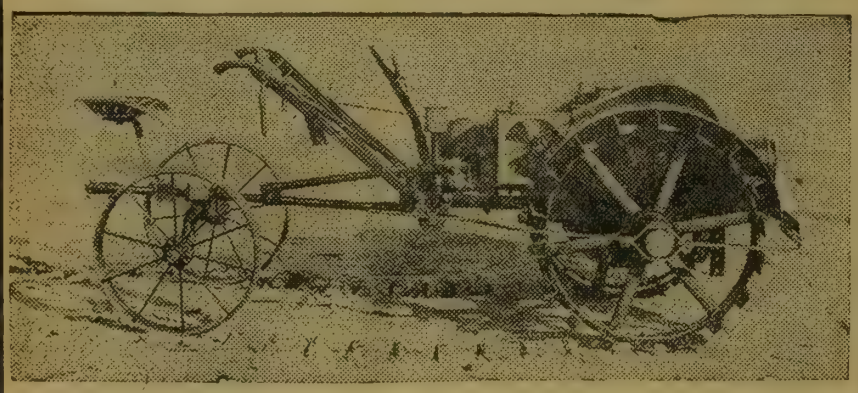

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Para-dichlorobenzine

A Cultivator subscriber, who is a druggist at Fairfax, writes regarding para-dichlorobenzine in effect that it has become quite an article of commerce and is known as what is called an intermediate in aniline manufacture. He says that it is quoted in New York in large quantities at 15 to 20 cents per pound, but is unable to inform us whether it is handled on the Coast.

Bitter Cream and Milk

Can you tell me why my cream turns bitter? I have a young cow who gives sweet milk, but the cream in two or three days gets a decided bitter taste. Cow is apparently healthy, feels well, eats well, looks well. She is fed good alfalfa hay, grain hay and mixed dairy feed. Cream does not sour.—Subscriber, Lancaster.

We refer the subscriber to an article written for the Cultivator by E. H. Hageman and used in the issue of May 1, 1920. It thoroughly discusses this matter of bitter flavor, which may be readily prevented by care in keeping out bacterial cultures, observation of cow's feed, condition of udder and possibly the advanced stage of the lactation period. On another page of this number we reprint "Causes for Bitter Flavor in Milk," written for the Cultivator of November 16, 1918, by S. L. Denning.

Planting Grapes and Figs

What is the right way to plant Thompson seedless grapes? Should they be planted to stretch wires east and west in order to get good results, or will they do just as well if wires are stretched north and south? I intend to plant ten acres Thompsons, five Malagas, five Muscats, and all around the land fig trees. Please advise how to plant and what are the best kinds of grapes and figs.—Subscriber, Fresno.

The usual way of planting Thompson Seedless grapes is to run the rows east and west. However, if it is easier to handle the vineyard with the rows north and south the difference in the growth and bearing, if any, will be very slight. On some vineyards the land will irrigate better and easier north and south, and in this case by all means run the rows that way. You may find a slight difference in the time it takes to dry the fruit, but even this point is in dispute among growers. As to the best varieties of grapes and figs to plant, you can probably make as good a guess as we can in this regard. A guess is the best we could do, and our guess is that your selections are good so far as the grapes go. As to the figs probably the White Adriatic will serve your purpose as well as any for a border tree.—F. K. H.

Seedling Walnuts

Would it be advisable to plant English walnut trees that come up from the seed? The mother tree was a seedling and a neighbor of mine has offered me about 25 of these young trees from one to three years old. Would I receive any benefit from these trees after they come in bearing?—Subscriber, Sacramento.

The probabilities are that these trees would hardly be worth planting. No commercial grower of walnuts is planting seedlings. They may or they may not be of value, so the grafted trees have entirely taken their place, and the grafted tree is usually on the native California Black stock. They are much hardier and give thriftier trees.

Nectarines

What is best variety of nectarines to plant in Sacramento section?—Subscriber, Sacramento.

The three commercial varieties usually planted in this state are Advance, Stanwick and Victoria. The first is a large green blotched with red, while the Stanwick has a pale skin, shaded slightly with violet. The Victoria is perhaps the more attractive marketing fruit, carrying a crimson color on the sunny side. The Advance ripens in July; the other two in August.

Pear Blight

I have just read in this week's issue of the Cultivator an inquiry about pear blight and your answer is, "No cure." I have had some experience that may help save the pear tree. It saved mine. I set out in my yard two Bartlett pear trees. They are five years old. The first year both trees made a fine growth with no blight. My neighbor's pear trees (large ones) suffered severely from blight. A friend called one day and the question of pear blight came up. He told me if I wanted to protect my trees from blight I could do it by burying some old iron around the tree. I had little faith in it but concluded I would try it on one tree. I dug in about two or three inches deep a half dozen pieces of old stovepipe. The second year this tree grew well and had no blight, while the one I put no iron under blighted so badly that I had to cut practically the whole top off. After I cut the top off I got a dozen old horseshoes and dug them in around this tree. The third year it grew a fine top and no blight. This last year neither tree had any blight and the one that lost its top three years ago had a heavy crop of the finest pears that grow. Feed your pear trees a little old iron and you may be surprised. Try it, and next fall report.—M. A. Packer, Riverside.

Sunburned Trees

I have some peach trees which are sunburned. Is there any remedy for it, or what could be done to help the trees out?—Subscriber, Turlock.

There is no remedy for the portion of the tree which has been burned other than to so treat it that borers and fungous disease will not secure entrance. The tree can be coated with Bordeaux or other fungicide and then all covered with whitewash which will prevent further burning. A simply made whitewash is: Quicklime, 5 pounds, salt ½ pound, sulphur ¼ pound. Slake lime slowly and add salt and sulphur while boiling. Finally add sufficient water to make consistency of cream.

Moving Olive Trees

I have some olive trees planted in a low piece of ground where the frost is so heavy that the trees have not grown well and the fruit is always injured before it is ripe enough to pick. I want to remove these trees but do not know the best way to do a good job of it. Any information you can give or get for me will be appreciated. —Inquirer.

We have seen olive trees 15 or 20 years old moved and ultimately make fine, thrifty trees in their new location. It calls for severe cutting back of the top, then, if possible to have derrick for the moving, take up with them sufficient ball earth that the nearby roots are preserved entire. Ability to do this depends upon nature of soil. Gravelly soil with many boulders makes it almost impossible. In any case, have hole sufficiently large ready before lifting the tree from its old location. As soon as placed in the new hole, preferably with same side to the south as in its original location, fill hole with dirt and water. Use sufficient water that the tree is settled into its new location without delay.

Liver Trouble in Rabbits

I have some small rabbits about three months old which have spotted livers. Do you think there is any harm in eating the rabbits if I throw away the liver?—Subscriber, Atwater.

As to spotted liver Townsend's "Practical Rabbit Keeping" suggests more green feed and more exercise but adds "Should the liver become diseased or chronic inflammation set in the rabbit had better be destroyed." "The Rabbit Book" by F. L. Washburn

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suggests perfect cleanliness of hutches and runs, a few drops of tincture of iron in drinking water, variety of green feed, plenty of exercise and fresh air with perfectly dry nest box. Prevention, however, is better than doctoring. Animals seriously infected should not be eaten and in case where stock dies it should be burned or buried very deeply with lime to prevent carrying infection to other animals.

Cows Fail to Breed

I wonder if you can tell me what is the matter with my cows and heifers this year, as I cannot get them with calf. At first thought it was the fault of the bull, but find out in talking with at least four of my neighbors that they are having the same trouble. They have their own bulls. The cows are in good shape and have free range to grass, bean straw, wheat and barley and are giving a good quantity of milk. Have never had any trouble with them before. Have a good stock book but can find nothing in it that seems to answer my case. One of our neighbors thinks it is contagious abortion but I can't see that it is from the description in the stock book. The cows come in heat at regular times but do not catch. One heifer has been bred over six different times and one cow that has never had to be bred more than once has been bred three different times. Hope very much that you can tell me what is the matter with the cows and if there is anything I can do for them.—Subscriber, Oceanside.

Questions very similar to this have been answered in former Cultivators, and never with entire satisfaction, for there are so many different conditions which may cause the trouble, but we quote from one answer given by Dr. Petrie to almost identically the same question as above:

"Cows that are nice and fat and get little exercise are apt to do just as yours are doing. Drive them several miles until they get well warmed up. Repeat this once a week until they come in heat and again just before breeding. Also give these powders; they may help some. Six ounces of powdered gentian, three ounces of powdered nux vomica, three ounces of the sulphate of iron and four ounces of good corn meal. Mix and divide into 20 powders and give one powder every day in a little feed. If they refuse to eat the feed with the medicine in it then put a powder in a bottle, add a cup of water, shake it up and give it as a drench."

A portion of Dr. Petrie's answer given in another issue is also quoted here:

"When cows first get tuberculosis they sometimes get fat and fail to breed, but because they are fat and fail to breed is no sign that they have tuberculosis. Do not breed for two or three months. Reduce flesh by feeding sparingly and put a teaspoon of sulphate of iron in the feed of each cow once a day for three weeks. Then when they come in heat drive them about ten miles to get well warmed up and after resting for an hour breed. This will often get the desired results. Also have them tested for tuberculosis."

Pruning Shade Trees

I have noticed in cities and along avenues that they sometimes prune Oriental planes and other trees as they do some plum trees, thinned out and cut back. Why?—Millard Sharpe.

Mr. Sharpe has asked a very pertinent question. However, it is one we can not answer. The pruning of shade trees is more liable to represent the slaughter of the innocents than any real horticultural procedure. The reason for the cutting is unexplainable. Too many growers of shade trees have an idea that pruning is essential and so something has to be cut off. Trees along a sidewalk must be pruned in order to save bonnets and temper, but even there a great saving of the real beauty of the trees could be secured by narrowing the paved and traversed portion of the street and making much wider parking, and then letting the trees branch out from the ground until large husky trunks are secured.

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FROM the very first, Allis-Chalmers recognized that the severe strains of farm duty require more than just a "power plant on wheels." And so this company—for over a half century builder of only high-grade machinery—set its vast resources and one of the world's foremost engineering staffs at work to build a super-tractor. That was seven years ago.

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Carefully—and under the supervision of engineers who have built the machinery for some of the largest factories in the world—the first Allis-Chalmers tractor was designed. But Allis-Chalmers was not satisfied.

In quantities of only five at a time, tractors were produced for testing in the field. Performance was watched—a careful check-up made on costs. Points of weakness were made points of strength. But still production was delayed!

Finally a limited number of Allis-Chalmers 18-30's were released. Would they stand the punishments of service? Would they uphold the quality traditions of this 65-year-old company? This was the final test—and the verdict of the farmer was awaited.

That seven years of engineering effort and the expenditure of $3,000,000 were justified is best proved by the fact that not a single A-C 18-30 owner made complaint.

Today, Allis-Chalmers tractors are perfected — this $42,500,000 company has reached the point for which it has striven for seven years. Now, with one of the largest manufacturing organizations in the world, Allis-Chalmers goes into volume production.

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EVERY construction unit of the 18-30 reflects Allis-Chalmers ideals. Frameless construction and flexible three-point suspension relieve the 18-30 of all strains, even in the roughest going; air entering the carburetor is first washed—freed of every particle of dirt and dust; an oversize fin-and-tube type radiator prevents overheating, even in warmest weather.

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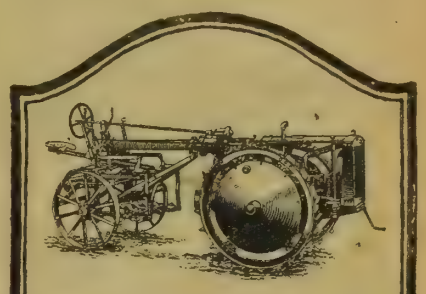

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FOR orchard work, where space is at a premium, here is just the tractor the fruit grower wants. This Allis-Chalmers 6-12 delivers a constant drawbar pull of 1,000 pounds. Tractor wheels are the guide wheels—wheels of implement form rear sustaining member. Both tractor and implement are under one-man control. For belt work, too, the 6-12 is unusually adaptable. "Line-up" to machine to be driven is a simple, easy operation.

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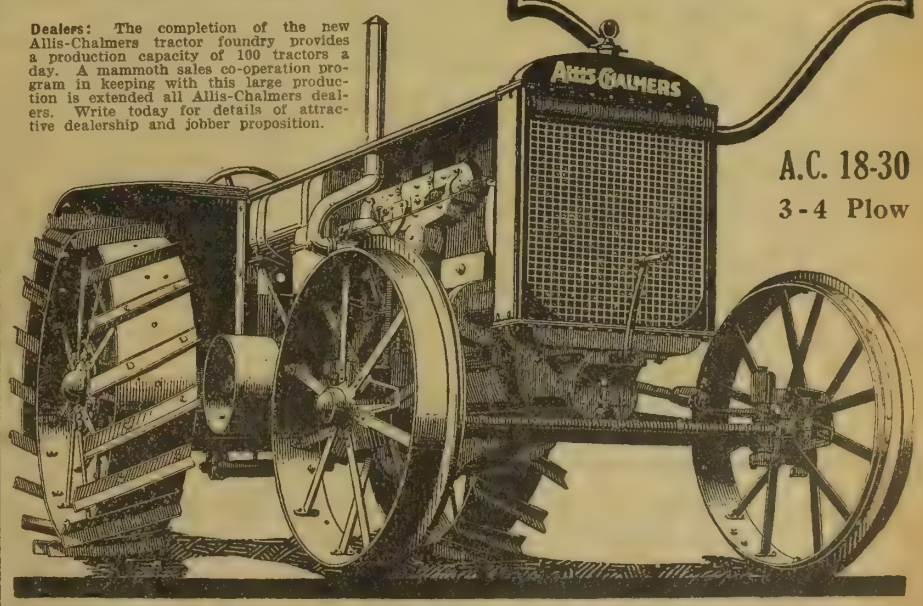

A.C. 18-30
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Watch ALLIS-CHALMERS this Year

Household Department

McGUFFEY'S ECLECTIC FIFTH READER

Schoolboys and girls of other days, say of half or two-thirds of a century ago, may recall McGuffey's Eclectic Pictorial Primer, and so on up to his Eclectic Fifth Reader and Rhetorical Guide, "A Rhetorical Reading Book for the Highest Classes." As running mates may be recalled Ray's Arithmetic, Parts I, II, and III, which were the third of the great trio, the three R's.

Memories of the old log schoolhouse came back the other day and I wrote to Sister, back at the old homestead, and asked as to some of the old school books, and by return mail there came a copy of tattered old McGuffey's Fifth Reader. This was the old edition of 1853, the one which was printed long before the Sixth Reader came into being, and printed, in fact, many years before my school days. The old book bears the marks of age and of hard usage. Part First is devoted to the principles of elocution and touches upon articulation, inflection, accent, gesture—but why refer to it at all, for it will come back quickly to school-boys and girls of those days who happen to notice the poem or the selection filling the place of the story on this page this week. Some of the elder subscribers of the Cultivator have requested the reprinting of some of these old school book stories. We hope the first installment will renew memories of other days.—M.

LORD ULLIN'S DAUGHTER

A chieftain to the Highlands bound
Cries, "Boatman, do not tarry!
And I'll give thee a silver pound
To row us o'er the ferry."

"Now, who be ye would cross Loch Gyle
This dark and stormy water?"
"Oh, I'm the chief of Ulva's isle,
And this, Lord Ullin's daughter."

"And fast before her father's men
Three days we've fled together,
For should he find us in the glen
My blood would stain the heather.

"His horsemen hard behind us ride;
Should they our steps discover,
Then who will cheer my bonny bride
When they have slain her lover?"

Out spake the hardy Highland wight,
"I'll go, my chief, I'm ready:
It is not for your silver bright,
But for your winsome lady.

"And, by my word; the bonny bird
In danger shall not tarry;
So, though the waves are raging white,
I'll row you o'er the ferry."

By this, the storm grew loud apace,
The water wraith was shrieking;
And in the scowl of heaven each face
Grew dark as they were speaking.

But still, as wilder grew the wind
And as the night grew drearer,
Adown the glen rode armed men,
Their trampling sounded nearer.

"O haste thee, haste!" the lady cries,
"Though tempests round us gather;
I'll meet the raging of the skies,
But not an angry father."

The boat has left the stormy land,
A stormy sea before her,
When oh! too strong for human hand,
The tempest gathered o'er her.

And still they rowed, amid the roar
Of waters fast prevailing;
Lord Ullin reached that fatal shore,
His wrath was changed to wailing.

For sore dismayed, through storm and shade
His child he did discover;
One lovely hand she stretched for aid,
And one was round her lover.

"Come back! come back!" he cried in grief,
"Across this stormy water;
And I'll forgive your Highland chief,
My daughter! oh, my daughter!

'Twas vain: the loud waves lashed the shore,
Return or aid preventing.
The waters wild went o'er his child,
And he was left lamenting.

—Campbell.

THE TOURNAMENT

By Walter Scott

THE music of the challengers breathed from time to time in wild bursts, expressive of triumph or defiance, while the clowns grudged a holiday which seemed to pass away in inactivity; and old knights and nobles lamented the decay of martial spirit and spoke of the triumphs of their younger days. Prince John began to talk to his attendants about making ready the banquet and the necessity of adjudging the prize to Brian de Bois-Guilbert, who had with a single spear overthrown two knights and foiled a third.

At length, as the music of the challengers concluded one of those long and high flourishes with which they had broken the silence of the lists, it was answered by a solitary trumpet, which breathed a note of defiance from the northern extremity. All eyes were turned to see the new champion which these sounds announced, and no sooner were the barriers opened than he paced into the lists.

As far as could be judged of a man sheathed in armor, the new adventurer did not greatly exceed the middle size, and seemed to be rather slender than strongly made. His suit of armor was formed of steel, richly inlaid with gold, and the device on his shield was a young oak tree pulled up by the roots, with the single word "Disinherited." He was mounted on a gallant black horse, and as he passed through the lists he gracefully saluted the prince and the ladies by lowering his lance. The dexterity with which he managed his steed and something of youthful grace which he displayed in his manner, won him the favor of the multitude, which some of the lower classes expressed by calling out, "Touch Ralph de Vipont's

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Calumet Baking Powder will save you all of that. Because when you use it—there are no failures—no losses. Every baking is sweet and palatable—and stays moist, tender and delicious to the last tasty bite.

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½ cup of butter, 1½ cups granulated sugar, 2½ cups flour, 1 cup water, 2 level teaspoons Calumet Baking Powder, 1 teaspoon lemon, yolks of 9 eggs. Then mix in the regular way.

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This big new building is filled with the same New York styles, the same goods exactly, offered at the same prices exactly, as our New York House.

The only difference is that Kansas City is 1,350 miles nearer to you who live in these States. Your letter travels 1,350 miles less and your order travels 1,350 miles less than it formerly did when you ordered from New York.

So if you live in one of the States listed below, write to our Kansas City house for your copy of the "NATIONAL" Style Book. It is exactly the same as the New York Book, the same goods, the same prices—the same styles and qualities.

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Texas	*Arkansas*	*Nevada*
Washington	*Oregon*	*California*

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Silk Taffeta Dresses last Spring were from $21.98 to $54.50. This Spring's prices are from $11.98 to $25.00.

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These are but a few examples of the many "NATIONAL" new prices you should know, no matter where you buy. The "NATIONAL" Money-Saving Style Book is filled with just such prices—and always it is the standard, it tells you how much you should pay for whatever you buy.

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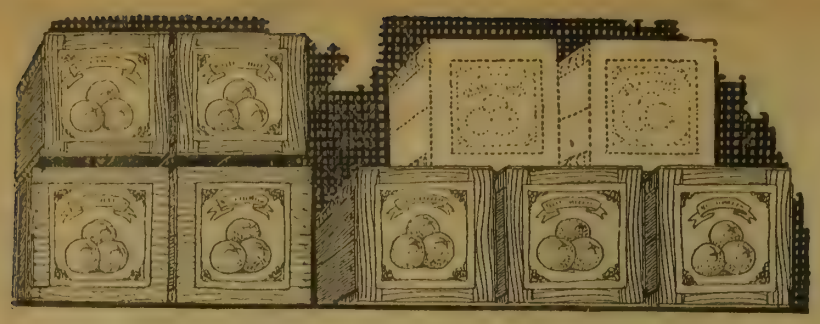

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NITRATE OF SODA

will bring forth the "phantom crop." Its use on a California orchard increased the yield by 89 boxes of Oranges per acre.

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Chilean Nitrate Commission

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shield, touch the Hospitaller's shield; he has the least sure seat; he is your cheapest bargain."

The champion, moving onward amid the well meant hints, ascended the platform by the sloping alley which led to it from the lists, and, to the astonishment of all present, riding straight up to the central pavilion, struck with the sharp end of his spear the shield of Brian de Bois-Guilbert until it rang again. All stood astonished at his presumption, but none more so than the redoubted knight whom he had thus defied to mortal combat, and who, little expecting so rude a challenge, was standing carelessly at the door of his pavilion.

"Have you confessed yourself, brother?" said the Templar, Guilbert, "and have you heard mass this morning, that you peril your life so frankly?" "I am fitter to meet death than thou art," answered the Disinherited Knight, for by this name the stranger had recorded himself in the book of the tourney. "Then take your place in the lists," said De Bois-Guilbert, "and look your last upon the sun, for this night thou shalt sleep in paradise." "Gramercy for thy courtesy," replied the Disinherited Knight, "and to requite it, I advise thee to take a fresh horse and a new lance, for, by my honor, you will need both."

Having expressed himself thus confidently, he reined his horse backward down the slope which he had ascended, and compelled him in the same manner to move backward through the lists till he reached the northern extremity, where he remained stationary in expectation of his antagonist. This feat of horsemanship again attracted the applause of the multitude.

However incensed at his adversary for the precaution which he recommended, the Templar did not neglect his advice, for his honor was too nearly concerned to permit his neglecting any means which might insure victory over his presumptuous opponent. He changed his horse for a proved and fresh one of great strength and spirit. He chose a new and tough spear, lest the wood of the former might have been strained in the previous encounters he had sustained. Lastly, he laid aside his shield, which had received some little damage, and received another from his squires.

When the two champions stood opposed to each other at the two extremities of the lists, the public expectation was strained to the highest pitch. Few augured the possibility that the encounter could terminate well for the Disinherited Knight, yet his courage and gallantry secured the general good wishes of the spectators. The trumpets had no sooner given the signal than the champions vanished from their posts with the speed of lightning and closed in the center of the lists with the shock of a thunderbolt. The lances burst into shivers up to the very grasp, and it seemed at the moment that both knights had fallen, for the shock had made each horse recoil backward upon its haunches. The address of the riders recovered their steeds by the use of the bridle and spur, and having glared at each other for an instant with eyes that seemed to flash fire through the bars of their visors, each retired to the extremity of the lists and received a fresh lance from the attendants.

A loud shout from the spectators, waving of scarfs and handkerchiefs and general acclamation attested the interest taken in the encounter. But no sooner had the knights resumed their stations than the clamor of applause was hushed into a silence so deep and so dead that it seemed the multitude were afraid to breathe. A few minutes' pause having been allowed that the combatants and their horses might recover breath, the trumpets again sounded the onset. The champions a second time sprang from their stations and met in the center of the lists with the same speed, the same dexterity, the same violence, but not the same equal fortune as before.

In the second encounter the Templar aimed at the center of his antagonist's shield and struck it so fairly and forcibly that his spear went to shivers and the Disinherited Knight reeled in his saddle. On the other hand, the champion had in the beginning of his career directed the point of his lance toward Bois-Guilbert's shield, but changing his aim almost in the moment of encounter, he addressed to the helmet, a mark more difficult to hit, but which, if attained, rendered the shock more irresistible. Fair and true he hit the Templar on the visor, where his lance's point kept hold of the bars. Yet even at this disadvantage Bois-Guilbert sustained his high reputation, and had not the girths of his saddle burst he might not have been unhorsed. As it chanced, however, saddle, horse and man rolled on the ground under a cloud of dust.

To extricate himself from the stirrups and fallen steed was to the Templar scarce the work of a moment, and stung with madness, both at his disgrace and the acclamations by which it was hailed by the spectators, he drew his sword and waved it in defiance of his conqueror. The Disinherited Knight sprang from his steed and also unsheathed his sword. The marshals of the field, however, spurred their horses between them and reminded them that the laws of that tournament did not on the present occasion permit this species of encounter, but that to the "Disinherited Knight" the meed of victory was fairly and honorably awarded.—Walter Scott.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Three Owners

Three persons purchased 150 acres of unsurveyed land. One chose the 50 acres he desired, started in plowing and sowed barley at various spots throughout the 150 acres. Another did considerable work throughout the land. The land is to be divided into three equal parts of 50 acres each. How can it be divided and to whom belong the crops?—Subscriber, Glenn.

The solution of that problem depends very largely upon the contract of purchase. If the three parties bought the land with the view of purchasing in common and with the subsequent idea of dividing among them, they were tenants in common of the land. Each one had the right of possession of all the land. In that respect it would be in the nature of partners, and the profits, less the expenses, would be divided up among the three. On the other hand, the rule would prevail that where a person voluntarily enters upon someone else's land and makes improvements there, those improvements belong to the owner of the land and he would have his work for nothing. The case depends so much upon the exact agreement between the parties that no more definite answer could be given.

Will Made in Canada

Several years ago I drew up a will in Canada. I have since moved to California. Is this will good in case of death? Does a will do away with any court proceeding? — Subscriber, Exeter.

If the will is executed and acknowledged in accordance with the laws of the state of California it matters not where it was originally drawn. In order to be a valid will in respect to transfer of real property it must be valid according to the laws where that real property is situated. In order to be valid in respect to the passage of personal property a will must be valid according to the laws of the domicile of the testator at the time of death. A will does not do away with the necessity of administration of the estate, but the will must be probated, and the court thereafter decrees that the property be distributed in accordance with the terms of the will.

Horses on Highway

Two horses were in pasture next to public road. They knocked the fence down, strayed into the road where they were struck by an automobile and were so injured that it was necessary to kill them. The automobile was also damaged. Who can collect damages?—Subscriber, Escondido.

The motor vehicle act provides that no person owning or controlling the possession of any horse or other livestock shall voluntarily or negligently permit such animal to stray upon or remain unaccompanied by a herder or other person in charge or control thereof upon a public highway either side of which is bounded by property which is separated by such highway, by a fence, sidewalk or building, or shall permit any portion of the tether to which the animal is attached to lie across or on the highway, and no person shall allow such animals to pass upon a highway between sunset or sunrise without herders on duty, so as to keep the road open and also to keep red lanterns burning. As to the owner of the horses, it will, therefore, be a question as to whether the breaking of the fence or failure to repair the fence was negligent. As to the liability of the owner of the automobile, that would be a question of whether he was negligent in failing to see or taking pains to avoid the animals.

Manure on Leased Land

I leased an alfalfa ranch for a year. The ranch was sold to a third party during the lease. Can the third party hold the manure made by livestock during the year providing nothing is said in lease on this subject?—Subscriber, Hughson.

It is the general rule that manure made by a tenant upon a leased farm is, in the absence of special agreement to the contrary, the property of the lessor and belongs to the farm as an incident necessary for its improvement and cultivation; and a tenant has no right to remove it from the premises or place it to any other use.

Lighting Company Trespassing

Some years ago an electric lighting company during my absence placed its poles and ran its wires across my property without my consent. Afterwards I placed an objection at their office. Would they acquire permanent right of way? What steps should be taken to avoid the acquisition of such right?—Subscriber, Santa Ana.

A permanent right of way may undoubtedly be acquired if the pole line is permitted to remain upon the property for a long period of time with the knowledge and acquiescence of the owner of the property. If the poles and wires were recently placed thereon, you could undoubtedly tear them down and remove them as in the case of any other trespass, but now your safest way to do would be to bring an action in trespass against the company.

School Attendance Compulsory

Does the law require a boy 15 years of age, graduated from the grammar school, to go to high school?—Subscriber, San Jacinto.

Under the act to enforce the educational rights of children it is provided that each parent having the control or charge of any child between the ages of eight and 16 years shall be required to send such child to a public ful time day school for the full time for which the public schools of the district in which the child resides shall be in session. There are a number of exemptions therefrom, such as physical and mental disability, residence of more than two miles' distance from schoolhouse, children receiving instruction from private schools or from private tutors, and those who hold a high school certificate. Where children are not exempted, the parent or the one having control of the child may be subject to fine of not less than $50 nor more than $200 or imprisonment in the county jail for not exceeding 60 days. Those persons exempted must have issued to them a certificate for their exemption, generally by the county superintendent of schools. The details of the exemptions are quite extensive.

See The Eleventh National
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10 to 12 feet, 12 to 15 feet
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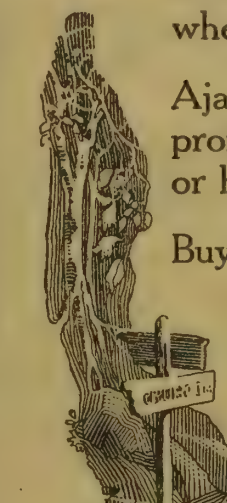

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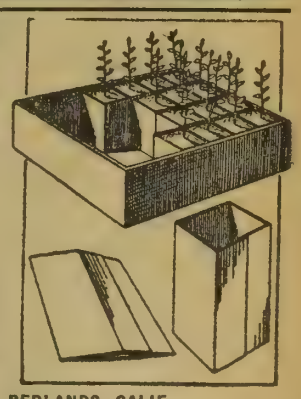

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STATE DAIRY COW COMPETITION

HE new dairy cow competition held under the supervison of Prof. F. W. Woll of the college of agriculture, University of California, is getting a good headway. The records for December, which are just out, show the remarkable average production of 1,412 pounds of milk and 55.25 pounds of butter for the 144 cows in milk during the month. Southern California cows are more numerous than in former contests and are showing up excellently.

	Name	Breed	Age	Lbs. Milk	Pct.	Lbs. Butterfat
1.	Ventura	Gr. H.	5	1,975	5.00	98.65
2.	Marken Louise	H.	5	3,068	3.21	98.47
3.	Peg	Gr. J.	4	2,241	4.10	91.88
4.	Sarcastc Dora	H.	9	2.241	3.86	86.49
5.	651	Gr. H.	....	2,226	3.77	83.92
6.	Rose	Gr. Sh.	....	1,996	4.20	83.83
7.	Anoakia Pont. Gel. Wal.	H.	3	2,417	3.46	83.63
8.	Mutual De K. Johanna	H.	7	2,195	3.79	83.17
9.	Tomie	Gr. H.	4	2,275	3.60	81.90
10.	Sunland Peerless T. K.	H.	10	2,565	2.90	81.55
11.	May Altoana Pont.	H.	6	1,881	4.25	79.93
12.	Heilo Bess K. S.	H.	7	2,942	2.67	78.54
13.	Mabel Aouda	H.	8	2,501	3.11	77.77
14.	Spot	Gr. H.	....	2,331	3.20	74.59
15.	Zampa A. L. 2d	H.	7	2,413	3.08	74.32
16.	Princess	Gr. H.	3	1,945	3.80	73.91
17.	Blue Bell	Gr. H.	9	1,737	4.20	72.94
18.	Raleigh's Peggy M.	J.	....	1,161	6.27	72.76
19.	Anoakia Alcartra	H.	4	2,024	3.56	72.06
20.	786	Gr. H.	....	2,984	3.45	71.90

The reports for December so far received show that 144 cows in milk during the whole month produced an average of 1,412 pounds of milk and 55.25 pounds of butter fat, equivalent to about 65 pounds of commercial butter. The total production of these 144 cows amounted to nearly 8,000 pounds butterfat, worth at the present low price of butter over $4.600, or an average return of about $32.50 per cow for the butterfat only for the month. The list includes pure breds of the main dairy breeds and a large proportion of grades, all of which have the characteristic of being high producing cows.

The largest production of butterfat for the month was made by the grade cow Ventura, owned by Los Angeles County Farm, viz., 1,973.9 pounds milk and 98.65 pounds butterfat (average per cent, 5), her production being slightly higher than that of the pure bred Holstein, Marken Louise, owned by Anita M. Baldwin, Santa Anita (3,068 pounds milk, 98.47 pounds butterfat, average test 3.21 per cent). It would more than treble the returns from our dairies and be worth at least $100,000,000 annually to the state if, through some miracle, all the dairy cows of the state could be made to yield a similar production as these two cows.

The 20 highest record cows for the month of December:

Owners of cows: 1, 10, 16, 17, Los Angeles Country Farm, Hondo; 2, 7, 8, 11, 13, 19, Anita M. Baldwin, Santa Anita; 3, 6, 9, 14, Earl Graham, Compton; 4, Edwards Bros., Ripon; 5, 20, Napa State Hospital, Napa; 12, 15, Burr Farm, Los Angeles; 18, H. G. Gross, Eureka.

The California Cultivator prize for December was won by Earl Graham of Compton, for an average production of 75.96 pounds of butterfat by five grades. Other groups of grades eligible for this prize produced on the average as follows: Grades owned by Napa State Hospital, 71.47 pounds; F. F. Pellissier, 63.17 pounds; C. E. Fisher, 46.01 pounds; J. M. Christen, 47.91 pounds.

Cows may still be entered in the state dairy cow competition, entries closing next April 1. Information concerning the competition, rules, prizes offered, etc., as well as entry blanks, will be furnished upon application to F. W. Woll, Superintendent of Dairy Tests, University Farm, Davis.

THE SIGN OF

Duroc Satisfaction

EVERY SOW GUARANTEED
Safe With Pig or Your Money
Will Be Cheerfully Refunded

Fred Lewis, owner of Diamond Bar Ranch, is determined to have every sow that leaves this ranch make a friend and a satisfied customer of the purchaser. His guarantee in the catalogue for the February 16th sale assures you of a safe investment.

BRED SOW SALE
Wednesday, February 16, 1921

19 bred sows, real big type Durocs, sired by such popular boars as Pathfinder, Orion Sensation, Great Model, Creator and Critic D, bred to Ace of Pathfinders, the greatest son of the mighty Pathfinder, Mammoth Sensation, Jr., a giant among big type Durocs and Diamond Sensation, an outstanding son of great Orion Sensation, out of a Pathfinder dam.

The Chance of a Lifetime

14 bred gilts out of those wonderful sows we brought from the East last winter. 26 of these great brood sows cost us an average of $2,000.00 a head. Never have so many of the breed's greatest sows been brought together in one herd. Daughters of these famous sows *sell at your own price.*

Buy Sows
Buy Duroc-Jersey Sows
Buy Diamond Bar Duroc-Jersey Sows

I do not think there was ever a more conscientious effort on the part of a breeder to help the hog industry than the Diamond Bar Ranch is making here. Do not fail to profit by it.
JACK KLEIN.

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Catalogue

MARIN COUNTY DAIRYMEN AWAKE

At the recent Petaluma calf club sale Marin County dairymen took home ten of the 18 pure breds offered. They did such live bidding that Sonoma County dairymen could not keep the pace. Amongst the buyers were A. J. Gambonini of Marshall, who bought Valdessa Fayne Pontiac for $700, the topper of the sale; M. T. Freitas, San Rafael, Sir Veeman Korndyke Duchess Lad and King Paul Marmion; U. Garsoli, Bolinas, King Pearl Inka; O. L. Shafter Estate, Inverness, Sir Skylark Wayne; C. McConnell, Inverness, Winsome Veeman, whose dam has made 503.56 pounds butter in 222 days of this year's test; Thos. B. Roy and son, Ralph Roy, San Geronimo, Sunshine Farm Laddie; J. H. Rogers, Nicasio, Beauty's Laddie; F. Lonzi, Nicasio, Peggy of Elkhorn; F. R. Cummings, San Rafael, pure bred Ayrshire.

Of late years Marin County has dropped to sixth place as a dairying county in California, but it looks as if the tide had turned and it will not be long, at the rate she is coming back, before she will assume her old position near the lead. The county was active in the purchase of pure bred stock at the farm bureau bull sale held in Petaluma in September, but came back stronger than ever on Wednesday.

The county put in a farm adviser early last fall, Farm Adviser Boissevain, who acted as clerk at the sale.

STOCKMEN'S WEEK

Convention of livestock breeders of California at University Farm, Davis, February 22-25.

Meeting California Cattlemen, Zone 2.

Meeting and sale Pacific Coast Hereford Breeders Association.

Meeting and sale California Shorthorn Breeders Association.

Meeting California Aberdeen-Angus Breeders Association.

Meeting California Jersey Breeders Association.

Meeting California Holstein-Friesian Association.

Meeting California Swine Breeders Association.

Meeting and sale California Poland-China Breeders Association.

Meeting and sale California Duroc-Jersey Breeders Association.

CAREFUL BREEDING INCREASES PRODUCTION OF GOATS' MILK

Milk goat experiments in grading up from native and grade Toggenburg and Saanen does with pure bred Swiss bucks, begun in 1911, were continued last year by the United States department of agriculture at the government experiment farm at Beltsville, Maryland. The flock comprises 26 does and eight kids of one-half, three-fourths, seven-eighths and fifteen-sixteenths blood. The average daily milk yield per doe in 1919 was 3.92 pounds, an increase of 2.42 pounds over the

yield of the ten selected native does which formed the foundation stock of the herd. The highest milk yield for an individual doe in one day is 8.6 pounds. For 1919 the flock showed an average of 3.7 per cent butter fat.

THE HOPE OF LIVESTOCK BREEDERS

By Frank D. Tomson

Anyone who was in attendance at various fairs and livestock shows during the fall and early winter months could not fail to observe the increased numbers and improvement in standards of pure bred exhibits. This is a most encouraging fact when it is considered that such a large number were beginners in the show phase of the business.

The largest collection of Shorthorns ever displayed in the United States was exhibited at Chicago. The Shorthorn display at the Pacific International at Portland exceeded 325 head, a display that would have made a most creditable showing at the Chicago International without the addition of any others. All through the Intermountain and Coast states, through the corn belt and Eastern and Southern states there was a large increase in the Shorthorn exhibits and a decided improvement in the standards represented.

This is all in the line of progress and plays its useful part at this time when there is such an imperative need of better types, in order to insure to the ranchman, the farmer and the dairyman adequate returns. This matter of standards and types is a serious issue now. Every change that takes place in the business situation relating to production emphasizes the importance of the use of the kind of livestock that will produce the greatest amount of beef and yield the largest amount of milk at the least expense of feed, labor and maintenance. These extra pounds and quality which the pure bred standard provides embraces often all of the profit that gets back into the producer's bank account.

There is a cooperative effort embracing all breeds that is in the interests of the ordinary farmer and ranchman to a greater extent probably than he realizes, and it can be said to the credit of the farmers and ranchmen that they have come to recognize the practical value of the improved standards resulting from the use and concentration of pure breeding. Never have we known such a general, favorable inclination to employ the purebred sire and the pure bred female as the surest means for increasing the yields of beef and milk, mutton and pork, as exists at this time. The livestock producers in the range countries and all through the corn belt have sustained their share of the shrinkage in values, a shrinkage that is applying to every line of commercial activity. The industry will be sustained and strengthened by changing from the standards of the old days to the better standards that are provided by the more extensive use of pure breds. There is admittedly a great future for the producer, but his main reliance must be with the more responsive types which good breeding alone provides.

THE FLAVOR OF MUTTON AND LAMB

There is a characteristic taste in cooked mutton and lamb which distinguishes it from other kinds of meat. This flavor is produced by the chemical contents of the fat and probably by their changes during the process of cooking. It is quite common to hear the taste of lamb and mutton spoken of as the "woolly flavor." Many regard this to be due to the wool coming in contact with the flesh. Tests have been made to determine the exact cause of the flavor, but as yet no definite conclusions have been reached.

The following experiments have been conducted to show whether or not certain factors were responsible for the flavor:

The meat was brought in contact with wool; gas was permitted to generate in the intestines before the entrails were removed; the external layer of muscles was removed from portions of the carcass; at various intervals tests were conducted on different portions of the same carcass and carefully checked; comparisons were made of the meat of sheep and lambs of different ages and experiments were conducted with meat of the wool and mutton breeds with regard to texture and flavor. None of the above experiments demonstrated to any degree of certainty that the taste of mutton and lamb was due to unnatural causes.

INSECTS AND HOG CHOLERA

Work of the bureau of animal industry shows that both the house fly and stable fly are capable of carrying hog cholera for short periods under certain conditions, thus suggesting the desirability of securing more data on this subject, and especially to determine if some insect might be responsible for the appearance of cholera at various points sometimes far removed from known cases of the disease. Later experiments, conducted by the federal bureau of entomology, were carried out with the house fly, stable fly, and Simulium. The first two species gave positive transmissions in a number of instances, the results on the whole agreeing closely with those previously obtained by the bureau of animal industry.

THE BREEDING OF THE SOW

A properly fed gilt comes in heat at the age of seven to eight months and regularly thereafter every three weeks. The only deviation from this rule would be caused by sickness throwing the animal out of balance. A properly kept sow comes in heat as regularly as clockwork every three weeks. Once a sow or gilt has come in heat and been bred it is a very easy matter to tell when she will come in heat after farrowing. If she is bred on a Wednesday, she will always be ready to breed on a Wednesday or some multiple of a three week period. For example: A sow goes about 16 weeks (three months, 3 weeks, 3 days, or 112 to 116 days) between breeding and farrowing. If she then suckles the pigs six or seven weeks she will come in heat exactly 24 weeks after being bred and next time 27 weeks, and so on. If she has been allowed to run down while nursing the pigs she may not come in heat for a month or more after the pigs are weaned, but when she does come in heat it will be on a multiple of a three week period from the date she was bred last. All that is necessary is to mark down the date and day of week of breeding and then count up 24 or 27 weeks from that date, and if the sow has been properly fed and is not sick she can be taken to the boar. There is just one reliable way of telling whether a sow is in heat or not. Owing to the peculiar shape of the boar's genital organ a sow's genital parts have to swell up, and this swelling starts from three to four days before the sow is ready for the boar. While the swelling lasts for about seven days—coming three, going three and stationary one day in the middle—only on this day, that is to say, for about 24 to 36 hours, will she take the boar. The swelling is quite noticeable and the parts have to be large and soft, which they will be at the proper time. —J. G. French.

Mammoth Dispersal Sale

Falfadale Farm Durocs

We Will Sell Two of the Greatest Duroc Boars in the West

Great Orion Sensation Junior

Grand Champion at Tulare, Los Angeles and Riverside. A son of the world's greatest sire and show boar, Great Orion Sensation, and himself a sire of show winners, including Miss Defender Sensation, 1st at Sacramento in class of 72 and junior champion at Riverside.

Orion Pathfinder

By Ace of Pathfinders and Out of J. P. Walker's $1500 Creator Sow

Thursday, Feb. 17

40 Bred Sows and Gilts

Daughters of Pathfinder, Winsor's Giant Orion, Grand Model 8th, Orion King Gano, and Pathfinder's Likeness.

Sale will be under cover at the Farm. Write for catalog and do not fail to attend.

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B. H. Wilkinson, Mgr. Col. G. W. Bell, Auctioneer

AI DUROC RANCH J.P. WALKER The Home of Quality

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CREATORS ORIONS
DEFENDERS

This is the blood you need to insure your success. Superb breeding stock to suit your purse and purpose.
Visitors Welcome. Correspondence Invited.
J. P. WALKER, Visalia, Calif.

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VALUABLE BREEDERS
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Three Top Boars

Fannie's Orion King assisted by Uneeda Orion B, 2nd prize aged boar at State Fair, 1920, and grand champion at Glenn County Fair, 1919, and Valley View's Sensation, 3rd prize junior boar pig and litter mate to 1st prize and reserve champion at State Fair, 1920, and a wonderful string of prize winning sows and gilts, including Miss Sensation, 1st sow pig and reserve champion at State Fair

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19---Registered Holsteins---19 40---Grade Holsteins---40

at the Rhoades & Rhoades Sales Pavilion at Hynes

Tuesday, February 15th, at 10 A.M.

On account of closing out his entire dairy herd, the owner, Mr. R. Zangl, will offer 19 head of choice Holstein females. Among them will be found daughters of such famous sires as

COLANTHA SIR AAGGIE
TOYON SEGIS FERNDALE
TIDY ABBEKERK PRINCE
FINDERNE SOLDENE VALDESSA
KING PONTIAC TOPSY
SIR ORMSBY HENGERVELD
STAR YOUTH KORNDYKE WAYNE
KING SEGIS DE KOL MEADE

A large number of these females have very creditable A. R. O. records in both the 7 day and yearly divisions. They are all large cows with plenty of capacity and are real producers from a standpoint of milk production.

A SON OF PRINCE GELSCHE WALKER out of a 20.86 lb. cow whose sire was out of Aralia De Kol and his dam out of Miss Blaney.

SENSATIONAL

King Paul Korndyke Vale will be sold. He is out of a 31.42 lb. cow whose sire, Sir Sadie Cornucopia, was from the first 30 lb. cow of the breed, Sadie Vale Concordia. The sire, King Korndyke Sadie Vale, has a 40 lb. daughter, a 40 lb. sister and a 41 lb. dam who in turn is out of Sadie Vale Concordia. This is one of the highest record sires in the West and will make some fortunate purchaser a mint of money. Come to the sale and buy him.

The grade cattle are an exceptionally good lot of producers, all being either just fresh or heavy springers.

For Full Information Write

RHOADES & RHOADES, Auctioneers

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Bassett, Ross and Crawshaw Sale

Hanford, Cal. Tuesday, Feb. 15th, 1921

Sale at 10 A.M.

20 High Class Percherons at Auction
2 Aged Stallions
2 Four Year Old Stallions
10 Mares 6 Geldings

All well broken and matched teams from 3 to 5 years old. The best lot of young draft horses to be sold in the state.

25 choice Poland China gilts, sired by Big Tim, King's Tim, King's Gerstdale, Some Price and Giant Bob. Bred to California Sensation, Western Rainbow, The Comet, Buster's Wonder and a choice son of Surprise Prospect. Your opportunity to purchase some of the best gilts in the state at your price. Remember the sale starts at 10 a. m.

Bassett, Ross and Crawshaw

Hanford, Cal.

Col. G. W. Bell, Auctioneer

F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows

HARVEY'S CHOICE
Grand Champion Boar at Los Angeles, 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair

SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale

A. E. Harvey, Manager Redlands, Cal.

The Fifth Public Sale of SHORTHORNS

Under the Auspices of

California Shorthorn Breeders Association

Will be Held at

The University Farm, Davis, California

Tuesday, February 22, 1921

A Very Choice Selection of Cattle Has Been Listed for This Sale

50 Bulls — SHORTHORNS — 25 Heifers

Following is List of Consignors to this Sale:

Ormondale Ranch, Portola Valley
Roselawn Stock Farm (Henry M. Elberg), Woodland
Thos. T. Miller, Hollister
Jack London Ranch, Glen Ellen
L. N. Pabst, Cedarville
R. T. McGurk, Stockton
A. L. Klopping, Underwood, Iowa
University Farm, Davis
Brighton Farm (E. H. Murphy), Perkins
Blackhawk Ranch (Easton & Ward), Diablo
San Julien Ranch (Thos. B. Dibblee Est.), Lompoc
W. M. Carruthers, Live Oak
Fair Oaks Ranch (W. T. Chapple), Willits
Straloch Farm (C. Harold Hopkins), Woodland
Howard Vaughn, Dixon
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California Shorthorn Breeders Association

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O.U.R. Hampshire Swine

Ortega-Underhill-Rancho

Thos. T. Dinsmore, Mgr., Santa Barbara, Cal.

Italian Vineyard Company Big Type Berkshires

The long, deep, big-boned kind that matures rapidly and makes pork quickly. We can supply breeding stock of either sex and have some very special bargains for new breeders and farmers.

All animals tuberculin tested and cholera immune.

Alex. M. Wilson, Supt. **Guasti, Cal.**

Sows and Gilts---GET ONE

Bred to farrow next two months. We are making an extremely low price on these to reduce our herd. At the price we won't keep them long. Write today. Quick, before they are all gone.

H. P. Slocum, Willows, Cal.

Veramont Herefords

Headed by Patrician 5th and Don Woodford 5th. If in need of a herd bull, study the get of Patrician 5th. His sons topped the last two Association sales.

There's a Reason

Heavy-boned, blocky range bulls and a carload of purebred, unregistered cows for sale. See our consignment to the February sale.

H. M. Barngrover **Santa Clara, Cal.**

The Greatest Duroc Boar of His Age! Choice Wonder 3d

Senior and grand champion boar of California. A consistent winner in the show ring, having been a winner as a junior pig at the Iowa state fair in 1919. He is siring a high class of young stuff and is being mated to a class of sows that will breed on.

Write for Prices. Satisfaction assured.

JUNE ACRES STOCK FARM **V. F. Dolcini, Davis, Cal.**

Attention Duroc Breeders

I am offering for sale Golden Cherry 264101, my two year old boar by Great Model and out of the great sow, Cherry Blossom. Here is a pioneer sire and real herd header. Also have a few young boars and gilts for sale. Prices reasonable.

C. E. BORDEN

P. O. Box 51 Oceanside, Cal.

THE C. C. ELLIS DUROC SALE

The initial sale of bred Duroc-Jersey sows held at Tulare, by C. C. Ellis of Exeter, on Saturday, January 29, hardly brought as high an average as most of those present expected. The offering was of high quality and was presented in prime condition.

The top sow, Waukeen Prospect, was bought by Johnny Glusing, Winton, and P. E. Mitchell at $235. Frank Guerin, Tulare, and P. Van De Pol, Ripon, were two of the heaviest buyers and bidders.

Fifty-six head sold for an average of $55 per head, a very good average considering the large number sold.

Col. Geo. Bell, Tulare, on the block and John Davis, Manteca, in the ring worked hard and got every dollar possible for the offering.

DETAILED PROGRAM OF STOCKMEN'S WEEK

At Davis, February 22-25 In Next Issue.

However, the farmers and pork raisers hardly seem to realize the opportunity they are overlooking in not taking advantage of the low price of grain and the solid pork market.

Thirty head were sold at an average price of $63 per head, a price low enough for any one to stock up with the assurance of making a profit out of the transaction. The top price was paid for No. 2, Arenal Blossom. She went to W. H. Ricker, Glendora, at $300. Lot 9, Cardinal's Model Queen, sold to the J. G. Jackson Estate, Sacramento, for $225. The balance brought nominal prices. J. P. Walker, Visalia, bought eight choice gilts at bargain prices. Wm. Snowden, Los Angeles; E. Wing, Three Rivers; Geo. Stobie, Farmersville, were all heavy buyers.

Col. Geo. W. Bell, Tulare, was in good form and did the selling in a high class manner.

DIAMOND BAR SALE

February 16 is going to be another big day in Duroc history in California for it is the date set for the Diamond Bar Ranch sale. Last year the Diamond Bar sale set a record for attendance and average price that will probably stand unbroken for a long time.

When Fred Lewis went into Durocs he did so because he was convinced they are the best hog for his conditions. Having chosen the best breed he spared no expense to found a herd that would be second to none in America.

Mr. Lewis equipped the Diamond Bar with buildings and mechanical appliances which allow a great number of hogs to be fed and cared for easily and cheaply. He insists that the pigs he culled very closely and only the few best individuals he sold as breeders. He maintains a show herd which has been very successful, because he believes that if his animals win it not only helps the Diamond Bar but also the breeders throughout the country who have Diamond Bar stock. He is advertising extensively in this country and in Mexico and South America in an attempt to draw trade to the Diamond Bar and to the other Duroc breeders of the state.

California is the logical leader in the livestock industry, and a concerted effort of the Duroc breeders will do wonders in bringing about the desired results. His motto is "Satisfied Customers."

The Diamond Bar must be seen to be appreciated. The big sale of bred sows and gilts is held on Wednesday, February 16. This will be a wonderful opportunity to visit this great breeding establishment and meet the man who planned the Diamond Bar Ranch in all its details, also see the uniformly good individuals being produced out of this wonderful foundation stock.

FALFADALE DISPERSAL SALE

Through conditions not the fault of anyone it has been deemed necessary to disperse the fine herd of Durocs at the Falfadale Ranch at Perris. This herd includes the great boar, Great Orion Sensation Junior, who was a winner in all the shows last fall. His

Great Orion Sensation Junior

get were also right up in the money at all times. He is the finest boar ever sold at auction in the West and the man who gets him will be lucky indeed. Practically all of the sows in the sale are safe in pig to this grand champion boar, and some wonderful litters should result. The sale will be under cover at the farm near Perris on Thursday, February 17. You should plan to attend.

THE LES McCRACKEN DISPERSAL SALE

The dispersal sale of Poland China sows by Les McCracken, Ripon, Monday, January 24, marked the closing out of one of the largest herds in the West. A large crowd was present, in fact the largest crowd of breeders that has attended any hog sale this winter. The grand champion boar, King's Big Bone Leader, one of the most remarkable boars of his age in the country, was bought by H. I. Marsh, Modesto, at $360.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Herefords
February 23, Pacific Coast Hereford Breeders Association, Davis.

Holsteins
February 5, W. A. Thompson, Hynes.
March 17, Holstein Guaranty Sale, Sacramento.

Shorthorns
February 22, California Shorthorn Breeders Association, University Farm, Davis.

Hampshires
February 8, Ortega-Underhill Ranch, Santa Barbara.

Poland Chinas
February 15, Bassett, Ross & Crawshaw, Hanford.
February 26, Kings County Poland China Breeders Association, Hanford.

Durocs
February 5, California Duroc-Jersey Breeders Association, Davis.
February 5, Harvey M. Berglund & Boyd Harold, Dixon.
February 16, Diamond Bar Ranch, Spadra.
February 17, Falfadale Farm, Perris.

Percheron Horses
February 17, M. Bassett, Hanford.

A number of exceptionally good official records have recently been completed in the herd of registered Holsteins at Sycamore Acres, owned by Robt. N. Clapp, Nuevo. Rossmaines May Korndyke, a junior two year old daughter of King Pontiac Netherland Segis 3d and out of a daughter of Prince Gelsche Walker Korndyke, made 21.12 pounds butter in seven days and 80.78 pounds in 30 days. Rosamaines Pontiac Gold Drop, a senior two year old daughter of King Pontiac Netherland Segis 3d, and out of the noted producing and breeding cow Locust Terrace Gold Drop, made 24.31 pounds butter from 591.3 pounds milk in seven days and 96.38 pounds butter from 2,386.6 pounds milk in 30 days. Stanislaus Piebe Laura Pontiac, a granddaughter of King Pontiac Netherland Segis, made 32.82 pounds butter from 512.7 pounds milk in seven days as a senior four year old. Two other members of the herd made over 21 pounds butter each in seven days, and in the entire milking herd at Sycamore Acres there are only two females with records below 20 pounds and both of these will shortly freshen and be placed on test again

California Breeders

have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

California Breeders Sales & Pedigree Company

C. L. Hughes, Sales Mgr. Sacramento, Cal

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HAIRY PERUVIAN

Buy Direct From Source of Supply

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Before the Seed Crop Had been Harvested

Not until then was it possible to have every bag of seed CERTIFIED, TAGGED and SEALED by this same official or one of his assistants under his direct supervision.

This is the Seed You Buy From Us and Our Price is Reasonable Too

$32.00 per Hundred lbs., f.o.b., Yuma, Ariz.

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Send Your Order by Wire Collect

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References: First Nat. Bank, Yuma, Ariz.; Yuma Nat. Bank, Yuma, Ariz.

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To Be From Certified Fields

Recleaned, Inspected, Certified, Sealed, Tagged under direction of County Agriculturist. This Is Your Positive, Real Protection.

Carefully Selected Seed Direct From Grower To You From Its Original Home In The United States.

Hairy Peruvian **Delivered** At Your Station 32c per Pound. Inferior Grades At Less Price. Why Pay More?

Also handle Smooth Peruvian and Common.

Quantity Prices, Information, Samples Upon Request.

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Therefore Our Experience Is Valuable To You

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The cheapest and best power that any farmer can use. Shire mares will raise as good a colt when working as when idle. Breed your mares to Shire stallions, the young stock will make you a very good profit. For information on Shires write:
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Prize Winning Berkshire Gilt

WILL FARROW IN MARCH

She won two firsts, one second, and one fourth, at recent fairs. Cheap.

Gardiner Blackman
Inglewood Cal.

Wonderful Show Prospect

Fifteen months old registered Jersey heifer. $225 if taken at once. Bought her to show this fall but must move.

Gardiner Blackman
Inglewood Cal.

For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

D. G. Cummins & Son
Route 1 Visalia, Cal.

When Writing Advertisers Mention California Cultivator.

Guernsey Females

Our herd reduction sale still continues and there is a lot of fine Imported and A. R. cows with high production records and show ring honors left to be sold. We are also offering the choicest lot of young stock ever in one herd in the West. A number of bulls of all ages from the above sired by King of Hollow-Hill and Effie's King.

Also 30 head of females 15/16 Guernsey that will make wonderful family cows.

All T. B. tested and guaranteed breeders.

Everything Priced Reasonably.

Hollow-Hill Farm

Colton, California

Rhoades & Rhoades

Expert Livestock Auctioneers

Col. Ben A. Rhoades **Harold B. Rhoades**

Sales conducted in all parts of California and adjoining States

REG. DAIRY CATTLE

REG. BEEF CATTLE

We conduct sales of grade dairy cattle and general farm sales in all sections of California. Absolute satisfaction guaranteed. Forty years of successful sales in California and thousands of satisfied customers.

A completely equipped Stockyard and Sales pavilion maintained at Hynes, California.

Write, phone or wire for dates and terms.

RHOADES & RHOADES

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Maxwell Farms' Holsteins

Sir Ormsby Skylark
Sire of the World's Champion Cow

The fountain head of the Ormsbys with over 50 daughters of Sir Ormsby Skylark in the herd which has two sons of Sir Pietertje Ormsby Mercedes at its head. Write for our sales catalog of service bulls.

D. G. Maxwell, Owner

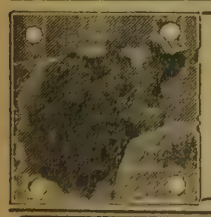
Garden Court, Hollywood, Cal.

Home of King Korndyke Pontiac Mead

Bargains In Bull Calves from Tested Dams.
Top Herd in U. S. for Fat Production of 100 Cows.

LOS ANGELES COUNTY FARM HOLSTEINS
HONDO, CALIFORNIA

Three Miles South of Downey on Downey-Long Beach Blvd.



CHANGE IN RULES

No animal over two years of age will be accepted for registry in the American Shorthorn Herd Book after February 1, 1921, or in the case of animals imported from Great Britian or Canada two years after date of importation. After January 1, 1921 a fee of $5 will be charged for entering the pedigree of an animal between one and two years of age. Formerly the charge was $10. Seller must furnish transfer and pay transfer fee. Twin animals must be entered for registry at the same time.

AMERICAN SHORTHORN BREEDERS' ASSOCIATION
13 Dexter Park Avenue Chicago, Ill.

MERRITT-BOWERS COMPANY, Tagus Ranch, Tulare, California

have just got in two carloads of registered Shorthorns and Hereford bulls, and have a large assortment of draft stallions of all breeds, work horses and mules, as well as Mammoth Jacks, Duroc-Jersey Hogs and Poland China Hogs for sale, with a guarantee on every animal.

When Writing Advertisers Mention California Cultivator.

The first four daughters of Sir Aaggie De Kol Acme on long time test have recently completed excellent records in the herd of registered Holsteins owned by A. W. Morris & Sons Corporation, Woodland. These are all first calf two year olds, and the records given are for 305 days. Aaggie De Kol Pontiac Mead made 653.66 pounds butter from 17,053.5 pounds milk. Miss Aaggie De Kol Juliana made 622.19 pounds butter from 17,097.6 pounds milk; Miss Aaggie Grace Alcartra made 617.18 pounds butter from 16,663.1 pounds milk; and Ethel Pontiac Aaggie made 524.44 pounds butter from 13,409.4 pounds milk, making an average for the four of 604.26 pounds butter from 16,055.5 pounds milk in 305 days. These heifers, as well as the other daughters of Sir Aaggie De Kol Acme now coming on, some of which are on yearly test both in the Morris herd and in the Kiesel herd at Sacramento, are an exceedingly attractive group of females that promise to develop into cows that will place their sire high among the great transmitting sires of the breed. Other records recently completed in the Morris herd include Aralia De Kol Mead 2nd, with 886.6 pounds butter from 21,217.2 pounds milk in 305 days; Ignaro Creamcup Pontiac Burke, 716.16 pounds butter from 19,618 pounds milk in 305 days; Imperial Bonita Segis, 529.38 pounds butter from 15,211.8 pounds milk in 305 days as a junior two year old. These three are all daughters of Segis Pontiac De Kol Burke. Colantha Contenta Cream Cup 2nd made 748.13 pounds butter from 18,853.4 pounds milk in 305 days. Lady Valley Mead De Kol Walker, a junior two year old daughter of Prince Gelsche Walker, made 539.23 pounds butter from 13,452.5 pounds milk in 305 days. Two daughters of Segis Pontiac De Kol Burke now starting on their year have made creditable seven day records, Segis Pontiac Portia having 26.51 pounds butter from 582.8 pounds milk, and Segis Pontiac Prophetess 24.50 pounds butter in seven days as a senior three year old.

Not content with one sensational world's milk record, Carnation Stock Farms, Seattle, have annexed another one following close upon the tremendous record of over 37,000 pounds milk in one year recently announced for Segis Pietertje Prospect. The latest record was made by the junior two year old Carnation Matador Leda Segis, who has completed a 365 day test with 987 pounds butter from 26,080 pounds milk, the latter the world's milk record in class. As indicated by her name, she is a daughter of Matador Segis Walker, and is out of a daughter of Dutchland Governor Sir Colantha, a nick that is proving an exceptional one in the Carnation herd.

There is an unprecedented scarcity of grade Holstein cows in all sections of California at the present time, and this in the face of a tremendous demand for such cows due largely to the fact that many former dairymen are now turning away from cotton, rice, beans and other crops that displaced alfalfa production during the war.

Following a suit instituted against J. Peterposten, Galt, by the Northern California Milk Producers Association to compel the defendant to deliver his milk and cream to the association, Peterposten has filed a cross complaint in which he alleges that members of the association have lost considerable sums of money through the operation of the association and he seeks an accounting to explain certain expenditures.

The daughters of Prince Alcartra Korndyke, the son of Tilly Alcartra, heading The J. S. Gibson Co. herd of registered Holsteins at Williams, are keeping up their consistent production as shown by the results of recent official records. Among those to finish recently are Princess Roma Alcartra, with 30.01 pounds butter from 702.6 pounds milk in seven days; Roma Princess Korndyke Alcartra with 22.47 pounds butter from 453.1 pounds milk in seven days as a senior two year old; Sally Hengerveld Alcartra, with 21.91 pounds butter from 515 pounds milk in seven days as a junior two year old; Cornucopia De Kol Jewel Alcartra, with 17.06 pounds butter from 444 pounds milk in seven days

THE BEST LINIMENT

OR PAIN KILLER FOR THE HUMAN BODY

Gombault's

Caustic Balsam

IT HAS NO EQUAL

For —It is penetrating, soothing and healing, and **the** for all Old Sores, Bruises, or Wounds, Felons, Boils, **Human** Corns and Bunions. CAUSTIC BALSAM has **Body** no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

A Perfectly Safe and Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Strains, Lumbago, Sore Lungs, Rheumatism and all Stiff Joints

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. DEYER.

Price $1.75 per bot . Sold by druggists, or sent by us express prepaid. Write for Booklet L.

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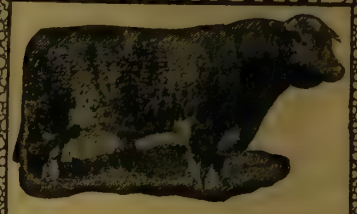
CALEDONIA SHORTHORNS



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Caledonia Shorthorns constitute one of the choicest collections of the breed owned in America. Our herd bulls, Imp. Caledonia, Gainford Matchless, grand champion at the 1919 San Francisco show and Pine Grove King stand out prominently in the West. Our females represent choice Scotch and American families, and are noted for their type and quality. We can at all times furnish foundation material and bulls suitable for any herd or for the range. Our prices are moderate and every animal is guaranteed. Visit our farm and herd. Send for special bull list.

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BERKSHIRES

In the Cornbelt the BERKSHIRE is fast replacing other breeds, due to better feeding and maturing qualities.

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Did you ever face a beating Storm in a **FISH BRAND Reflex Slicker?**

Oh Boy! that's protection for you.

Look for the Reflex Edge

TOWER'S FISH BRAND

A. J. TOWER CO.
ESTABLISHED 1836
BOSTON, MASS.

DEALERS EVERYWHERE

BAG BALM

MADE BY THE KOW-KARE PEOPLE

A smooth silky udder

Easy milking and a full yield are possible only when the teats are soft and smooth, and the tissues healthy. The use of Bag Balm guarantees this healthy condition day in and day out. Any scratch, Cut, Soreness or inflammation heals quickly under the penetrating and soothing effect of this great ointment. Caked Bag, a serious form of udder trouble when not properly treated, responds promptly to Bag Balm. A valuable remedy in treating Bunches and Cow Pox.

65c for the liberal Bag Balm package, is a small investment for health insurance.

Sold by feed dealers, general stores and druggists.

DAIRY ASSOCIATION CO., Lyndonville, Vt.

BAG BALM
BAG BALM
FOR BUNCHES CAKED BAG CUTS SORE TEATS CHAPPING AND INFLAMMATION
MADE ONLY BY DAIRY ASSOCIATION CO. Lyndonville, Vt.

KOW-KURE AND BAG BALM
Distributors for California
GERMAIN SEED CO.
LOS ANGELES CAL.

BICKMORE'S GALL CURE

ON HORSES

For sore shoulders, sore necks, cuts, etc., rub into the skin about the sore. Use sparingly. Only what the skin absorbs does good. A smooth paddle makes application easy. Write for circular.

The Bickmore Co.
Box 342
Old Town, Me.

HOLSTEIN CATTLE

N. P. Hanson, Westbury, Minnesota, writes:

"Nine years ago I purchased my first purebred Holsteins, three young heifers and a bull. One of those heifers cost $175 and now has five daughters, four granddaughters and four great granddaughters. For the whole family a conservative estimate of their value is $15,000—not so bad for a $175 investment nine years ago."

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The Holstein-Friesian Association of America
120 American Bldg., Brattleboro, Vermont

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Livestock Auctioneer
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Write or Wire for Sales Dates

The Little TWISTER Write me Today!

YOU can have the handiest, most reliable belt power outfit that is built if you own a Ford or Dodge. BELT POWER TRANSMITTER is all that you need. Catalog free. Frank R. Weisgerber, Salina, Kansas.

as a senior two year old; King Korndyke Pontiac Alcartra, with 15.02 pounds butter from 357.1 pounds milk in seven days as a junior two year old; California State Fair Queen, with 18.02 pounds butter from 525.8 pounds milk in seven days as a junior three year old. Queen Pontiac Charlotte Korndyke, the great daughter of King Korndyke Pontiac, has increased her previous record to 31.11 pounds butter from 623.1 pounds milk in seven days. Three other good records recently made in the Gibson herd are those of Aaggie Korndyke of Nevada, 30.19 pounds butter from 704.3 pounds milk in seven days; Sigma of Linwood, 25.08 pounds butter from 569.1 pounds butter in seven days; and Lady Aaggie Oleander Alcartra, a senior three year old granddaughter of Prince Alcartra Korndyke, 22.20 pounds butter from 486.3 pounds milk in seven days.

The directors of the Pacific Coast Hereford Breeders Association held a meeting at Sacramento January 15 and perfected plans for their annual spring sale to be held at the university farm, Davis, February 23, during Stockmen's Week. It was decided to limit the number of entries to 60 head consisting of 40 bulls and 20 females. The bulls to be selected will be very high class range bulls and the females will be of a quality such as will appeal to both established breeders and beginners. Frank W. VanNatta, one of the best known Hereford experts in America, will make the selections for the sale. Word has been received that R. J. Kinzer, secretary of the American Hereford Breeders Association, will be present. As usual the sale will be held under the management of the California Breeders Sales and Pedigree Company of Sacramento.

The Holstein cows which the Maxwell Farms at Hollywood are bringing out from Iowa have about all arrived. A car of the test cows came in early in the month. Among them is the world's record junior three year old, K. S. P. Lily McKinley, with 37.62 in seven days. She has just finished a year's record as a junior four year old, of 1,175 pounds of butter. An other good one is Ormsby Buffalo Mercedes, a 33 pound cow who has also just finished a year's work with 1,164 pounds of butter. In the car were six junior two year old daughters of the great bull, Sir Ormsby Skylark, which are finishing yearly records. The average of the six will be above 900 pounds. With the cows Mr. Maxwell shipped his herd header, Major Pietertje Ormsby, a son of old Sir Piet and out of Bess Mercedes Korndyke, a high producing granddaughter of Sir Piet. The double cross Ormsby in this bull, combined wth that of Sir Ormsby Skylark through his daughters, is concentrating the Ormsby strain to a wonderful degree and makes the Maxwell Farm one of its foremost exponents.

The fourteenth annual meeting of the California Woolgrowers Association will be held at university farm, Davis, Friday and Saturday, January 7 and 8. Meeting will be called to order at 2 p. m. Friday. President Ellenwood urges sheepmen to attend this meeting. He writes: "With the wool and sheep market in its present condition, the need for association and cooperation among wool growers is more urgent, if possible, than ever before. With the change in administration at Washington and new tariff laws to be considered and urged before the new congress, it is important to the wool industry that the state association be in as strong a position as possible. If the growers generally will cooperate and support the association, their numbers and the investment they represent will be of sufficient force to get the attention of our congressmen and senators at Washington, to whom our needs in the way of tariff legislation will be urged. We cannot accomplish what we should and be the force we should without the support of the individual grower and we urge that you arrange to attend this meeting and that you also constitute yourself a committee of one to urge all the growers in your vicinity to a[illegible]"

THE 1921 GUARANTY SALE

50 REGISTERED HOLSTEINS

State Fair Grounds
Sacramento, Cal.

Thursday, March 17, 1921

A splendid offering of picked cattle, composed of real foundation females and a limited number of top herd bull prospects.

COMMITTEE OF SELECTION:

H. V. Bridgford, Patterson. G. M. Brown, Los Angeles.
Alex Whaley, Tulare. C. L. Hughes, Sacramento.

Every animal guaranteed a breeder and sold subject to 60 day retest.

Management
California Breeders Sales and Pedigree Co.
C. L. HUGHES, Sales Manager, Sacramento, Calif.
Auctioneer: Col. Ben. A. Rhoades, Los Angeles

HEREFORDS

commanded the top price in the Chicago market 193 out of 248 days during 1920, or more than 77 per cent of the time, including both cornfed and range-bred cattle.

This is only one of the outstanding market and showring records attained by the whiteface breed during the past year, a record of achievement covering practically every condition of raising, feeding, showing and selling.

What would it mean to YOU to raise the sort of cattle that fetch the added margin of price in the market, a margin that may mark the difference between profit and loss?

You will be afforded an opportunity to secure the productive Hereford blood that has produced the market toppers, and sale and showring tops, in the selected offering that will be made under auspices of

Pacific Coast Hereford Cattle Breeders Association
J. I. Cazier, Pres., Wells, Nevada J. A. Bunting, Sec., Mission San Jose, Cal.

the individuals for which are now being personally selected by the noted breeder and judge. Mr. Frank Van Natta, from leading Pacific Coast herds. The offering will total

60---Registered Herefords---60
40 Bulls---20 Females

and in the selections the needs of the rangeman for bulls, and the requirements of the beginning breeder for desirable females, are being kept constantly in mind.

The sale will be held during Stockmen's Week at

University Farm, Davis, Cal. Wednesday, February 23, 1921

A catalog of sale is in preparation. Write for one to sale manager.

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Buy 200 Egg Strain Chick, Pullet Breeders! Customers say: "Pullets raised from your chicks averaged 209 eggs last year;" "114 hens cleared $612 in 12 months;" "lost but 2 chicks of 100;" "get more winter eggs from 50 your hens than from 200 formerly." 140,000 electrically hatched 180-290 egg Leghorns, Reds, Anconas, Rock, Minorcas, Wyandottes, Andalusians, (ducklings, turks) reasonable. Half booked. Hundreds satisfied customers. Repeat orders often. Write (am rarely home). Profitable Poultry, 151 North Fair Oaks, Pasadena.

Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

THE MISSION HATCHERY

Planning for your early chicks? We are now booking orders for R. I. Reds, Barred and White Rocks, Black Minorcas, White, Brown, Buff Leghorns; delivery February and later. Write for prices and particulars, stating your needs. Eggs from Breeding Stock of Quality. Chicks hatched right and carefully packed for safe delivery—express or parcel post, at reasonable prices. We aim for the good will of satisfied customers; will you try us out? The Mission Hatchery, Box 27, Campbell, California.

Buy Early Chicks—Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, California.

Sly's Old Mission Strain Rhode Island Reds. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. SLY, 1642 (D) Middleton Place, Los Angeles, California.

Quality Barred Plymouth Rock and Ferris S. C. White Leghorn guaranteed hatching eggs. Also Barred Plymouth Rock breeding cockerels for sale. We have good stuff at honest value for you this season. GOLDEN RULE POULTRY FARM, Porterville, California.

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X L Hatchery, 351 Soquel Avenue, Santa Cruz, California now booking orders for electrically hatched X L Chicks; trapnested Tancreds and Tom Barrons; also other varieties and breeds. This year the demand is greater than the supply. Place your order now.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Chicks hatched in Petaluma Electric Incubators are a superior class; strong, vigorous, sturdy, grow rapidly, lay early. Our free catalogue tells the reason. Petaluma Electric Incubator Co., Petaluma, California.

Baby Chicks—S. C. White Leghorn and R. I. Reds. Bred from paying flocks. Hatch each week. Chicks shipped by parcel post. Order now for early delivery. Write for prices. San Diego County Hatchery, San Diego, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Baby Chicks—White Leghorns—10's, 100's, 1000's hatched right in $60,000 brick and concrete hatchery from Hoganized, Trapnested heavy layers. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, California.

Brown Leghorn Hatching Eggs from highest grade of utility matings, trapnested, linebred, vigorous, high producing stock. Sun Crest Poultry Yards, Box 115, Boston Avenue, San Jose, California.

White Leghorn Baby Chicks — Tancred strain. Fourteen years trapnested stock behind them. Never buy eggs on the outside. Henry Tarratt, Corning, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jesch, Fallon, Nevada.

POULTRY

For Sale—Fancy White Leghorn Cocks, year old, single comb, Martin Downey strain. Priced right. Whittier State School, Whittier.

Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made **such a remarkable record in the state** laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

Baby Chicks—We have 8,000 selected Hoganized hens, all on free range on different ranches, all mated to Tom Barron roosters. We guarantee full count of strong, healthy chicks. Book your orders with us now and avoid disappointment, as orders are coming in fast. 30 years in the business. Lasher's Hatchery, Petaluma, California.

For Sale—S. C. White Leghorn chicks from heaviest laying (Hoganized) stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., 438 Seventh St., Petaluma, California.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

White Leghorns—hatching eggs our specialty, produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the West. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R. 1 Box 29, Gardena, California.

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White Leghorn Baby Chix from heavy-laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Price for April, May and June, $14.00 per 100. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

Baby Chicks hatched from our utility S. C. White Leghorns, a result of many years selecton and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

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Barred Rocks That Lay—Records 210, 220. Customers quote 196 and still laying. Eggs $2.50, 15 eggs; chicks 30c, limited number. Mrs. M. A. Warren, P. O. Box 517, San Jose, California.

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Hoganized Rhode Island Red Eggs for hatching $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

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Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Baby Chicks from my Heavy Laying pure blood White Leghorns, Silver Campines, Brown Leghorns, Anconas. Oak Knoll Poultry Ranch, Santa Cruz, California.

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Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

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It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

For Sale—10,000 W. L. Baby Chicks every week from California's finest layers. Customers of 15 years ago still buy from us. Each year some report 200 egg average in large flocks from our pullets. Lay large eggs from start. $15.00 per hundred, $140.00 per thousand. We ship everywhere. Free circular. Laying hens and pullets. Four week old chicks 40 cents, later 35 cents. Day old Rocks and Reds $17.50, Pekin Duckling 30 cents, Turkeys 50 cents. P. Cook Chick Ranch, Alhambra, P. O. Los Angeles, Rt. 8, Box 45.

White, Light Brown and Dark Brown Leghorn Hatching Eggs from highest class exhibition stock, competitive with any flocks in the United States. Splendid layers. Eggs $3.00 per 15, $15.00 per 100. From best pens, $5.00 per 15. Mahajo Farm, P. O. Box 597, Sacramento, California.

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Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

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SALE—BERKSHIRES

Disposal of entire registered herd headed by Grape Wild Chief, 620 pound boar, son and grandson of a world's champion, and by Leaders Invincibella, daughter of a world's champion. Priced right for quick disposal. Whittier State School, Whittier.

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Orland, California.

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We Offer Two Hampshire Bred Gilts and a few weanling pigs, direct descendents from General Tipton and Mose Messenger, world's champions over all breeds. Rio Hondo Rancho, Compton, California.

For Sale—Registered Hampshires of all ages, excellent individuals. Also grade Ayrshire cows. H. G. Ranch, Solvang, California.

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Bargains in Polands—600 pure bred Polands—sows, gilts, boars, feeders, must be disposed of to make room. Take one or more at your own price. Santa Anita Rancho, Santa Anita, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California

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Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 237-241 Court St., Los Angeles.

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Bred Duroc Gilts — Orion Cherry King blood, bred to a good Defender boar. Weaned pigs for sale at reasonable prices. Mayflower Thoroughbred Stock Farm, East Bakersfield, California. John Kincaid, owner.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bred Sows and Gilts and young stock. Pathfinder and Great Wonder I Am breeding. Monthly payments if you wish. Derryfield Farm, Capital National Bank Building, Sacramento.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

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For the Best in Durocs write June Acres Stock Farm, Davis, California.

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For Sale—$8000—Modern 5 room house, bath and toilet, gas, electricity and telephone; 2 acres of land under cultivation, family orchard, 5 Holstein cows, 1 Jersey spring heifer and 4 Holstein heifers and all farming implements. Everything included in the price. Can be bought for $5000 cash, balance on easy terms to suit purchaser at 6 per cent; Cudahy district. Address Owner, D. Ferraro, Los Angeles, California, R. D. 12, Box 744.

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Big Money Makers. Grapes, Kadota preserving figs and pomegranates. Forty acres of choice land adapted to above fruits. Ample water, Exeter district, Tulare County. The Phalanx Company, 516 Chamber of Commerce, Los Angeles, California.

For Sale or Trade — 120 Acres Tulare County Grape Land, 8 miles S. W. Dinuba. Price $225 per acre. Want grain and stock ranch north of Madera County. Address Owner, J. B. Hicks, Dinuba, California.

For Sale By Owner — 10 acre irrigated alfalfa ranch. Dairy equipment. Good buildings. Implements. Fruit trees and vines. Near state highway, in Yolo County. Reasonable price with terms. D. Sanders, 1121 3rd Street, Woodland, Calif.

For Sale by Owner—160 acres, suitable for alfalfa, beans, beets, grain; good pumping plant, fair buildings, $48,000. Otto Naumann, M. V. R. A., Box 155, Oxnard, California.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192, Indio, California.

Advertisement on Page 171 calling attention to Special Walnut Property. Henry Harwood, Van Nuys.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

TRACTORS

For Sale—Holt Tractor—8-18. Two and four gang P. & O. disc plows with power lift, one reversible disc plow, one point subsoil plow, heavy Clark's double disc harrow, several 2 horse harrows, 4 horse cyclone, 4 row bean and beet cultivator. Everything like new, used only 1 season. B. Lasch, Placentia, California, Kraemer and Madison Avenue.

For Sale-Samson Tractor, model S25 used small acreage part of two seasons. Good order. Three bottom power lift plow, 8 ft. chisel, 10 ft. cyclone, 10 ft. drag trap wagon all complete for $1,000. F. D. Hudson, Van Nuys, California.

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For Sale—Yuba 20-35 Ball Tread Tractor and Killifer disc in good condition. O. W. Ames, 126 South Western Avenue, Los Angeles. Phone 567872.

For Sale—Beeman Tractor, slightly used. Reasonable. Will trade. Box 131, Route 1, Garden Grove.

LIVESTOCK

BUTTE CITY RANCH

Shorthorn Cattle, Shropshire Sheep, Berkshire Hogs, Shetland Ponies, Bronze Turkeys, White Plymouth Rocks. Stock for sale at all times. W. P. Dwyer and W. S. Guilford, Box C, Butte City, Glenn County, California.

For Sale—For cash or good paper 1 Imp. Belgian stallion foaled 1909. Also one registered Jack foaled in 1904. Both good and sure. For particulars address or see J. J. Adams, Dinuba, California.

For Sale or Trade. One draft stallion, 1 black Jack. Address, A. Gaul, R. F. D. 5 Box 71, Stockton, California.

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Caldwell's White Muscovy Ducks win, weigh, lay and pay. The largest duck of the duck family. The duck without the quack. Eggs, ducklings, breeders. Free circular. Caldwell Duck Ranch, Lock Box 274, Los Angeles.

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300,000,000 Acres Free Land in U. S.—Send for free descriptive circular of our 100 page book THE HOMESEEKER, which tells you where this land is and how to acquire it, or send $2.00 for book direct. The Homeseeker, Dept. M, 336 S. Broadway, Los Angeles, California.

SEEDS AND PLANTS

Strawberries—1,000,000 plants, leading varieties; 200,000 Cuthbert raspberry; 100,000 Black Cap Tips; 100,000 Loganberry Tips. Order now; low prices. Also 100,000 choice peach seedlings — will graft in plums or prunes on contract for fall delivery 1921. Lafayette Nursery Company, Lafayette, Oregon.

For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

Increase Your Potato Yield by planting clean healthy seed. I have some Great Divide seed potatoes of excellent quality at 3 cents. Present crop 200 sacks per acre. Come and see. W. G. Brumund, Cucamonga, California, on Foothill Boulevard.

Cory Thornless Mammoth Blackberry—Strong plants direct from ranch where first discovered and propagated. Dozen $3.00 postpaid. Also Loganberry, Phenomenal Currant, Gooseberry, Raspberry and Giant Rhubarb. G. S. Wills, Jamestown, California.

Berry Plants—Strawberries, Gibson, Premier, Etterbury 80, and the Everbearers, Superb and Progressive. Also Ranera, the everbearing Red Raspberry, and Himalaya Blackberries. Write for prices. Chas. L. Beltz, R. 2, Santa Cruz, California.

Berry Plants — Strawberries, Loganberries, Currants, Gooseberries, Blackberries and Raspberries, for immediate delivery. All stock first class and strictly true to name. Write for prices. M. J. MONIZ, Berry Specialist, Sebastopol, California.

Selected Wine Grape Cuttings for field and nursery planting. All varieties. Price $10.00 per 1,000. Let us quote you our low prices on fruit trees. We ship any quantity anywhere on approval. J. F. Miller & Son, Healdsburg, California.

Biggest Money in Rhubarb—Double your income. Interset your orchard. See mine. I sell you plants and show you how to grow them. Rosemead Avenue, 1½ miles west El Monte, California, Route 1, Box 491.

Tomato Seed—Improved Stone, San Jose Canner. 25 cents oz., $3 pound, postpaid. Stamps or Money Order. Thomas Murray, 3209 West Washington St., Los Angeles, California.

Rhubarb Plants—Wagner's Giant 1 year, per dozen 50c; per hundred $4.00. Wagner's Giant, 2 year, per dozen $1.00; per hundred $8.00. Seed per pound $5.00. Currier Bulb Co., Santa Cruz, California.

R*O*S*E*S—$1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for new 1921 catalogue. KAVAN NURSERIES, San Bernardino, California.

For Sale — Mountain grown Brandywine Strawberry plants, $1.50 per hundred, $10.00 per thousand. By mail postpaid. B. Bryan, Camp Baldy, California.

For Sale—Genuine Red Kidney beans for seed. These beans are bringing the highest price in the market. Norman Johnson, Chatsworth, California.

Grapes—3000 No. 1 vines black Zante Currant, 10,000 Thompson's Seedless. Large carnation plants any color, 25c. C. L. Wilson, 121 E Street, Roseville, California.

Pumpkin Seed — Mixed Pumpkin Seed, good germination, 25c per lb. Aurora Reed Mill, Stockton, California.

Durango Cotton Seed for sale; small lots, 4c a lb.; 1000 lbs. or more, 3½c. F. O. B. Coachella, California; C. M. Devore.

300,000 Grape Rootings $30.00 a 1,000 while they last. Four kinds. Box 501, Fowler, California.

British Queen Seed Potatoes for sale. P. L. Brown, Irwindale, California. Phone Covina 950.

Our Introductions—Wonderful New Hybrid Alfalfa. Write J. L. Lawson, Reliable Tree and Seedman, San Jose.

Chilean Alfalfa Seed—Cleaned by most modern method. 22 cents per pound. C. H. Biggin, Redlands, California.

For Sale — Strawberry and Raspberry plants. Thos. Mullins, Carmel, California.

5400 Lbs. Good Clean Common Variety Alfalfa Seed at market price. Chas. A. Haug, Star Route, Corona, California.

California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

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ROOFING PAPER
One ply $1.50, 2 ply $2.00, 3 ply $2.50 complete with fixtures. Rubber roof paint 50c per gallon in 5 gal. lots.
ANGELUS ROOFING & PAPER CO.
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Broadway 5401

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Beautiful Chinese Ringnecked Pheasants —Mated pairs $12.50, eggs $5 setting. Pause Pheasantry, Fair Oaks, California.

Pheasants—Beautiful Chinese Ringnecks, pairs for sale. Orders booked for eggs. W. Leland Smith, Fair Oaks, California.

TREES

Special Prices on Orange, Lemon and Grapefruit Trees for the next two weeks. Don't despise the lemon. He will be king within the next two years. We have a few choice three year olds, just the thing for orchard resets. Lone Hill Citrus Association, San Dimas, California; Los Angeles Sales Office, 126 South Western Avenue; Phone 567872.

Buy Your Trees, Grape Vines and Berry Plants of Bishop's Nursery, Highland. Send for circular.

For Sale—1,500 Lovell, 500 Phillips Cling, Dormant buds on Salway root. A. bargain. Frank A. Tetley, Riverside.

Wanted at Once—4000 Placentia Perfection Walnut Scions. John M. Koller, Puente.

TREES

French Prune on Myrobolan, Peach and Almond root.
Imperial and Robe de Sargeant on Myroblan and Peach root.
Clingstone Peaches, June buds. Fine, stocky, well rooted trees.
Plums in all varieties on Peach and Myrobolan root.
Cherries, full assortment on Mazzard root.
Pears, all varieties on Jap root.
Franquette and Mayette Walnut on Black.
Thompson Seedless Grapes.
General assortment of all fruit varieties for Home Orchard or Commercial planting.
For hardiness, well branched roots and freedom from disease, our foothill grown trees have no equal.
Submit to us a list of your wants for prices.
SILVA-BERGTHOLDT CO.,
BOX 377, NEWCASTLE, CALIF.

Nursery Stock—We are offering commercial lots in Bartlett pear trees, at prices which will save you planters big money. Have apple, pears, prunes, cherry, strawberry, berries, etc. NO AGENTS. Try our Mail Order System. Send for planters List. 30 years in business. CARLTON NURSERY COMPANY, CARLTON, OREGON.

For Sale—10,000 Valencias one and two year buds; 2,000 Eureka lemon two year buds; Navels, M. S. Pomelos; 1000 Wonderful Pomegranates; 3000 Texas Umbrellas; 100 Kadota figs; 2000 Mission Olives; Sweet and Sour orange seed-bed stock. Southland Nurseries, 1941 East Colorado Street, Pasadena, California.

For Sale—Fruit trees, all leading varieties, including Bartlett Pears, Royal Apricots, Tuscan Cling and Phillip Cling Peaches, Satsuma and Santa Rosa Plums, Eureka and Placentia Perfection Walnuts. Write for catalog and price list. Orange County Nursery Co., Anaheim, Calif. Salesyard: North Los Angeles Street.

Royal Apricots, Tuscan, Sims and McClure Clings, Elberta and J. H. Hale Freestone Peaches, Santa Rosa and Beauty Plums, Pear, Apple and Walnut Trees. Grapevines, Berries, etc. Order now; leading varieties scarce. Los Nietos Valley Nursery, Downey, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

Special Sale—5000 Improved French Prune on peach root.
6-8 ft. 60c — 5-7 ft. 50c
4-6 ft. 45c — 3-4 ft. 40c
Better trees are not grown. Write for prices on other trees. J. F. Miller & Sons, Healdsburg, California.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

Cling Peaches, Apricots, Almonds — All varieties and sizes. Concord, Mayette, Franquette Walnuts, Cory Thornless Blackberry; large stock. State your wants and let us quote. Ekstein Nurseries, Modesto, California.

For Sale—A few hundred each of Tragedy and Sugar Prunes, Grand Duke, Diamond and Giant Plums, Texas and Drake Almonds, Bartlett Pears; a general assortment of nursery stock of all kinds. Burke's Nursery, Lodi, California.

Budded Avocado Trees. Leading varieties. Order early to secure best selection. Dr. Stonebrook's Avocado Nursery, 15 N. Raymond Ave., Pasadena. Phone Colorado 208.

For Sale—Walnut trees, fine stock, Eurekas grafted on black root. Prices, 8 to 10 feet in height $2.50 10 to 12 $2.75. La Puente Walnut Nursery, Puente, California. Phone 103.

For Sale — Peaches, Cherries and other fruit trees. Full line of shrubbery and roses, also flowering plants. Write City Nurseries, 109A Orange St., Redlands, California.

For Sale — 100,000 Florida Sour Orange Seed-bed Trees; 100,000 California sweet seedling orange seed-bed trees. SOUTHLAND NURSERIES, 1941 East Colorado Street, Pasadena, California.

I Have Just a Few Thousand Elberta peach trees three to four feet at 50 cents f. o. b. Los Angeles. Wm. Kelly, El Centro, California.

Fine Straight Rooted Florida Sour and Sweet SEED BED STOCK, 10 inches to 15 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Seedling Trees, all kinds. Thornless blackberry, Brandywine strawberries, $1.00 hundred. Box 301, Sebastopol, California.

Seed Bed Stock—Florida sour and California sweet. Nursery 100 Ventura Street. Address Paul B. Magee, R. F. D. No. 2, Box 499, Pasadena.

For Sale—Ehrhardt Walnut Trees. V. Ehrhardt, Minnie Street, 4 blocks south of Gas Plant, Santa Ana, California. Phone 454-M.

For Sale—Several thousand HACHIYA Persimmon grafts from Thales stock. First class condition. Apply to Foreman Chapman Ranch, Fullerton.

3000 Genuine Kadota Fig Trees for Sale Cheap—One mile northeast of Reedley, California. J. H. Rupert, Reedley, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Citrus Seed Bed Stock—Orange, Lemon, Grapefruit trees. L. A. Tuttle, R. 1, Box 385, Pasadena.

For Sale—Placentia and Eureka Walnut trees grafted on Northern Black Root. Box 33. R. F. D. El Monte, California.

For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

For Sale—Walnut grafting wood, Payne and Eureka, 10 cents foot. A. C. Kuhn Ranch, San Jose, California.

MISCELLANEOUS

For Sale—50,000 gallon capacity Redwood Tank with conical cover; used about six months; reason for sale owner has built concrete reservoir. Price $900.00, or will consider any reasonable offer F. O. B. present location at Ortega. Apply Max C. Fleischmann, P. O. Box 647, Santa Barbara.

Two Beautiful Companion Songs: "When I Dream of You" and "One Sweet Dream" also "Cry of a Heart" and piano selection "Mexicana." The four to your address 50c. Senseman-Cardon, 424 East 149th Street, New York.

Distributors to appoint agents and sell Powerene at wholesale. Agents make $30 a day. Special terms to distributors. Equals gasoline at 5c. The equivalent of 20 gallons, express prepaid, $1.00. P. Barnes, H424, Santa Rosa, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale—One Kresky Petaluma Brooder Stove for 1000 chicks; 1919 model, tank, pipe, etc. $25.00. Horace M. Dobbins, 53 West Colorado Street, Pasadena, California.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Farmers, save big money. Run your farm on business basis. Short easy course, permanent outfit, small cost. Write us today. Brown-Butler, Accountants, 315 Higley Bldg., Cedar Rapids, Iowa.

$250 Net buys a beautiful residence lot, clear of incumbrance, on High Street, Oakland, California. Address 1342 Sherman Street, San Jose, California.

Taylor's Tampa Havana 5-in. Cigars—$7.50 for 100, postpaid. J. R. Taylor, Box 661, Tampa, Florida.

If You Want to sell or exchange your property write me. JOHN J. BLACK, 116th St., Chippewa Falls, Wisconsin.

WANTED

Wanted to Exchange—50 acres river bottom partially improved alfalfa land in dairy and fruit section, close to Fresno, at $10,600, $3,000 down, for small acreage or city property as second payment. R. W. Sharp, 601 N. 4th Street, Fresno, California.

Walnut Trees Wanted—I am calling to the nurserymen of Southern California for extra select budded walnut trees to plant the property as advertised on page 171. Please state prices and quantities. Henry Harwood, Van Nuys.

Wanted To Hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

Wanted—Trees, mostly Grape Fruit, some Oranges; trees on sour orange roots. Write, give best wholesale prices. G. H. Dorton, Nurseryman, Harlingen, Texas.

Man of Family and Home wants steady employment near Bell. Experienced in farm and orchard; expert cashier. S., Cultivator, Los Angeles.

Wanted — One to five thousand Pierce Grape Cuttings. F. M. Warner, Route 1, Box 747, Inglewood, California.

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Rebuilt Windmills, irrigating pipe, tanks, pumps, cylinders, rods, fittings.
WHY PAY MORE
WE SELL FOR LESS.
New 1,000 gal. galv. tanks $47.25; 2,000, $67.25; 10,000 gal. redwood, $115; 25,000, $195. Many other bargains. 350 ft. 8 in. galv. irrigating pipe 35c. SPECIAL in complete pumping plant 15 h. p. Western engine, deep well double acting Ames pump with pipe, rods, cylinder for 90 ft. lift $950. This is only what pump alone would cost new. DEMMITT CO., Upstairs, 120 N. Main, Los Angeles.

2½-in. Vert. Centrifugal Byron Jackson Pump; 12 h. p. R. & V. engine mounted on trucks, clutch, mag., etc.; good engine and pump house, gal. corrugated iron. Good barn about 20x40 corrugated iron; 1 mile of rabbit-proof fencing with redwood posts, 5 miles barbed wire, four ft. chicken wire; plows, cultivators, harrows, disc plow and small tools. Numerous other items. All installed new and used very little. For sale dirt cheap. W. S. SMITH, 1255 E. 6th Street, Long Beach, California. Phone 28114.

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Turkeys—"Goldbank"—"Copper King V strain. Selected Giant Bronze toms Sired by son of famous "Copper King V," First Prize Yearling, N. B. T. Club Show Madison Square, N. Y., January, 1919 Bred to 20 lb. hens. Egg orders taken Prices reasonable. Address: BRONZE KING MOUNTAIN FARM, P. O. Box 308 Calistoga, California.

Mammoth Bronze Turkeys, Stafford strain, Eastern stock, beautiful plumage, extra large frame and bone. Money back guarantee. Send for circular. R M. Dodge & Son, R. D. 2 Box 129, Bakersfield, California. Phone 31F4.

For Sale—A few White Holland Purebred Toms. The nice hardy strong fellows, $12 and $15 each. Hatching eggs in season $1 each. Satisfaction guaranteed. L. A. Robinson, Hemet, California.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Thoroughbred White Holland Turkeys, one extra fine tom for $15, females two for $15. Order eggs now. Pause Pheasantry, Fair Oaks, California.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, S. Reservoir, Pomona, California.

GEESE

Mammoth Geese—Bronze Turkeys. Now is the time to buy breeding stock of "McNeely's Mammoth Geese," fine Bronze Turkeys, Toms and Hens at right prices. Chas. McNeely, Alpaugh, California.

CATTLE

Ayrshire Bull—Finlayston Sunset 24861—Age one year. Superior breeding with excellent Ayrshire dairy type. Write for price, pedigree, etc., or call. J. F. BUTTERFIELD CO., Breeders of Registered Ayrshires since 1869, 277 Brockton Ave., Riverside, California.

For Sale—Two registered Guernsey bulls, 1 three year old, 1 four year old; choicely bred, very gentle. Low priced. Can show their daughters milking. G. W. Pickering, Escondido, California, San Diego County.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Shorthorns — Registered and grade bulls for sale from my herd bull, Orange Flash Frank E. Collier, Wildomar, Riverside County.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

For Sale—Jersey bull 6 months old out of imported bull Helen's Oxford Son. Price $75.00. J. R. Carhart, Fullerton, Calif.

For Sale, 10 registered Holstein cows, all milking. Write Mrs. G. U. Clark, Hanford, California.

Reg. Shorthorns—Fair Oaks Ranch, Wilits, California

RABBITS

Pedigreed Flemish Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California.

ITALIAN VINEYARD SALE

By Jack Klein

The first Berkshire sale at the Italian Vineyard, held on Tuesday, will long be remembered by all the big crowd present. The offering was one of the best ever by a single consignor and the average of $147 was the best in such a Berkshire sale in the state.

The breeders were all there and worked nobly to make it a success, and the spirit of fellowship which is so noticeable among Berkshire men was very much in evidence. When the third sow was in the ring a rip-roaring north wind laden with sand came tearing across the plain and from then on the bidding was done in deaf and dumb language. Happily, Col. Rhoades' back was to the wind, so he could talk without strangling. In spite of this handicap the sale moved swiftly and the prices were good.

Wilsonia Princess Laurel, a beautiful daughter of Laurel Champion, was the top at $350. She was bought by L. J. Frost, the editor of the Berkshire World, for E. J. Barker of Thornton, Indiana. This sow is a littermate to the great Barker boar, Real Type.

J. Francis O'Connor of Santa Rosa bought a daughter of Real Type for $225 and F. B. Kealiher of Anaheim took a Baron Duke 201st sow for $200.

The biggest part of the offering of 30 sows went to farmers and new breeders at prices ranging from $100 to $200.

The sale was admirably handled by Mr. Frost, Col. Rhoades and Alex Wilson, superintendent of the Italian Vineyard hog department, and will do a world of good for the Berkshires.

A detailed list of the sales will appear next week.

S. W. BERKSHIRE CONGRESS THRIVES

The annual meeting of the S. W. Berkshire Congress was held at Guasti on January 28. The report of the secretary showed that over $6,000 worth of hogs had been sold through the association sales during the year. Many new breeders had been started and the association membership increased from the original seven to 26. One of the unusual features of the report was that the bills are all paid and there is money in the treasury. For the following year these officers were elected: Roe Sanderson, president; Fred Hall, vice-president; Geo. Stingle, secretary. After the meeting a very excellent chicken dinner was served to the members and their wives and guests at the Oma Tea Garden at Ontario.

The Southern California Edison Company has been authorized by the railroad commission to issue $10,000,000 bonds for extension work, principally on the Colorado River.

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Also fireless brooders in 100, 50 and 25 chick sizes. Pioneer hot water brooders in 200 and 100 chick sizes. Kresky brooder stoves. 500 to 1,500 chick sizes. "Chick-Elec" Electric hovers. 150 to 600 chick sizes. Reliable Blue Flame Hovers, 100 to 500 chick sizes. Cycle Hatchers, the best 50-egg incubator on the market. Poultry supplies, remedies, feeds, etc., always on hand.

We can supply baby chicks in any quantity and can handle single orders in 5,000 lots of R. I. Reds, Barred Rocks, White Leghorns, Brown Leghorns and Anconas, and we will have a limited supply of Black Minorcas, White Minorcas, White Rocks, White Wyandottes, Indian Runner Ducklings and Mammoth Bronze Turkeys.

All our chicks are hatched from selected eggs supplied from thoroughbred flocks owned by experienced breeders who have been connected with us since we first started in business fifteen years ago. Send to Department A for price lists and catalogs and place your order soon to avoid disappointment on delivery. Finest incubator, brooder and baby chicks display in the city. Visitors welcome at all times.

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Egg Laying Contest and Chicken Pox

By J. E. Dougherty

DURING the past few weeks egg production in the California Farm Bureau Egg Laying Contest at Santa Cruz has dropped somewhat because very many pullets went into quite a heavy molt rather soon after entering the contest. Although this condition was expected to occur as a result of the change to which the fowls were subjected when taken from their home pens and put into the contest, it has been more severe than was anticipated, especially among the later hatched pullets. Weather conditions have been very severe almost from the start of the contest and there have been only a few days when the hens could be allowed out in the yards.

The appearance of chicken pox in the flock the second week in November furnished a certain amount of interesting data on this disease which should be of extreme interest to poultry raisers. The first two cases appeared in one particular entry the second week of the contest, but in a day or two it appeared in another pen. As both of these pens came from the same shipping point the disease undoubtedly came from that territory and may have been contracted en route by contact with diseased stock.

Since this disease develops slowly it was the eighteenth of November before there was enough evidence of pox to make it advisable to vaccinate the whole flock. Dr. J. R. Beach of the veterinary division of the university vaccinated the entire contest flock November 23. Up to that time every case detected was immediately isolated in hospital quarters for individual treatment. During vaccination every individual was carefully inspected and every bird exhibiting the disease was sent to the hospital. Twenty-three cases were found and isolated.

Wherever the disease spread from one pen to another, it did so only through wire partitions and not where there was a board partition. Every other partition is of board construction, and although doors lead from one pen to another, through which the attendant walks in trapnesting, the disease has not, up to this time, been carried through these partitions. The obvious conclusion is that pox is spread by direct contact of diseased with healthy fowls.

The results of vaccination, as has always been the case when the operation has been carefully and skillfully performed, have been very successful, and the fact that 648 birds were vaccinated in a little over three hours shows how rapidly the work can be done.

That vaccination has no detrimental effect is clearly shown in the following table of egg yields for the three days preceding and the five days following the vaccination: Production November 20, 213 eggs; 21, 256; 22, 244; (vaccinated) 23, 229; 24, 264; 25, 220; 26, 218; 27, 233; 28, 243.

Past investigations have shown pox should be cleared up in about 30 days after vaccination and that all birds exposed to but not yet showing the disease when vaccinated are apt to develop a mild form of pox after being vaccinated. This occurred in the contact flock. Within three weeks after being vaccinated, a number of hens in pens where the disease had appeared developed mild cases, but recovery was very rapid.

All fowls showing the disease were vaccinated again November 29, and practically all these cases had fully recovered by December 10. December 11 a number of new cases were noticed in two other pens previously free from the disease and which had been vaccinated once as a preventive. It was therefore thought advisable to vaccinate a second time those birds that had been vaccinated only once, as the first vaccination does not always "take" effectively with some birds. On December 15 this second vaccination was given. The whole contest flock has now entirely recovered from the pox, and, strange to say, the hens which had a good attack are, in most instances, doing the best laying of any in the flock at present. Out of the 65 cases there were only two fatalities, and these were caused by the development of cankerous growths in the windpipe, which resulted in strangulation.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

The five highest pens of ten hens each for the first two months of the contest are as follows:

Hollywood Farm, Hollywood, Washington, 409 1/3 eggs; J. H. Hanson, Corvallis, Oregon, 363 1/3; George Gray, Santa Cruz, 345; S. L. Gibson, Santa Cruz, 343 1/3; E. L. Spacker, Santa Cruz, 342 2/3.

The blue ribbon winner for the highest December production is pen No. 32, owned by Hollywood Farm, Hollywood, Washington, with a production of 199 2/3 eggs. J. H. Hanson, Corvallis, Oregon, carried off the red ribbon for second highest production of 194 eggs, and S. L. Gibson of Santa Cruz won the third ribbon with a yield of 156 1/3 eggs for the month. George Gray of Santa Cruz was fourth highest with a production of 154 eggs, and E. L. Packer of Santa Cruz ranked fifth with a yield of 143 1/3.

Hen entered by Hollywood Farm carried off the blue ribbon for December by laying 27 eggs in 31 days. Hollywood Farm, J. S. Conrado, J. H. Hanson and Oregon Agricultural College tied for second place with a record of 25 eggs each. The struggle for third place for the month closed with a tie between La Rita Farm, J. H. Hanson, G. N. Bolfing and hens of Hollywood Farm, each laying 24 eggs.

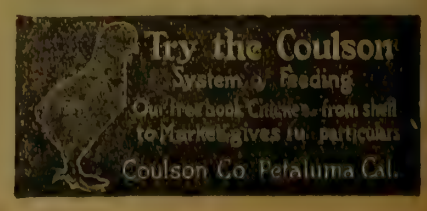
Fractional figures in pen yields are caused by floor eggs being equally divided between the three entries of ten hens and two alternates in each lay pen.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

The leading pens for ten days ending January 20 at the California Farm Bureau Egg Laying Contest at Santa Cruz are: La Rita Poultry Farm, Santa Cruz, 78 eggs; Hanson's Poultry Farm, Corvallis, Oregon, 74; W. A. Ford, Umatilla, Oregon, 73; R. J. Kenter, Santa Cruz, 71; Oregon Agricultural College, Corvallis (Barred Rocks), 70; S. L. Gibson, Santa Cruz, 70; S. L. Gibson, Santa Cruz, 67; W. H. Marshall, Santa Cruz, 67; Santa Barbara Poultry Ranch, Santa Barbara, 67; C. E. Hyde, Santa Cruz, 62; Bellows Bros., Lakeside, 61; Alex Stewart, Santa Cruz, 60; Enterprise Ranch, Chino, 60; Mrs. H. C. Kleinsmith, Hoff, Oregon (Barred Rocks), 60; S. L. Gibson, Santa Cruz, 60; S. L. Gibson, Santa Cruz, 60.

Leading pens to date: Hanson's Poultry Farm, Corvallis, Oregon, 486 eggs; Hollywood Farm, Hollywood, Washington, 478; S. L. Gibson, Santa Cruz, 461; Geo. Gray, Santa Cruz, 453; W. H. Marshall, Santa Cruz, 450; W. A. Ford, Umatilla, Oregon, 424; E. L. Spacher, Santa Cruz, 422; La Rita Poultry Farm, Santa Cruz, 388.

Lima bean growers of Orange County are starting a determined campaign to increase membership in California Lima Bean Growers Association. Orange County directors in the association are W. C. Jerome of San Joaquin Association, Edward Chaffey, Garden Grove, and C. W. and C. E. Ward, Smeltzer.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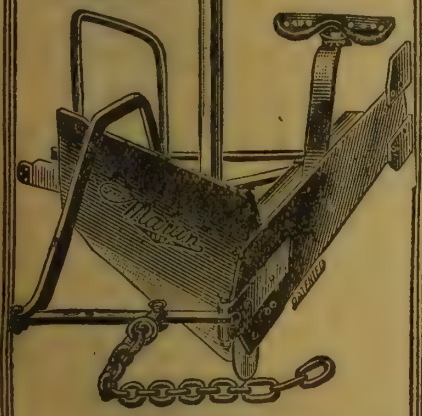

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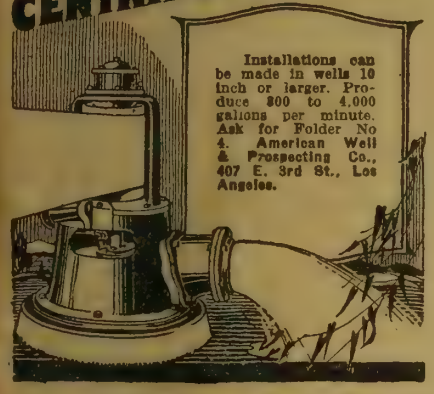

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Poultry Queries

Conducted by J. A. Koethen

Feeding Melons

I would like your opinion on feeding melons and cantaloupes to chickens. During the season I raise both and often have carried over stock which has been given to my chickens. It seems to me the chickens have not done well since.—H. E. S., Sunnyside.

Melons are all right if you do not feed too many of them—so many, that is, that they keep the birds from eating greens and other feed they need for health and production. Melons do not take the place of succulent greens like barley, alfalfa, kale, chard and lettuce, neither do they contain much material for egg manufacture. According to Professor Jaffa the pie melon, which does not differ materially, I presume, from others, contains 94.5 per cent water, 2.88 per cent starch and sugar, 0.77 per cent protein and only 0.4 per cent ash, which is far less than is contained in most other vegetables or in green feed. Water is necessary, of course, but if you let your hens fill up on melons, what nourishment they get is starch and sugar instead of protein, and starch and sugar do not make eggs. The melon rinds from your table or mine are not enough to do any harm, though my hens never seem to care much for them, but, as you can see from their composition, they cannot possibly take the place of real egg food.

Chicken Pox

Our hens have sores on various parts of their heads. These sores have a hard, bulging scab and seem very tightly grown to the skin. One Brahma pullet has a large scab about the size of a pea right over one ear, completely covering it. There is a watery discharge from the nostrils and some of the hens have a kind of foam in the eyes, followed by a swollen eyelid. Their combs are a bright red and their plumage is smooth and bright. About a month ago we brushed their heads with coal oil to rid them of stick tight fleas and head lice, and some of them have been fighting and picking each other. Could either of these be the cause of the sores?—Subscriber, Julian.

As you say, only a few of the hens have these sores and they are accompanied by roupy discharges in eyes and nostrils, I am inclined to think you have chicken pox in the flock. There is not much you can do, only keep the affected hens away from the rest. If you isolate them immediately it may be the disease will not spread through the flock. You might rub the sores with carbolated vaseline and add about five per cent flowers of sulphur to the mash, but chicken pox has to run its course. If your flock is large it might be well to write the poultry division at Davis about vaccinating them. It would hardly be worth while for a small flock. I doubt if the kerosene on their heads would cause such scabs as you describe, but kerosene is a rather severe remedy. Carbolated vaseline rubbed on the head several times will kill stick tight fleas, and any good louse powder will kill the head lice. If the sores are caused by the birds' fighting, which seems unlikely, there is no better remedy than carbolated vaseline.

Chicken House Plans

Will you publish or send me plans for building or arranging chicken house and grounds in small way. I have a space 60 by 38 that can be used for yard. Would 32 feet in width or less do better? I had in mind a house 12 by 16 feet, placed in center of long side of yard, with end on line of fence?—B. L., Los Angeles.

As you do not say how many hens you wish to keep, I cannot make my advice as definite as I might. A house that is nearly square is more economically built than a parallelogram, and 14 feet square is a very good size, if it is not too large for your purpose. Such a house provides comfortable accommodation for from 60 to 75 Leghorns and 50 Rocks or Orpingtons. A house ten feet square will hold from

(Continued on Page 191.)

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Butter, creamery extras, Produce Exchange price 44 cents.

Jan.	26	27	28	29	31	Feb.1
'21 ...	46	46	46	..	44	44

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 40 per dozen. Case count produce Exchange closing price 38 per dozen; pullets, produce Exchange closing price 38 per dozen.

Dairy Exchange price last week on extras:

Jan.	26	27	28	29	31	Feb.1
'21 ...	46	46	45	..	40	40

Manager Stanley of the Poultry Producers of Southern California reports that:

Bottom seems to be reached in the Eastern markets and present condition is firm. New York quotations are around 55 to 60 cents. Local are at 40 so there is little margin with express delivery costs 15 cents and freight, etc. close up to 10.

POULTRY

Price to producers: Hens, lt. 35; heavy 35; colored, 35; broilers, 40@53; roasters, 35; old roosters, 14; fryers, 40; ducks, old, 23; ducklings, Pekin, 3½ up, 25; others, 23; geese, 25; turkeys, live, young tom, 45; dr., 50; old, live, 40; dr., 41; hens, live, 45; dr., 50; squabe, 45@47.

Belgian hares, live, 12@16; old, 9.

LIVESTOCK

Los Angeles, Feb. 1.—Weighed and delivered off cars without food or water:

Hogs, (hard grain). 125 to 175 lbs., 12.00; 175 to 225 lbs., 12.50.

Cattle (on foot, gross weight): Steers, good, 9.50@10.00; medium, 9.00@9.50. Cows, good, 8.00. Calves, 125 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 6.00; lambs, 12.00@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, February 1, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market steady. Stocktons: Burbanks, wide range in quality mostly 2.00@2.35. Idahos: Russets mostly 1.75@2.00. Local: White Rose mostly 80@90 per lug; 2.00@2.25 per 100 lb. sack. Sweets, best, mostly 1.60@1.75.

Onions: Supplies heavy, market dull. Stockton: White, cold storage, 2.75@3.00; sacked.

Garlic: Local best mostly 10@14 lb.

VEGETABLES

These are the actual prices obtained February 1, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 1.50@2.00.
Beets: Doz., 40@50; sk., 1.75@2.00.
Cabbage: Field cr. best mostly 75@1.00.
Carrots: Doz., 25@35; sk., 1.00@1.25.
Cauliflower: Supply liberal, field cr., best, 2.00@2.25.
Carlots: Supplies very light, market strong. Too few sales to establish market. Growers being paid mostly 90@1.00 per packed out pony crate (delivered to packing house).
Celery: Cr., best 2.00@2.50; poorer low as 1.50.
Cucumber: Hothouse, best, 2.50@3.00
Egg Plant: Lb., 9@11.
Lettuce: Local field cr. mostly 40@75; few 1.00.
Peas: Sk. sales, 11@14 per lb.; small lots 11@15 per lb.
Radishes: 15@20 doz.
Rhubarb: Crimson Winter, best bx., 1.40@1.60.
Spinach: Doz., 25@30.
Squash: Local Hubbard and Italian, 1 @1½.
Tomatoes: Mexican lug, 4.00@4.25.
Turnips: Per dozen 25@35; sk., 90 @1.10.

DECIDUOUS FRUITS

These are the actual prices obtained February 1, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk.

Apples: Supplies liberal, movement good, market firm. California: Bushel boxes Bellfleurs, fancy 4 tier best 2.25 2.40; ordinary, 1.90@2.00; 4½ tier, 1.75 @1.85; Jonathans fancy 3.00@3.50. Delicious fancy 3.00@3.75. Rome Beauty, fy., 2.75@3.25. Idahos and Utahs: Loose Jonathans. Romes and Arkansas Blacks, best mostly 6@7 per lb. Oregons and Washingtons: Bushel boxes, extra fancy Jonathans and Spitzenburg mostly 3.00 @3.25.

Pears: Various varieties, 6@10.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 1.75@2.25; special packed brands, 2.25@2.75; Arizonas bx., 4.00@4.25.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.25 @2.00, few high as 2.75; loose, bx. 75@ 1.25; lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack large size 2.50@ 3.00; small low as 1.75; special brands mostly 3.00@3.75 according to size and quality, packing house culls, 75@80 bx.

HONEY

Movement slow, market weak. Prices generally lower. Supplies of white honey light; of dark honey, heavy. Carlot quotations f. o. b. usual terms; per lb., white orange, 17@18; white sage, 17 @ 17½; light amber sage, 12@14; light amber alfalfa, 10@12. Hawaiian light amber has dropped to 7 per lb. Beeswax: In less than carloads, 37@40 per lb. Practically no sales being made at this time, and unless demand increases shortly still lower levels may be reached.

NUTS

California Walnut Growers' Association announces prices on 1920 walnuts: No. 1, soft shell, 12½; No. 2, 18½; Budded, 25½; standard budded, 22½ per lb.

GRAIN AND FEEDS

Grain Exch. price bid February 1:
Milo: Carlots, 1.90.
Kafir: Eastern, No. 2, 1.60.
Corn: Bulk, No. 2 Yellow, 1.36¼; Egyptian, 2.25.
Wheat: Mixed feed Utah-Idaho, 36.75.
Barley: 1.51¼.

HAY

Alfalfa Growers of California report under date of February 2:

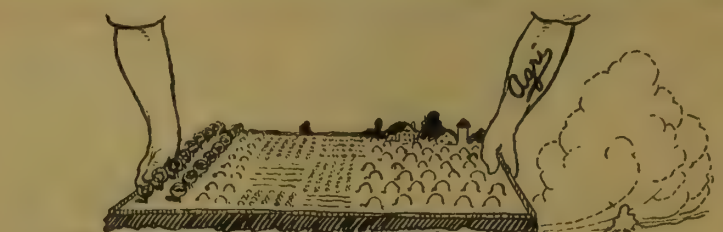
Receipts of alfalfa for the week again light, below the current rate of consumption, stimulating the demand to a corresponding extent; the week closed with the market firm and practically no change in prices.

There were 600 tons received on the tracks in Los Angeles the week ending January 29, with 40 tons hold over as against 460 tons the week before.

Rabbit	39.00
No. 1 dairy	27.00
Standard	24.00
Stock	19.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@24.00
Barley	18.00@22.00
Alfalfa	18.00@26.00
Barley straw	8.00@12.00



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San Francisco Markets

San Francisco, February 1, 1921.

Quotations made daily by the San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 44½

Dairy Exchange prices extras this week and year ago:

Jan.	25	26	27	28	29	31
'21 ...	45	44½	44½	44½	..	44½
'20 ...	..	..	67½	67	..	..

Rcts. wk. ending Jan. 31, 2,708 centals.

CHEESE

Dairy Exchange quotations:
Jack, full cream, street price.....22@26
Jack, half skimmed, street price...17@20
Ore. Y. A. 34
Ore. Trip 33
Cal. Y. A. 32½
Cal. Flats 26½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 43
Extra Pullets 40
Undersized 39

Dairy Exchange prices, extras this week and year ago:

Jan.	25	26	27	28	29	31
'21 ...	50½	51	51	48½	..	43
'20 ...	..	..	61½	57	..	..

Rcts. wk. ending Jan. 31, 249,137 dozen.

POULTRY

Wholesale prices are:

Hens: Colored, 36@37; White Leghorn, 35@37; strictly young roosters, 37@40; old roosters, 22@23; fryers, 45@50; broilers, 56@60.

Ducks: 30@35.
Squabs: 75@85 per lb.
Turkeys: Dressed, fancy, 50@55; poor quality 42@45 per lb.; live, 43@45.
Geese: 32@35 per lb.
Pigeons: Old, 2.50@3.00 dozen.
Belgian Hares: Live, 26@28 per lb.
Jackrabbits: 2.50@3.00 per doz.

LIVESTOCK

Western Meat Co. prices:

Cattle: Steers, No. 1, 9@9½; do, second quality, 8@8½; do, thin, 5½@7.

Cows and Heifers: No. 1, 7@7½; do, second quality, 5½@6½; do, thin, 3@4.

Calves: Light weight, 10½@11½; medium, 8½@9½; heavy, 7½@8½.

Lambs: Milk, 10@11; yearlings, 8@8½.

Sheep: Wethers, 7@8; ewes, 4@5.

Hogs: Hard, fat, grain-fed, weighing 100 to 150 pounds, 11½; 150 to 225 pounds, 12; 225 to 300 pounds, 11½; 300 to 400 pounds, 10½.

California Farm Bureau Marketing Association reports:

No. Hogs.	Av. Wt.	Dock	Price
Tulare, January 25			
88	189	70	$11.70
83	204	...	11.65
87	188	...	11.65
74	210	...	11.60
77	209	...	11.45
69	233	...	11.25
51	157	20	10.70
13	365	10	10.20
13	398	490	8.70
Seven cars, 41 consignors, $13,073.69.			
Visalia, January 26			
80	209	...	10.60
77	193	...	10.55
91	183	...	10.50
88	191	...	10.30
77	215	...	10.50
12	331	...	10.00
16	142	...	9.55
Five cars, 17 consignors, $9,208.82.			
Hanford, January 27			
75	202	...	10.40
79	193	...	10.40
69	195	...	10.35
93	195	40	10.30
2	405	...	10.00
78	146	...	10.00
13	449	1080	7.90
Five cars 32 consignors $8,063.79.			
McFarland, January 28			
79	204	...	10.75
60	166	...	10.35
68	256	...	9.70
20	365	560	8.35
1	120	...	.08 1-3

Three cars, 23 consignors, $5,064.37.

Total for the week: 20 cars, 113 consignors, $35,410.67.

HIDES AND PELTS

No. 1 heavy, 60 pounds up, 6; do, medium, 45 to 60 pounds, 6; light hides, 30 to 45 pounds, 7½; do, native bulls, 5. No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less.

No. 1 wet salt kip, 15 to 30 pounds, 8; No. 2, do, 7; No. 1, wet salt calf, trimmed, 10; do, untrimmed, 5; No. 2 calf, 2 per pound less. The price of No. 2 hides will be 1c less than the price of No. 1. Hides having any of the following defects will be classed as a No. 2: Any cut over six inches from the edge, over five bad scores, five grubs, one grain slip, one rubbed spot where grain is gone, one dragged spot where grain is gone, one sore spot where grain is gone.

Dry hide, 16 pounds and up, No. 1, 12; dry kip, 7 to 15 pounds, No. 1, 15; dry calf, under 7 pounds, No. 1, 16. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint. Prices for short haired hides only. Long haired winter hides, 1 less.

Long wool, 9 to 12 months' growth, 75 and up; medium, 6 to 9 months, 50@70; short, 3 to 6 months, 25@40; shearings, good, 1 to 3 months, 10@20; shaved or damaged, 10; lambs, large, long wool, 25 and up; do, small, 15@20; milk lambs, 5 @10.

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, 2.00@ 2.35 for No. 1; do, Oregon Burbanks, 2.25

@2.50; Salinas, 3.00@3.25; Idaho gems, 2.25@2.50; sweet potatoes, 5.25@5.50 per 1.00 lbs. New, 5@6 lb.
Onions: Australian brown, 75@1.00 per cental.
Garlic: New, 7@10 lb.

VEGETABLES

Wholesale selling price:
Artichokes: Doz., 75@1.60.
Beans: 15@17½.
Beets: 1.25.
Brussel Sprouts: 5@7 lb.
Carrots: 1.00@1.25 sk.
Cauliflower: Doz., 90@1.00.
Cucumbers: Hothouse, bx., 2.50@2.75.
Cabbage: Lb., 1.
Celery: Cr., 1.50@2.75.
Lettuce: L. A. cr., 1.75@2.25; Imp., 2.75@3.00.
Olives: Lb., 7@8.
Onions: Green, per lug, 1.00@1.50.
Peas: Lb., 8@15.
Parsnips: Sk., 1.75@2.00.
Peppers: Bells, Southern, 15@20; Chili, 10@15.
Rhubarb: 2.00@2.50 bx.
Spinach: Lb., 5@7.
Tomatoes: Southern 75@1.50; fy., 2.00@2.25; L. A. lug, 2.00@3.00.
Turnips: Sk., 75@1.25.

FRESH FRUITS

Apples: Bellfleurs, nominal; Newtowns, 3½ tier, 2.75@3.00; do, 4 tier, 2.25@2.50; B grade, 1.50@1.75; 4½ tier, 1.25@1.50; Oregon Newtons, 2.00@3.00, according to size; Hood River Spitzenberg, nominal; Arkansas Black, fancy, 3.00@3.50; do, choice, 2.25@2.50; Golden Ortley, 3.00@3.50; Rome Beauty, fancy, large, 2.50@3.50; small, 1.75@2.50; Missouri Pippins, 1.25@2.00; Ben Davis, 1.75@2.50; do, small, 1.25@1.50; Winesaps, 3.25@3.75.
Bananas, 8@9 per lb.
Pineapples, 4.50@6.00 per dozen.

CITRUS

Navel oranges, 2.00@3.75; lemons, 2.00@3.50 per bx.; lemonettes, 1.50@2.00; grapefruit, new crop, 2.00@2.75; do, Arizona, 4.00@4.50; limes, 1.25@1.75; tangerines 2.00@3.25 per half orange box.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 21 lb.; Sunmaid seeded, 36 15-oz. pkgs., 23 lb.; seedless Sultanas, 25-lb. bxs. 21½ lb.; Thompson seedless, 25-lb. bxs., 22 lb.; do, 48 15-oz. bxs. 23 lb; 3-cr. L. M., clusters, 20-lb. bxs., 5.50 box.
25 lb. boxes, 22½ lb.; 2 cr., do, 22 lb.; 1 lb.
Apricots: Fancy, 25 lb. boxes, 29 lb.; extra choice, do, 24 lb.; choice, do, 23 lb.; standard, do, 18½ lb.
Peaches: Blue Ribbon brand, 48 11 oz. to cs, $10 cs; Blue Ribbon brand, 24 2 lb. bxs to cs, $11; fancy, 25 lb. bxs, 19c; extra choice, 25 lb. bxs, 17c; choice, 25 lb. bxs, 15c.
Pears: Fancy, 25 lb. bxs., 20; extra choice, 25 lb. bxs., 15; choice, 25 lb. bxs., 12.
Figs: Fancy black, 25 lb bxs., 12½ lb.; extra choice, do, 9½ lb.; choice, do, 8 lb.; fancy white, do, 15 lb.; extra choice white, do, 12 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4 layer, 10 oz. box; choice, 4 layer, 10 lb. boxes, 1.75 box.
Prunes: 30-40s, 25-lb. bxs., 16 lb.; 40-50s, do, 12½ lb.; 50-60s, do, 11 lb.; 60 70s. do, 9 lb.; 70-80s, do, 8 lb.; 80-90s, do, 7 lb.; 90-100s. 6 lb. Persian dates, 19 lb.; Fard dates, 30 lb.; Dromedary dates, 6.25 case.
Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 9 lb.; choice, do, 8 lb.

NUTS

Peanuts: Japanese, 9.
Pecans, 25.
Almonds: California Almond Growers Exchange quote:
Nonpareil 26
I. X. L.....26
Neplus 25
Drake 18

HONEY

From Rafael & Wing: There is very little honey coming in and not many sales being made, consumers buying only for their immediate needs. Prices to producers: California ambers, 9@10c; light ambers, 10@11c; light amber to white sage, 15@17c; light amber to white orange, 15@17c; wax, 35c. No comb honey in this market. There seems to be more Honolulu moving than anything else. Several large lots have been moved at from 8 to 11c.

BEANS

Below California Bean Growers Association shippers prices C. R. C., January 31:
Pinks 6.00
Large Whites 4.25
Small Whites 3.65
Mexican Reds 5.95
Blackeyes 6.00
Red Kidneys 9.00
H. B. Limas 5.60
Bayos 9.75
Crans 6.00

HOPS

Cal. 1920, lb., 33@35.

RICE

Fancy California Japan rice offered f. o. b. San Francisco, immediate, spot, 4.15; first half February, 3.60; last half, 3.50, March, 3.40; April, May and June, 3.35.

GRAIN

Sales grain exchange, February 1:
Wheat: Milling, 2.95@3.05; feed, 285@2.95.
Corn: 1.75@1.90; White Egyptian, 2.60@2.75.
Oats: Red feed, new crop, 1.45@1.55; seed, 1.65@1.75.
Barley: New feed, 1.30@1.40; off grades lower; shipping, 1.45@1.55.
Shorts: 40@45.
Mill Run: 40.00@45.00 ton.
Middlings: 54.00@56.00 ton.
Milo: Cal. Red, 2.00@2.05; Eastern, 1.60@1.70.
Kafir: Eastern, 1.60@1.70.

HAY

Alfalfa Growers of California under date of February 2:
There were 488 tons received in San Francisco the week ending January 29, as against 967 tons the week before.
No. 1 Dairy Alfalfa.....21.00
Stanard 19.00
Under date of January 29, A. W. Scott Co. says:
Receipts of hay past week have been 488 tons. Prices remain unchanged, although with marked improvement and pickup in the volume of business both in San Francisco and throughout the country. General business seems to be reviving from the stagnation prevailing during the month of December, and this activity in general trading is apparent in the hay trade. Export trade continues light, while trading throughout the interior has increased very materially. Alfalfa seems to be doing more poorly than any other grade of hay and the local product is suffering from Nevada competition.
We quote today wholesale prices in carload lots as appear from dealers' transactions upon the hay market in San Francisco (for prices to consumers charge of cartage, commission and handling expenses must be added, according to conditions).
Wheat Hay, Fancy.....20.00@21.00
Wheat Hay, light 5 wire bales.17.00@20.00
Tame Oat Hay, fair to choice..17.00@19.00
Wild Oat Hay.....12.00@15.00
Barley Hay .....12.00@15.00
Alfalfa Hay .....17.00@20.00
Stock Hay .....10.00@14.00

Citrus Markets

Los Angeles, February 2, 1921.

The rains of last week stopped picking, consequently slowing up of shipments and a temporary flurry in prices is encouraging at this moment heavy shipping. Most houses are holding steady, however, and there is little danger of a break. There have been slight reductions on smaller sizes and effort is being made to prevent picking of the little ones. F. o. b. California prices are ranging around $4.00 and $4.50.
The lemon market is dead with quotations f. o. b. California $2.25-$2.75.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 4,472 cars; lemons, 1,347; total, 5,819. To same date last season: Oranges, 5,626; lemons, 1,159; total, 6,785. From Central California to date, this season: Oranges, 3,973; lemons, 66; total, 4,039. To same date last season: Oranges, 3,412; lemons, 160; total, 3,572. From Northern California to date this season: Oranges, 301; lemons, 3; total, 304. To same date last season: Oranges, 261; lemons, 20; total 281.

AT THE AUCTIONS

January 26
New York: 10 or., 1 lem. Nav. 3.25-5.15, Navelencias, 3.35-3.80, lem. 4.30.
Boston: 7 or., 2 lem. Nav. 3.65-4.85, lem. 3.75-4.80.

January 27
New York: 13 or., 1 lem. Nav. 3.20-5.25, lem. 4.10-4.40.
Boston: 4 Nav. 3.95-4.80.
Philadelphia: 3 or., 1 lem. Nav. 2.85-4.95, lem. 4.65.

January 28
New York: 13 or., 2 lem. Nav. 3.35-4.80, lem. 4.55-4.95.
Boston: 7 or., 1 lem. Nav. 3.40-4.80, lem. 4.35.
St. Louis: 5 or., 1 lem. Nav. 2.37-3.67, lem. 2.95-3.45.

January 31
New York: 34 or., 4 lem. Nav. 2.30-5.20, Tange. 2.65, Ruby Bloods, 2.25, lem. 4.25-4.55.
Philadelphia: 4 or., 1 lem. Nav. 2.80-4.00, Val. 3.60, lem. 2.55-4.10.
Pittsburg: 8 or., 2 lem. Nav. 2.70-4.40, lem. 3.55-3.90.
St. Louis: 7 Nav. 1.65-3.60.
Cincinnati: 1 or., 1 lem. Nav. 3.05-3.10, lem. 3.95-4.25.
Baltimore: 1 or., 1 lem. Nav. 4.20, lem. 2.90-3.60.

February 1
New York: 16 or., 3 lem. Nav. 1.45-5.00, Navelencias 2.60-2.90, lem. 4.30-4.80.
Boston: 9 or., 1 lem. Nav. 3.05-4.60, lem, 3.65-4.15.
Pittsburg: 4 or., 1 lem. Nav. 1.30-4.30, lem. 2.25-2.75.

POULTRY QUERIES

(Continued from Page 189.)

25 to 30 birds. If I were you I would build this house in the middle of my yard space and divide space into four yards of equal size. By making an opening from the house into each of these yards you will be able to run your flock in one or two while a green crop is growing in the others. In this way you utilize the manure and at the same time purify the soil. You can raise vegetables in the yards that are not being used for the hens, if you wish, and then turn the hens in when your crop is harvested. If you do not wish to build so much fence put the house crosswise of the yard, in the middle, and divide it into two yards, one at the back and one in front of the house. The house should front south or east, should be about 7 feet high in front and 5½ at the back and should have a shed roof covered with either shingles or tarred paper. The sides can be built of coarse lumber battened. Many of these shed roof houses have some kind of canvas or wooden screen or shutter hung from the front edge of the roof to keep out sun and rain. The droppings board is about three feet from the flour and fills the rear half of the house. The roosts may be hung by wire from the roof and should be about 18 inches apart. Nests and feed hoppers are built along the front of the house. I will mail you names of several poultry ranches you may like to visit before you build. Houses are difficult to describe on paper and one gets many valuable ideas by visiting experienced poultrymen.

The Call of the Hen

A subscriber whose letter has been mislaid asked for the name of the publishers of Walter Hogan's book, "The Call of the Hen." The book may be had from the Petaluma Journal, Petaluma.

WEATHER REPORT

San Francisco, Cal., Jan. 29, 1921.

Stations	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	1.91	32.10	23.97	58	34
Red Bluff	2.35	20.87	13.80	54	34
Sacramento	.49	11.48	10.55	56	38
San Francisco	.60	17.31	12.35	58	42
San Jose	.51	10.85	8.92	58	36
Fresno	.30	5.32	5.06	58	36
San Luis Obispo	1.38	10.67	10.16	60	36
Los Angeles	.22	6.02	7.78	68	43
San Diego	.03	2.79	5.02	64	46

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Your dealer can sell you both rings in every size or oversize.

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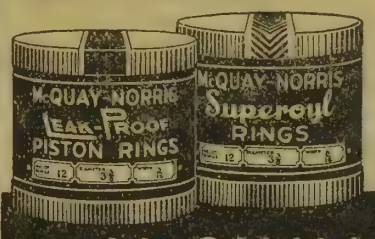

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It explains why McQuay-Norris Piston Ring Equipment will increase gas engine power, save fuel and oil, and decrease carbon troubles. Address Dept. AB

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PISTON RINGS

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Catches Old, Young, Big or Little Gopher

You Can't Catch Big Gopher Like One Above In A Small Trap

Above cuts from photographs tell the whole story. This trap has been in use for two years. All users say it **Never Fails.** Poisons are dangerous. Don't lose time and patience trying to catch the gopher with an ordinary box or cheap wire trap. Buy the **Double Catch Trap** and get the rodent first time. If your dealer cannot supply you, write to us. **Price 75c postpaid.** Money returned, if not satisfied. Illustrated circulars free.

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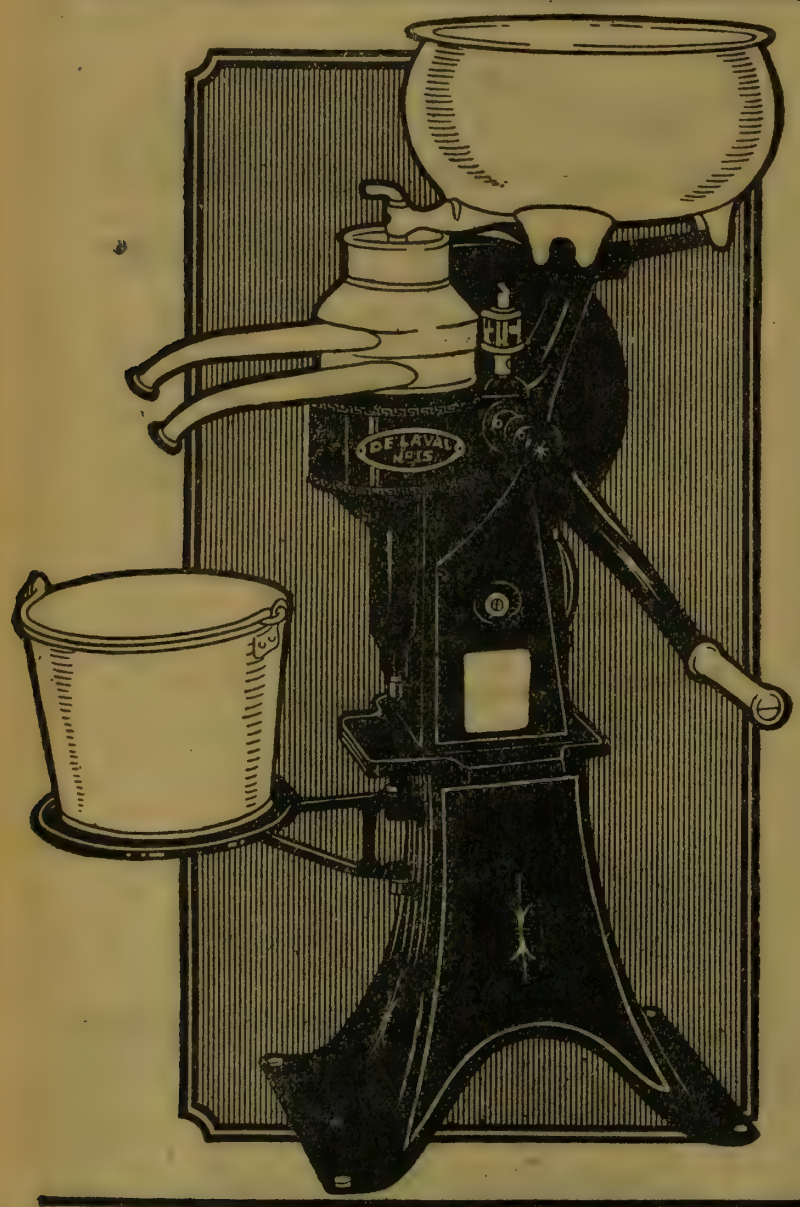
5 CENTS a day invested in a DE LAVAL may save you from 25 cents to $1.00 a day



A DE LAVAL Cream Separator is the best paying investment any cow owner can possibly make.

It saves twice a day, 730 times a year, over any other system or inferior separator—in quantity and quality of product, time and labor.

Its cost represents an investment of about 5 cents a day for ten years, including cost of operation and interest on the investment. With simple care it will give good service not only for 10 but for 20 to 30 years; it practically never wears out.

Such an investment may save you from 25 cents to $1.00 or more a day, according to the number of cows, returning from 500% to 2000% profit on the investment. Every day you delay the purchase of a De Laval you waste and lose money.

Today a De Laval Cream Separator, considering its improvements and quality of construction, is one of the cheapest things you can buy. With cheaper feeds and butter-fat at present prices there is more profit today in butter-fat than there was a year ago. Relatively, a De Laval is cheaper than it was a year ago.

See your nearest De Laval agent now about getting a new De Laval. Even though you have only one good cow, it will pay you to own one.

De Laval Dairy Supply Company

61 Beale Street **San Francisco**

Sooner or later you will use a De Laval Cream Separator or Milker

CALIFORNIA CULTIVATOR

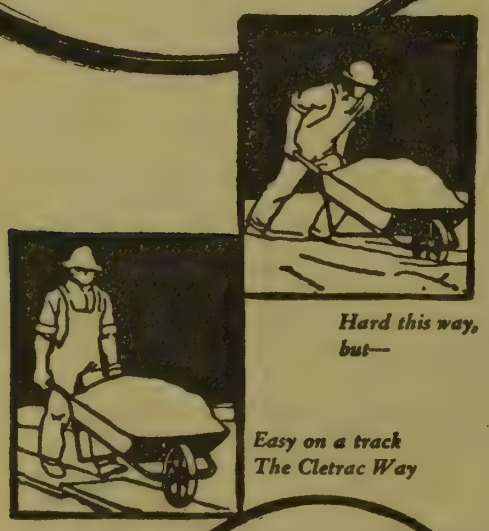
and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — February 12, 1921 — No. 7

Eleventh National Orange Show, San Bernardino, February 18-28

Cletrac
TANK-TYPE TRACTOR



Hard this way, but—

Easy on a track The Cletrac Way

Specifications

Horsepower: 12 at drawbar, 20 at belt pulley.

Length: 96 inches.

Width: 50 inches.

Height: 52 inches.

Weight: 3420 pounds.

Turning Circle: 12 feet.

Traction Surface: About 800 squares inches.

Center to Center of Tracks: 38 inches.

Belt Pulley: Dia. 8 inches; face, 6 inches.

Cletrac Holds an Acre-an-Hour Gait

First on the field in spring, Cletrac strikes a steady acre-an-hour gait — turning well-mulched furrows and completely burying the cover crop. And it's a fast, steady pace it holds no matter what work you put it to—cutting cost and increasing production.

Cletrac's two broad, ground-gripping tracks distribute its weight evenly and lightly for working over soft and uneven ground. That is why it rides powerfully ahead regardless of the condition of the soil—like a wheelbarrow on a plank.

Cletrac turns short—swings quickly back to the furrow without loss of time or power. Built low, without projections, it weaves easily in and out around trees without injuring them. Its water air-washer always gives plenty of cool, moist air — keeps the motor running smoothly in scorching, dust-heavy summer.

The Cletrac replaces six to eight horses—does practically any jobs they do—and is fresh enough at the end of the day to continue through the night at emergency pumping or other belt work if need be. You can handle more acres with a Cletrac, and still have plenty of time and power to put into each of them.

See your dealer for full details of how the Cletrac does more work at less expense—or get them by writing today for the whole story in the interesting booklet, "Selecting Your Tractor."

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LOS ANGELES, CAL. SAN FRANCISCO, CAL. SPOKANE, WASH.

California Cultivator

Vol. LVI, No. 7 Los Angeles, February 12, 1921 One Dollar Yearly

The Economics of Better Livestock

By R. P. Royce

THE average California steer is marketed at three years of age weighing around 1,100 pounds. The average California hog reaches market somewhere around 15 months of age, averaging perhaps 200 pounds. The average California dairy cow produces less than 200 pounds of fat per year.

The average livestock owner says he is not making any money—and as he probably knows more about his business than anyone else, he is doubtless correct. Let a group of average producers get together and, after commiserating each other on the general state of affairs, they will analyze the situation until they have ascribed their condition to many and sundry causes. We have been listening in on these conferences for a good many years. Generally speaking, the market manipulators come in for a large share of the blame (and justly), the high price of feed, the drouth, the flood, the high cost of labor and a hundred and one other contributing factors are mentioned, but it has been on very, very few occasions that the writer has ever heard Mr. Average Man go so far as to suggest that possibly he himself had something to do with his own troubles. In short, Mr. Average Man—"we, all of us"—is an out and out devotee of the great American sport, passing the buck. A pleasant sport to be sure, but less fruitful of concrete results than that other American pastime, the successful playing of which depends upon hitting the ball.

If more of us would devote less time in passing the buck of our failures to the middleman, the tariff, the railroads and the hundred other popular causes and would face our problems squarely and fearlessly, we might learn a lot that could be turned to our individual advantage. And among many of the things that we might learn would be the following facts:

Life has never set a premium on inefficiency, and never will.

Any great movement that requires mass effort in the end is successful to just the extent of energy and intelligence manifested by the units making up the mass.

Now we grant that there are many vital problems that the agricultural industry must solve if that industry is to progress, and the solution of such problems will require a united force. And such being the case, it must be obvious that before great progress is made the units within the mass must direct their efforts in the direction in which they plan organized movement.

There is too great tendency on the part of producers to expect results approaching the millenium without being willing to make individual effort. Individuals form themselves into groups for a definite purpose, nine times out of ten to increase the profitableness of their business. Leaders are selected and then the individuals too often fold their hands and wait for the lightning to strike. Nature has a way of compensating effort in about the proportion of the effort expended.

Suppose, for instance, you happen to be Mr. Average Dairyman. You are engaged in a good business, but you don't feel that the returns justify your efforts; the margin between cost of production and selling price is too narrow. You have joined an association organized for the purpose of widening the margin. Aside from stopping some leaks and saving the private manufacturers' profit, there are but two ways under heaven to widen the margin that spells profits. One is to increase the selling price and the other is to cheapen the primary cost of production. Organized effort can increase the selling price only to the point that will not restrict consumption. Organized effort cannot materially lower your cost of production. The latter problem is your job and no one's else. If for a moment you figure otherwise you are doomed to disappointment. You can organize and organize again, and keep on organizing until the "cows come home," but until you are willing to set your own barn in order your situation will not improve.

If you are Mr. Average Rangeman or Mr. Average Swineman or Mr. Average Sheepman your situation is in no way different in the main from the case of the man who owns dairy cows. You must put your own business in order first.

There is no more vital problem facing the livestock producer than getting his business down to the lowest possible cost of production, and it is the wise man who will lose no time or effort in organizing his business along lines calculated to cheapen his costs.

The average producer would doubtless be sorely offended if he were told he was not a good business man, but when the fact that the average dairy cow produces only about 200 pounds of fat per year and that there are many dairies where production will average from 300 to 500 pounds of fat, that the average steer will go into market at three years of age weighing 1,100 pounds while other range operators market steers of the same age weighing above 1,500 pounds, and that it is possible to market 200 pound hogs at seven to eight months of age instead of 15 to 18 months, what can he say for himself?

He cannot credit the difference to luck on the other fellow's part because the other fellows haven't been lucky. They have not accomplished such results through any miracle, except through the miracle of better blood. Let any doubting producer investigate the causes back of increased production and he will find that credit must be given to the use of better sires, and of course better methods of feeding and management.

The possibility of increasing the production of meat and milk through the use of good pure bred sires has not begun to be appreciated, in spite of the fact that on every hand there is ample evidence. Indeed, there is scarcely a community where some one or a few have not pointed the way.

One of the most striking examples of dairy improvement was brought before the public by the published results of an experiment that has been carried on at the Iowa state experiment station. In starting the experiment scrub cows, typical piney woods cows, were secured from an isolated section of Arkansas in which no pure bred bull had ever been used. The cows were taken to Iowa and given ordinary good care and mated to carefully selected pure bred bulls. The experiment has been running long enough to secure data on the second generation.

The daughters of the original cows averaged 2338.5 pounds of milk and 89.68 pounds of butter fat more than their dams. The increase amounted to 64 per cent in milk and 52 per cent in butter fat. The granddaughters of the original cows by pure bred bulls produced 4741.7 pounds of milk and 186.6 pounds of butter fat more than their granddam, the increase amounting to 129 per cent in milk and 109 per cent in butter fat. The two crosses more than doubled the production!

In a Wisconsin cow testing association it was found that the average production of the cows in herds using pure bred bulls was 6350 pounds of milk and 295 pounds of butter fat. In herds headed by grade and scrub bulls the average production per cow was 5009 pounds of milk and 215 pounds of fat.

The writer knows of another case where the production of the daughters was 30 per cent greater than that of their dams.

The Napa state hospital herd of grade Holsteins has had the benefit of good pure bred bulls for 18 years and now has an average production of over 490 pounds of fat (figuring the average number of cows in milk). Up in Humboldt County, noted for progressive dairying, there are many grade herds with high production. John Hansen of Loleta had a herd of 101 cows with an average production of 6635.5 pounds of milk and 339.65 pounds of fat. J. W. Coppini, Ferndale, who won one of the California Cultivator prizes in the 1916-18 state dairy cow competition, had a herd of 22 cows that averaged 510.09 pounds of fat. Iver Iverson, Arcata, another Cultivator winner, had 37 cows that averaged 497.73 pounds of fat, and W. Terkelsen of Ferndale averaged 420.46 pounds of fat for 53 cows. Aux Ambort of Holtville had 29 grades that averaged 357.39 pounds of fat.

And so it goes. There are hundreds of cases that might be cited to show the value of a pure bred dairy bull, and there are thousands of cases that might be cited to indicate the worthlessness of a scrub side. The pity of it all is that we have so many men trying to make a living from cows, who refuse to put into practice methods that have been proven sound. We have plenty of sympathy for the man who is working in ignorance, but we have little or none for the man who says that "all this talk about better bulls is just bunk." He is the man who talks loudest against conditions surrounding his industry, who rails at the middleman, the manufacturer, the consumer and "the whole works" and who expects his association to extort a higher price from the public, but who fails to appreciate the necessity of doing something himself.

The possibility of increasing the profitableness of beef production through a wider use of pure bred bulls is equally as definite. And here again, the wonder of the situation is the apparent indifference of range operators to the sort of bulls that they use. Go into any range section and it will be noted that the average quality of cattle is very common. The native cows are small, lack the proper conformation and fleshing qualities they should have. Inquiry as to why such cattle are handled instead of better sorts usually is met with the statement that the range is no place for pure bred bulls—they are "too fancy" for the average operator who prides himself on being "practical." The statement is usually added that "anyway we can't afford to pay high prices for bulls as the profits in cattle raising are too small." Sure, the profits are small; the profits have been getting smaller each year in proportion to advancing costs of operation and unless cattlemen take steps to meet the situation the point will soon be reached where there is no profit. Nothing can be more certain than the last statement. The man who expects to be able to "get by" in the future by using methods that might have been satisfactory 30 or 40 years ago has no business raising cattle. Who is entitled to claim attention from the consumer—the man using scrub or grade bulls and who markets his steers at three to four years of age, weighing from 1,000 to 1,200 pounds, or the man who has invested in pure bred bulls and has graded up his cow herd until he can turn off his steers a year younger, weighing 30 to 50 per cent heavier and of far more desirable quality?

Look over the range business in this state and take note of the men who are making the most money. Are they using $100 bulls? They are not! The men who are making the most are the men who are using well bred bulls. Take the biggest outfits—what sort of bulls are they using? Ask Henry A. Jastro, the best posted cattleman in California, what he thinks of the value of good blood. Ask C. N. Hawkins of the Pacheco Cattle Company what he thinks of pure bred bulls—he might tell you that they have increased the weight and selling price of their steers to a point where they market three year old grass steers averaging over 1,500 pounds and that they always command a premium above the common stuff. Study the results of the Sni-A-Bar experiment and learn how pure bred bulls used on common cows increased the weight and selling price of the calves until the second cross calves fetched $48 more than calves of the first cross. Are such results practical or not?

The value of better boars and sows is too generally conceded to require

(Continued on Page 224.)

Agricultural News Notes of the Pacific Coast

Northern California

The Willows Journal asks, "Why not a rice day?"

Sonoma County fair will be held at Santa Rosa August 24-28.

The Sacramento River reached 25 feet last week, the highest mark of the season.

The Paradise farm center of Butte County held its annual meeting and election February 8.

The Pacific Rice Growers Association has asked members to hold their 1920 rice until prices pick up.

Fruit grower members of the Alameda County farm bureau are organizing a horticultural department.

California grape growers recently met in San Francisco and voted to continue the Exchange another year.

Poultry demonstrations by R. B. Easson are being planned for various centers of the Butte County farm bureau.

The Martinez chamber of commerce and the Escalon farmers bureau are among those who have endorsed the Marshall plan.

The Butte County farm bureau is conducting a very successful membership campaign and expects to enroll at least 700 members.

Large plantings of barley are expected to be made in Yolo County. Seeding has been held back on account of rainy weather.

The Pea Growers Sales Union of Alameda County now has 599 members located in Hayward, Decoto, Niles, Irvington, Warm Springs and Milpitas.

At the recent meeting of the California Grape Growers Exchange in San Francisco special attention was given to problems of construction of dehydration plants.

Glenn County sent a representative of rice interests to Washington to take up matter of exporting rice to China as a means of relieving oversupplied market of California.

A quantity of low grade wool brought into a pool by the California farm bureau has been consigned to the National Warehouse Company at Chicago. One sale was recently made in the East at 23 cents a pound.

Stockholders of the Yolo County Farm Loan Association are reorganizing and getting ready for decision of the supreme court, which it is hoped will come soon, and permit continuance of the farm loan bank.

California Wool Growers Association has named the following committee to look after legislative matters affecting the interests of sheep men: G. N. Merritt, Woodland; G. B. Wilcox, Red Bluff; Peter Moy, Stockton.

The State Pear Growers Association recently met and reelected the old board of directors. $50,000 has been appropriated for a nation wide advertising campaign. Frank Swett of Martinez is president and F. A. Edinger of Sacramento, secretary-treasurer.

At a recent meeting of the California Wool Growers Association G. K. King of Red Bluff, Charles Hansen of Butte City, G. K. Swingle of Davis, Peter Moy of Stockton and C. A. Kimble of Hanford were named a committee to confer with Dr. Iverson of the state department of agriculture on dipping of sheep.

Central California

Raisin Day, Fresno, April 30.

Turlock is endorsing the Marshall reclamation plan.

Tulare's last fat hog auction resulted in selling seven cars around the $11 mark.

Tulare County reports its rainfall as more than double that of last year same date.

Fresno reports its seasonal rainfall totals 5.21 this year, as against 2.20 last year same date.

San Joaquin Light and Power Company will increase its capitalization from $25,000,000 to $150,000,000.

The State Association of Holstein-Friesian Breeders will hold annual meeting at Modesto, February 10.

San Joaquin Valley League of Municipalities has appealed to the state legislature to abolish the state railway commission.

Tulare County auto drivers have been testing out jackrabbit speed on the highways and find they can beat 50 miles per hour.

The second payment on 1920 raisin crop is being made by the Associated Raisin Company. It will total approximately $15,000,000.

A meeting of grape growers was held in San Francisco, January 28, to discuss more thorough standardization of grape pack.

Stanislaus County has most successful farmers mutual fire insurance company. It recently settled a large fire loss within few days from fire.

Owens Valley pear growers have organized and will market through their association. W. W. Watterson is president and A. A. Shirley, secretary.

Donald L. Currier has been appointed horticultural commissioner of San Benito County, succeeding Leonard Day, for many years holding that office.

A cantaloupe shipper of Modesto, Stanislaus County, is suing the railroad because of loss of two cars of cantaloupes last season by slow freight.

Kern County farm center meetings: Delano, February 14; Old River, 15; Wasco, 16; Rio Bravo, 17; Edison-Fairfax, 18; Mountain View, 21; Pond, 23; Inyo-Kern, 24; Rosedale, 25.

The state legislature has adjourned for its usual recess. Will convene again February 24. Over 2,000 bills were introduced. The state controller reports the first session cost $52,039.

The Turlock and Modesto irrigation district has filed suit against the San Francisco Power Company, asking condemnation of ditch which runs through proposed Don Pedro reservoir site.

The recent annual meeting of the Milk Producers Association of Central California, held in Modesto, resulted in complete harmony and election of 14 directors for the coming year. Three of these were reelected from the former board.

A committee of irrigators of Kern County has made during last week a tour of various irrigated sections of the South, investigating as to engineering, finance and other problems connected with cooperatively organized irrigation districts.

Southern California

Escondido reports peaches in bloom January 15.

Don't forget to celebrate Ripe Olive Day February 21.

San Dimas orange by-products factory is again in operation.

San Bernardino County farm bureau boosters propose to double membership.

A count of the Orientals in Ventura County shows 661 Japanese and 153 Chinese.

A new farm bureau center has just been organized at Yucaipa, San Bernardino County.

Smeltzer and Wintersburg sections of Orange County have disposed of last season's bean crop.

Cotton growers of the Perris Valley of Riverside County have decided to plant only Durango seed.

The Garden Grove Bean Growers Association has closed its bean house, which has been open since September.

A woolen mills at Santa Ana is planning to work up California wool into auto robes. It began operations February 1.

The Associated Chambers of Commerce of Riverside County have endorsed the Packard plan for flood control.

Thermal, Riverside County, cotton growers have formed an association which will plant only the Acala variety.

Twenty Florida orange growers are making a trip to California in order to visit the National Orange Show, February 18-28.

Victorville and Hesperia sections of San Bernardino County show the best of prospects for big fruit and, in fact, all other crops.

Dairymen distributing milk in Los Angeles County have made a cut in retail price of two cents per quart, effective February 1.

The farm bureau center at San Juan Capistrano in Orange County has elected Aaron Buchheim president and H. H. Blee secretary.

W. V. Shear, certified seed potato inspector, addressed a meeting of potato growers, dealers and seed men at San Diego January 26.

Citrus growers of the Orange County Fruit Exchange have fixed on a wage scale of 15 to 20 per cent below that prevailing last season.

State inspection of carlot shipments of lettuce began in the Imperial Valley January 21. One inspector is located in Heber and one in Brawley.

The California Walnut Growers' Association has secured a quantity of black walnut seed from Santa Clara Valley for planting by its members.

Prof. F. T. Bioletti of the state university was at Blythe, Riverside County, January 25 and 26 to advise growers as to best methods of planting and growing vineyards.

The La Habra Walnut Growers Association held its annual meeting January 15 re-electing R. W. George, president; A. E. Harris, vice-president; George Eaby, secretary-treasurer; directors, R. W. George, W. J. Gregory, H. E. Hart, George Eaby, I. Henry Johnson, A. M. Otis, A. E. Harris.

The Coast and General

Arizona has 1,034 pure bred Holsteins.

Utah reports feed and livestock conditions good.

A $5 poll tax has been proposed in the Oregon legislature.

Farm bureau state federation has been formed in Oregon.

Michigan potato growers are appealing for tariff on potato flour.

Japanese grown oranges are being shipped to Winnipeg, Canada.

Indiana state vegetable growers have organized a marketing association.

Montana's winter season so far has averaged warm, with good range conditions.

New Mexico stock ranges need more moisture to put the feed in good condition.

The sixteenth annual convention of the Tennessee Horticultural Society just closed at Nashville.

Citrus growers of Florida have fixed a maximum of $3.75 per day for labor in groves and packing houses.

New York is again receiving shipments of broilers from China. They average about two pounds to the bird.

The New York state association of sealers and weights and measures is urging the legislature to pass a law requiring sale of berries by weight.

Transportation companies and government experts are trying out heating devices in apple shipping cars from Wenatchee, Washington, to the East.

The Idaho Farm Bureau Federation at its recent annual meeting at Nampa adopted a new constitution that will practically make it a marketing association.

Several cars of eggs have just been received in New York from China by way of San Francisco. Large shipments have also been received from Argentina.

A boys and girls' sheep club has been organized in Kittitas County, Washington. Each member starts with three head of pure bred Hampshire ewes.

Figures given out by the Holstein-Friesian Association of America show 352,071 pure bred Holsteins in the United States with New York the leading state in number.

The farm bureau of Whatcom County, Washington, purchased 81,000 pounds of stumping powder for members the past year. It expects to make heavier purchases the coming year.

Texas tomato growers are organizing with hope or securing better market, but many growers are urging discontinuance of planting unless a decrease may be had in freight rates.

Poultry papers are giving space to announcement of a 28 carload shipment of Chinese eggs received at New York within the past week. These eggs were received at the port of Vancouver.

The Kittitas farm bureau of Washington has 719 members, an increase of more than 100 per cent over last year's membership. For the entire county 77.5 per cent of heads of families in farming communities have become members of the farm bureau.

Pear Blight Control

By James Mills Jr.

AS all pear growers know, this has been the worst year for blight in trees for almost the last 20 years. As there will be a large amount of holdover blight in the pears in evidence next year, and as this blight will spread rapidly if conditions are propitious, a history of the blight control on a 350 acre pear planting might help in the control work for next year's campaign.

Three years ago the writer was fortunate in being able to take a trip to Hayward Reed's pear planting at Vina, where he happened to see the head blight man at work treating trees infected with blight, by Mr. Reed's new system. The same year, with Mr. Reed's able advice, and the next year, trees on this large planting were treated successfully by this new system. This year, however, the infection was so widespread that control measures were very difficult. Late in the year Mr. Reed was kind enough to send his head man to our properties to assist us in the use of his new system.

In planning all future work the factors which we find have to be borne in mind continually are as follows:

Pear blight is a bacterial disease.

Active blight cases exude a bright sticky exudate. This runs very rapidly during the rainy season and during wet and muggy conditions. This year we had heavy winds during the wet periods, and this scattered the exudate all over the trees, causing numerous infections. The trees should not be touched and none of the cases should be treated when the trees are wet with dew. Later on in the day, if it is warm and the exudate hardens and does not drop off when the tree is shaken, it is possible to carry on the work without great danger of spreading the infection. In this connection S. W. Foster states, and Mr. Reed corroborates his statement, that he has found it is advisable when spraying pears for the control of codling moth to add 4-4-50 Bordeaux to the codling moth spray. This is powerful enough to disinfect the wounds on the tree and to insure against the potency of any of the bacteria in the exudate which the spray washes off and spreads over the remainder of the tree.

The blight is spread by insects, particularly bees, ants, aphis and thrips. It can also be spread very easily by the hands of the blight men. Tools, and even the hands of the men working in the blight, should be disinfected and the additional precaution taken of disinfecting every cut made. This precaution should be religiously exercised. For this we have found a mixture of mercury bichloride and mercury cyanide, mixed to a strength of about 1 to 500 of mercury and 1 to 1,000 each of bichloride and cyanide, to be the best. The cyanide is best for disinfecting the wounds and the chloride for the tools. The mixture thus handles both. Mr. Reed sometimes uses straight Bordeaux paste for disinfecting his cuts. This material, due to its intense blue color, gives the added advantage of showing conclusively that every cut has been disinfected. When aphis are abundant you will always find the ants which are on the job milking the aphis. The aphis punctures the small twigs and leaves on which they feed, and the ants which feed on the wet exudate of the blight, moving over these small punctures made by the aphis, leave a blight infection behind. A small drop of exudate will also start an infection when it drops on aphis punctured twigs. It is found to be good policy to spray for the control of aphis and thrips. It might almost be said that it is best to spray for them whether they are present or not, as here again the spray material, which in this case, if B. L. 40, kills most of the other insects present and as well acts as a repellent to the bees.

As mentioned above, the blight travels fastest during warm, muggy conditions, particularly if these are preceded by heavy winds. During hot dry weather the blight slows up and in most of the small twigs is killed.

The blight travels through the phloem layers of the bark, rather than through the cambium. By careful observation this year we find that early in the season the blight travels on the outside of the phloem layer; that is, in the young trees, just under the outer bark. As the season progresses the blight recedes into the bark and travels almost in the cambium layer. Later in the fall again it seems to come closer to the surface.

As the blight does not always travel in a definite line the operators have to use very great care in watching for the long, fine hair-like lines, indicating the extension of the blight infection farther up the limbs than is apparent on the surface of the bark. This one factor is perhaps the most important one to be borne in mind by anyone working with it, and it shows that it is absolutely necessary to give the blight credit for traveling much farther than is apparent. It is of the utmost importance to cut well above and below any infection.

Do not attempt to save small limbs unless they are heavily laden with fruit, and above all things do not leave stubs of any kind. Make all cuts smooth and take care not to injure the bark in any way around the cuts, as injuries and bad stubs will allow new infection to be easily started by insects and other agencies.

None of the so-called "blight cures" are of any use.

The blight travels faster down the limbs than up the limbs, apparently moving with the sap. When the sap is moving rapidly the blight does likewise.

It must always be borne in mind that when blight material is thrown on the moist ground the blight continues to travel in the wood and exudes gum which causes it to remain an active factor in the distribution of blight. All brush should be removed or burned immediately. Care must be exercised in cultivation when any blight material is on the ground, as the cultivator teeth, after running through or scratching any blighted brush or roots, will spread the infection nine times out of ten to the roots of any other tree which it scratches.

Never climb in the trees, but use a ladder, for the injuries done to the bark offer opening for any drops of blight exudate to start new infections.

The new method of handling consists in the removal of the cortical layers of the bark over the infected area and from eight inches to one foot on either side of the infection. If this work is done carefully with a knife or with some of the other prepared tools, which are now on the market, the cambium, which does not become infected with blight until the case is well advanced, will not be injured. When the cuts are all disinfected with the material noted above the cambium will then proceed to grow and heal over the wound. We have found it is best to keep the bark, the treated surface and all tools well wet with disinfectant throughout the operation. This because of the fact that bark when wet shows the infected areas a great deal more distinctly and also because if the cut is not kept moistened during the treatment of a large infection the treated surface tends to seal over and the disinfectant does not penetrate as well as it does when the surface is kept moist throughout the operation.

The crotches of the tree should be cut to the cambium for they are the hardest of all to treat, and plenty of sap will flow through the outside of the limbs to keep the tree growing and heal over the entire wound.

Very careful work must be done in scraping at the crown of the tree. The bark is very thin at this point and in most cases very hard, and if very careful work is not done in the removal of the cortical layer there the operator's knife or other tools will slip and cut through to the cambium. Places which are deeply cut, such as this, will dry out and the wound will not heal. Care must be exercised in not scraping too deep. Only a very thin layer of cortical cells should be removed.

When the infection travels into the roots it is also possible to save the tree by this method, but the work must be exceptionally carefully performed, as the bark on the roots is very thin and delicate. The smaller infected roots should be removed immediately, preferably with a gouge chisel, and all of the crevices in the crown of the tree should be carefully cleaned out to the cambium layer with the same tool. When the infection travels under the crown of the tree we have found the use of a small blow torch very effective in handling this work. As 126 degrees Fahrenheit will kill blight bacteria, and as the under side of the crown can be sacrificed without permanent injury to the tree, we have used a torch and heated that part of the tree sufficiently to kill all possible infection.

In our work we have found it best to run a small advance crew. These men only work on the infections on the main limbs, trunks and roots, and as they move more rapidly than our main clean up crew, they catch most of the infections on our main trees before they travel far and do much damage. Behind our main clean-up crew, we run our inspectors. These men treat all of the comebacks before they travel and do much damage. The comeback cases are the hardest to handle and do the most damage, for where limbs have already been treated it is necessary to remove the bark to the cambium, as the remaining bark is very hard and thin and cannot be scraped without injury to the cambium. No matter how carefully the work is done there is sure to be a small percentage of comeback cases. Some operators have attempted to stop the occurrence of comeback cases in treated trees by increasing the strength of the disinfecting solution and by scraping deeper into the bark, but both these methods are injurious to the cambium and generally kill this layer. It is far better to admit that a few comebacks are certain to appear and to govern your work to handle them as quickly as they make their presence known; this they do by exuding a small white glistening drop which later turns to a reddish brown color.

In the past pear growers have checked the travel of the blight in their trees by stopping all cultivation, irrigation, etc., but it is a question whether or not this practice pays. One large orchard nearby was treated in this manner this year but the blight did not stop traveling much sooner than in our own. When the first fall rains came the sap in the trees started to move very rapidly and the few holdover cases became so active that very soon the infection was as bad as before. Added to this, the trees did not make as large a growth as they did in the well cared for orchards, and so they are really a year behind.

Blight control measures should be practiced throughout the summer and well on into the fall to insure that absolutely no holdover cankers are left. The pruners cutting through these will spread the blight, also the blight in the cankers will become active the next spring and will be there for the insects and other agencies to spread and start new infections. The removal of all holdover cases before spring is the most important practice in the control of blight, for if no blight is left in the plantings and all neighboring plantings are in the same shape, the chances of having blight the next year are less than one in a hundred.

THE CITRUS CROP

The citrus crop is the most important one in Sicily. It consists principally of lemons, oranges, both sweet and bitter, and mandarins. The United States is the most important market for Sicilian lemons, but for some time there have been practically no shipments of oranges to that country, as the American market is now largely supplied by California and Florida. According to customs statistics 59,091 tons of lemons were exported from Palermo in 1919; 32,602 tons going to the United States, 11,896 to Great Britain, 10,437 to Switzerland, 879 to Holland, 401 to Belgium, 389 to Tunis, 311 to Denmark, 189 to Germany, 132 to Austria Hungary, 31 to Turkey and 17 tons to Australia. Exports of oranges were 7,431 tons, of which France took 3,303, Great Britain 2,256, Switzerland 1,474, Belgium 160, Holland 108, Denmark 64, and other countries smaller amounts.

The 1919 lemon crop was considerably smaller than that of 1918 except the "verdellis." Throughout 1919 local producers held out for high prices which enabled them to pay the increased labor and irrigation charges and still make handsome profits. The exporters had a very unsuccessful year. The prices for lemons in the American market were very weak, except in August and September when reasonable gains were realized.

It has been estimated that about 25 per cent of the lemon crop is used in the manufacture of by-products. From the standpoint of production the year was a very successful one. The demand for citrate of lime, concentrated lemon juice, citric acid, tartaric acid, etc., was very large. The citrate of lime, which is the juice of lemon preserved in lime, was all bought up by the Camera Agrumaria and resold by them. In this manner it was possible to maintain prices and bring forward surplus stock which was reduced to about 16.000 tons at the end of the year. There are only two Italian factories producing citric acid—one in Casale, in northern Italy, and the other in Palermo.

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

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Entered as second-class matter February 12, 1900, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Saturday, Feb. 12, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

The snowclad mountains in the background with laden orange trees in the foreground, shown on the cover, also the great cornucopia pouring out its wealth of golden fruit give advance announcement of the coming of the eleventh National Orange Show to be held in San Bernardino, February 18-28. This has become one of California's regular annual festivals, and in more recent years there has been connected with it a citrus institute which makes it a practical cultural educational opportunity as well. San Bernardino already has the tents pitched and many of the details worked out for this great event.

* * *

Nevada sheep manure was formerly shipped into California orange orchards at about $7.15 per ton. Touay it costs, or would cost if it came, $12.15. It doesn't come and California orchards are less productive.

* * *

The railways have announced "For the first time in years there is a surplus of freight cars." Several reasons are given, but the one which we believe is the true one is not given, and that is prohibitive freight tariff. Many cars of Imperial Valley grown lettuce rotted or were plowed under because it was impossible to ship East and secure sufficient to cover the cost of packing and the excessively high freight rate. California fruits are now going to Atlantic seaboard points by water. It is not as attractive a method of shipping as by rail, but growers wish to get something for their fruit besides packing expense and the excessive rate paid to the railroads.

* * *

The first of these ships to carry California oranges and lemons was the Charles H. Cramp, which left Los Angeles harbor January 12 and reached Philadelphia in about 15 days with fruit in good condition, in fact, the percentage of decay was even lower than is usually shown in railway shipments.

* * *

In January California shipped to Japan a million and a half pounds of cotton and to Liverpool over a million pounds. There are still several thousand bales awaiting orders from American and foreign manufacturers. This state produced during the last season 152,636 bales. Arizona produced 105,200 bales. Neither state has finished its harvest for the labor and the financial situation has been such that harvesting has been slow and, in fact, the entire 1920 crop will never be harvested.

* * *

The cotton production of 1920 called for the planting in California of 287,500 acres, and of 225,000 in Arizona. It is too early to predict next season's planting, but one guess which may prove fairly close is that it will be at least 25 per cent under that of last year.

COLLEGE OF AGRICULTURE CONFERENCE AT SACRAMENTO

California prides itself on its great state university. In the matter of attendance it is the greatest institution in the world. Its college of agriculure is not fully up to the standard of many of the other branches of the institution, though it is so infinitely beyond its position of a score of years ago that its management and the producers of the state have felt pride in its growth. But today both those within the institution and responsible for its management and the farmers generally over the state are asking for extension and improvement in all its activities, and many questions have come up.

"Shall it remain a part of and intimately connected with the great university at Berkeley or shall it be transferred to Davis or some other agricultural section with acreage sufficient to give practical as well as academic opportunity?" or "Shall the main institution remain in Berkeley with one northern branch at Davis which shall give opportunity for freshman and sophomore years, with theoretical and research work continued at Berkeley the two final years of the course and beside the northern branch at Davis, other branches ultimately to be located in other portions of the state?" These are only slight indications of the great number of questions which are coming up at this time which seems to be a crucial one in the life of the institution.

The state legislature has before it at this moment measures which concern the institution, and many well wishers of agriculture in California have innumerable suggestions, so a meeting has been called by the joint agricultural committee, to be held at Sacramento on the evening of February 25. The purpose of the meeting is to ascertain "the views of the agricultural interests of California as to the needs of and the proper steps for developing an efficient college of agriculture. All who may have views of a constructive nature are urged to be present and make their views public."

This meeting is one of the most important ever called in this state. We must have a strong college, and it is up to the farm interests to say what kind of college they want.

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Built in our Los Angeles Factory. Delivered in BUILT 4-foot sections complete with doors, windows, roofing, etc., all ready to assemble and finish in one to five days, depending on size.

Many Plans—One to Five Rooms

We will erect at a nominal charge within 50 miles of factory.

Direct from Forest to You at Lowest Cost

We buy our lumber direct from the mills of the heart of the great Oregon timber country through our main factory at Portland, ship it direct to Los Angeles and by our modern methods and power machinery convert it into attractive permanent houses and garages at a wonderful saving over all other methods. Complete information is free for the asking.

See us first for bungalows, beach cottages, camps, garages, ranch help houses, etc.

Our low prices will surprise you.

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(Decomposed Marine Shell)

Nature's Own Soil Tonic

Odorless Soluble 99.96% Pure

Lime is one of ten necessary elements in successful crop production. Applied to soil inclined to pack, it has the power of shrinking clay, making it more pervious to water and making cultivation easier.

Lime materials make "sour" soils "sweet." They change an acid soil condition to a slightly alkaline one. ACIDITY of soils is very detrimental to crop growth. A slightly alkaline condition which may be obtained through the use of lime is ideal for crops.

Lime materials are necessary for useful and beneficial bacteria and other microorganisms of the soil. They also promote the normal decay of soil organic matter through their effects on the agencies of decay.

Through ancient, mediaeval and modern research, decomposed shell lime stands paramount as the one Soil Tonic agreed upon by all expert Agriculturists.

Decomposed Marine Shell Lime

For bacteria development, acidity correction, odorless soil sweetener it has no equal, whether it be for fruit, nuts, flowers, vegetables or lawns.

SIZE—QUALITY—VALUE

Of your crop is determined by the proper liming of your soil.

Every person attending the San Bernardino National Orange Show, February 18th to 28th, may, by mentioning this invitation in California Cultivator, receive absolutely free a package of D. M. S. Lime Fertilizer. Booths 8 and 9 from main entrance on car line.

Order through your nearest dealer, and be sure to specify D. M. S. LIME and you will be sure of the product. Exchange Members supplied through the Fruit Growers Supply Company.

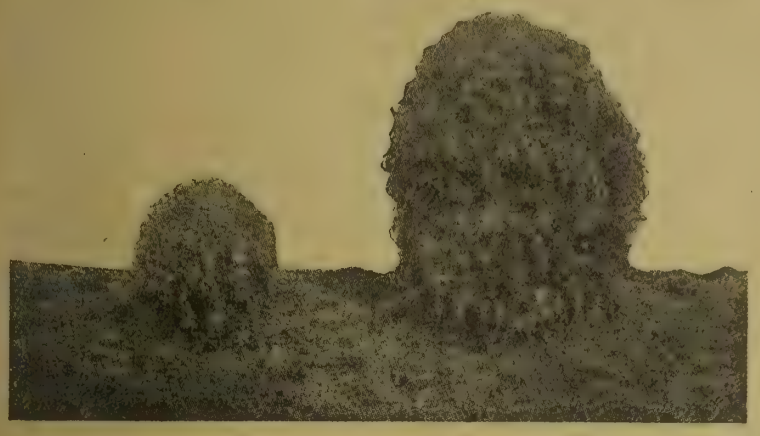
The Torrance Lime and Fertilizer Co.

Plant Office: Torrance, Cal. Plant: Lomita, Cal.
301 Bradbury Bldg. Eos Angeles, Cal.

Increased Crop Production

Follows the Use of AGRI GYPSUM

Highly beneficial results at small expense may always reasonably be expected. Citrus crops, Hay, Grain, Truck and other crops of heavy plant growths require large amounts of the elements found in AGRI GYPSUM



Pile on left shows Alfalfa from plot not treated; pile on right, Alfalfa from same size plot treated with 200 lbs. of gypsum to the acre. Photograph loaned by Professor Olson of the State Experiment Station of the State of Washington.

IT IS AN ESTABLISHED FACT that such crops as oranges, alfalfa, barley, oats, potatoes, hay crops, cover, truck and other similar crops, with heavy foliage, require LARGE AMOUNTS OF THE ELEMENTS CONTAINED IN AGRI GYPSUM. As a rule our soils are deficient in these elements but it is easy and economical to supply them.

The qualities of AGRI GYPSUM may be summed up as—

First—A most beneficial fertilizer.

Second AGRI GYPSUM releases, by its chemical action upon other elements already in the soil, Potash, Phosphorus, and Nitrogen—all essential to the successful growth of crops. Much land is low in productivity because the Plant Food is not available. AGRI GYPSUM will make your soil fertility easily available.

Third— Crops such as alfalfa, given AGRI GYPSUM, will invariably contain more sulphur and nitrogen; will have more leaves, better color and otherwise make a better appearance, THEREBY BRINGING A BETTER PRICE IN ADDITION TO BEING A HEAVIER AND BETTER CROP.

Fourth—AGRI GYPSUM loosens the soil when it is inclined to pack and rounds out its culture and preparation.

Fifth—Soils treated with AGRI GYPSUM hold moisture better than soils deficient in Calcium Sulphate.

Sixth—Soils pregnant with black alkali are neutralized, reducing if not entirely rendering the alkali harmless, depending upon the amount of alkali and the amount of AGRI GYPSUM used.

You can tell any field where AGRI GYPSUM has been used. The plant growth tells the story. Many recent experiments by recognized authorities show almost amazing increases in crop production.

Considering costs of nitrates, phosphates and other crop producing elements, you can save money by alternating fertilizer with AGRI GYPSUM and obtain equally good, if not better, results at a saving to you and benefit to your land.

Gypsum contains two of ten essential elements for plant nutrition,—calcium and sulphur, and also serves to release other elements. It is not new. It was introduced in Europe in 1768. Benjamin Franklin was the first to advocate its use in America, and soil experts everywhere advocate its use in the production of the principal crops.

Read What Users of AGRI GYPSUM Have to Say About Results

Lindsay, Calif., Feb. 5th, 1921.

United States Gypsum Company,
Los Angeles, Calif.
Dear Sirs:—

In reply to your inquiry, I have been well satisfied with the results obtained in my orange grove through the use of your AGRI GYPSUM. I have made two applications of one ton to the acre, one in 1918 and one in 1920, putting it on in May or June and working into the soil with cultivator. It has put the soil in perfect mechanical condition where it used to cement together and I find it possible to put the cultivator down much deeper with no more power than formerly.

Yours truly,

BASIL PRIOR.

Rivera, Calif., February 7th, 1921.

United States Gypsum Co.,
Los Angeles, Calif.

Dear Sirs:—

In reply to your inquiry, will say the result of your AGRI GYPSUM was no surprise to me as I have used it for several years. A large crop of oranges, and the soil was very hard before using. It has mellowed it up in good shape and takes water easily. The cover crop on the land where Gypsum was used is from 3-6 tons heavier per acre.

Yours truly,

WM. SEX.

FREE SOIL ANALYSIS

For determining the amount of alkali in soils, we will make a free chemical analysis, advising the correct amount of AGRI GYPSUM to apply.

AGRI GYPSUM applied to citrus makes all the soil fertility available to the plant growth. It supplies the elements that invigorate the growth of cover crops, increasing the accumulation of nitrogen on the roots.

Ask your Dealer for AGRI GYPSUM and you will be sure of the product ground fine to do the most good with the least amount used. If your Dealer cannot supply you, write

Agri GYPSUM

United States Gypsum Company

"World's Largest Producers of Gypsum Products"

Citizens Nat'l Bank Bldg., Los Angeles, Cal.

US

BOLTON ORCHARD HEATER

The U. S. Department of Agriculture estimates the annual loss by frost at $75,000,000. It may hit you next. The Bolton Orchard Heater

Prevents Frost Damage

Safest and surest frost prevention method known. Coal and wood heaters take too long to generate required heat. The Bolton beats Jack Frost to it, generates heat rapidly, maintains the temperature above the freezing point. This is important.

Send for Booklet B-2

Tells you all about frost prevention. Filled with valuable information for the grower.

W. R. AMES COMPANY
8th and Irwin Streets San Francisco, Calif.

Largest stock of Surface Irrigation Pipe and Pipe Equipement on the Pacific Coast

AVOCADOS!!! or LEMONS???

Will Lemons Come Back?

Avocados have not left, but are the most promising agricultural product ever introduced into the country.

Lemon land is Avocado land.

Interplant your lemon grove with Avocados and assure yourself of an income.

Come out and let's talk it over, or write for information.

W. P. SHERLOCK

Oldest Exclusive Avocado Nursery in the State.
Avocado Ranch and Nursery, R.D. 2, Box 114, Puente. Phone Puente 188.
Nursery and sales yard on Third Avenue south of Blvd. between El Monte and Puente.

When Writing Advertisers Mention California Cultivator.

California Fruits

A WONDERFULLY interesting report of the conditions of last year's fruit production is to be found in "California's Crop Report 1920," made by Leon M. Estabrook, chief of the bureau of crop estimates, U. S. A., G. H. Hecke of the state department of agriculture and E. E. Kaufman of the California cooperative crop reporting service. We have quoted its tables and some of its findings as to several crops. Here is its comment on the fruit situation.

Apples

The commercial or boxed apple crop of 1920 is estimated at 3,000,000 boxes out of a total crop of about 6,003,000 bushels or boxes. Watsonville packed about 2,250,000 boxes, Sonoma County 500,000 boxes, and the balance of the state 250,000 boxes. Adverse weather conditions were experienced at blossom time; high temperatures caused a little sunburn and doubtless drouth conditions affected the size of individual fruits. The percentage of first grade fruit was smaller than in 1919, and the extremely low price of dried apples cut the tonnage sent to the evaporators to less than 50 per cent of the previous year. In some instances the cost of moving from the orchards was greater than the price received at the drier, and the fruit was left to rot under the trees. The production of dried apples is roughly estimated at about 5,000 tons. Reports indicated a greater production than usual of cider and vinegar.

Carlot shipments to date, in comparison with last year, as reported by the bureau of markets, would indicate a decided decrease in the quantity of California apples in storage.

Peaches

The 1920 peach crop was affected more or less by the long continued drouth and the big crop of the previous year. Sutter County came back strong, and with older and new bearing trees produced approximately 40,000 tons of canning peaches. Shipping peaches from Placer County and other sections held up well. New plantings of peaches of the drying varieties have not kept pace with the old and torn out orchards, and the decrease in acreage is reflected to some extent in the decrease in the production of dried peaches. Last year some 34,000 tons of dried peaches was produced, while the estimate this year is for only about 25,000 tons. Out of the state shipments in 1918 were 3,137 cars; 2,774 cars in 1919; and 3,107 cars in 1920. Prices were better than last year, canning peaches being from $10 to $30 higher, with a small increase over 1919 to the grower of dried peaches. A fair estimate of the average price to the grower for all varieties would appear to be about $76 per ton.

Peach production in the United States was estimated at 43,697,000 bushels, equivalent to about 1,092,425 tons. California's production was about 14,800,000 bushels, equivalent to 345,000 tons, or 32.5 per cent of the total production of the entire United States.

Pears

Out of the state shipments of pears this year amounted to 4,377 cars; last year, 4,248 cars; and 4,572 cars in 1918. The tonnage of dried pears is estimated at less than half of last year or about 2,500 tons. The tonnage going to the canneries was about 75 per cent of 1919, which with the estimate for home consumption, makes the total production about 90,000 tons. Prices paid the growers this year for canning stock averaged $15 a ton higher than in 1919. Shipping stock sold at higher prices also, and a fair average to the grower for the 1920 crop would be about $90 a ton.

The total production in the United States was estimated at 17,279,000 bushels, of which 20.8 per cent was credited to California.

Apricots

Adverse weather conditions at blossom time, followed by brown rot and shot-hole fungus, played havoc with the "cot" crop, which was only 65.7 per cent of the 1919 crop and the smallest since 1916 notwithstanding the large increase in new bearing acreage the last few years. The production of dried apricots will probably not exceed 10,000 tons. Shipments fresh were 312 cars against 420 cars last year and 441 cars in 1918.

Prunes

The prune crop suffered from both drouth and adverse weather conditions at blossom time. With some increase in new bearing acreage and older trees in new prune growing districts, the production dropped to 73.1 per cent of last year when the crop was estimated at 130,000 tons. The crop was very spotted, some orchards carrying a full load while across the road or over the fence only half a crop was evident.

Cherries

This crop came very near to being a bumper. Out of the state shipments jumped from 356 and 335 cars in 1918 and 1919 respectively to 494 cars for 1920. Light rains in the midst of the harvest caused more or less cracking of the fruit, and the consequent development of mold resulted in some damage.

Plums

Out of the state shipments in 1920 amounted to 2,534 cars compared to 2,918 cars in 1919. The plum crop really got away to a bad start in the spring. Two days of excessively high

The Growth of Co-operative Canning

The present movement to bring the tremendous force of Co-operative effort to the canning fruit industry had its modest beginning seven years ago in Tulare County. Its growth during these seven years is best shown by the following figures.

Year	Canneries Operated	Cases Packed	Approximate Value
1914	1	65,000	$ 190,000.00
1915	3	72,000	216,350.00
1916	3	101,500	329,500.00
1917	3	313,929	1,569,645.00
1918	5	319,000	1,470,000.00
1919	7	673,365	3,870,426.00
1920 (Estd.)	10	965,633	5,869,424.00

At the present time the ten canneries, five in Southern California and five in the Santa Clara and San Joaquin Valleys, can less than 10 per cent of the pack of the State. Yet they have wielded a tremendous influence on fruit prices obtained by the growers in all sections of the State.

Now the time has come when the growers should take hold of this business and make their own organization the dominant factor of the Canning Industry.

Only in this way can the necessary expansion of domestic and world markets be obtained. Only in this way can the prices of our canning fruits be stabilized and the values of our orchards maintained.

The present situation of the canneries of the state is one of demoralization. Disaster faces this, the greatest of California's fruit industries.

It is you, Mr. Fruit Grower, and you alone who can save the situation by your united support of our effort to provide the necessary manufacturing facilities and marketing outlets for your fruit.

Write at once for full information to Box G, SAN JOSE, CALIF.

CALIFORNIA CO-OPERATIVE CANNERIES

Owned and Operated by the Growers of California

Main Office, San Jose, Cal.

120-3

Why Increased Taxes?

Every citizen of California is a taxpayer.

Taxation is, therefore, YOUR concern.

You pay direct on property, or you pay indirect taxes through transportation, light and power costs, in interest rates, or in the cost of merchandise and rent.

So you want answers to these two questions:

1—How much money is actually needed by the State, with proper economy, and Why?

2—How shall this money be raised, and Why?

What the Tax Investigation and Economy League IS

Three hundred thousand of our people, security holders in public utilities, banks and other companies taxed for state purposes, together with an equal number of employees of these companies, are represented by the Tax Investigation & Economy League, which has been organized to learn and make public the facts about the actual needs of the State government.

NON-PARTISAN and NON-POLITICAL, this league invites the cooperation of every citizen.

Such Facts as These Are Pertinent

Governor Johnson's 1915 budget for two years called for $36,000,000
Governor Stephens' 1919 budget " " " called for $47,000,000
Governor Stephens' 1921 budget for two years calls for $81,000,000

— An increase of $45,000,000 over the budget of six years ago —
— An increase of $34,000,000 over the budget of two years ago —
— An increase of $15,000,000 over the budget of two years ago even after we allow for all the appropriations and expenditures authorized by the people at the November Elections.

It Is Time for Economy

For all of us the era of extravagance should be ended. That our present state organization costs too much and is full of unnecessary duplications and unnecessary expenses, is agreed by state officials and the public alike.

We ought to know, and we want to know now, how much money is being wasted. We ought to know whether the new demands on our pocketbooks are necessary demands.

No Ad Valorem Tax

One thing is already sure. If the $15,000,000 now asked, in addition to the money voted last November is saved to the public,

—Our existing revenue will pay all our bills—we will have a surplus in the treasury two years hence—there will be no ad valorem tax.

The legislature is the authority that shall determine how much money shall be raised, and what rates of taxation are fair.

It is the privilege and duty of every citizen who has facts to present, and conclusions based on these facts, to assist his representatives in reaching a just decision.

You will be kept advised of the results of our investigation. Your own views and conclusions are respectfully invited

Tax Investigation and Economy League

HERBERT W. CLARK, President **W. V. HILL, Secretary**

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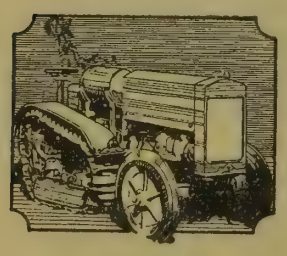
"The Power to Tax is the Power to Destroy"

Here's a Tractor for the Western Farmer

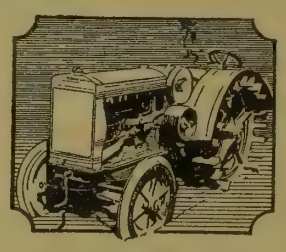
Western farmers need a Western tractor. In other words, they need a Stockton. For the Stockton was designed by men who *knew conditions,* and whether it be plowing under a cover-crop, pulling a disc, or filling a silo, the Stockton takes *all* the short cuts to cheaper production and longer profits.

Because soil conditions differ, two types are built, the SURE-GRIP tracklayer, and the OPEN-WHEEL type. Both are low and narrow, to work close to trees and vines and to operate between close set rows in orchards and vineyards. Both turn short, pull hard, *speed-up* farm tasks.

Both have Herschell-Spillman motors, Berling Magnetos, Hyatt roller bearings, and Kingston one adjustment carburetors. Our folder describes their mechanical features in detail. Let us send this to you, and tell you the name of our dealer near you who will arrange for you to see these tractors in actual operation. Write today and ask for folder D.



Stockton SURE-GRIP and OPEN-WHEEL Tractors



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General Office: California Fruit Building, Sacramento, Cal.

11th National

ORANGE SHOW

San Bernardino

February 18-28

MILLIONS OF ORANGES
IN WONDERFUL
FEATURE EXHIBITS

Complete Industrial Section
of
Farm and Ranch Equipment

10 Regular Trains Daily
From Los Angeles

Pacific Electric Railway

The California Cultivator
Costs Only $1 Yearly

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ROEDING TRUE TREES FRESNO, CAL.

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It describes and prices the most complete stock of Deciduous Fruits, Small Fruits, Vines, Citrus Trees, Olives, Ornamental Plants and Roses on the Coast.

Sent Free for the Asking

FANCHER CREEK NURSERIES

FRESNO, CALIFORNIA

Eureka and Placentia Walnut Trees

First Class Stock, Grafted on
Northern California Black Walnuts.

EDWARD H. RUST

1625 Bank Street
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temperatures the latter half of June caused a probable damage of ten per cent to the plum crop.

Oranges

It looks like the 1920-21 orange crop will be the second largest in the history of the state, the 1916-17 crop carrying off first honors.

The orange crop is one of the most difficult to estimate because at the time when such estimates must be prepared only from two to three per cent of the crop has been harvested. Valencias will not be picked for four or five months and are barely half grown. The December 1 estimate is nothing more than a forecast of probable production, and should be called the preliminary estimate, leaving the final until about May 1 of the following year when the Valencia harvest has been fairly started.

For the 1920-21 crop the California cooperative crop reporting service makes a preliminary estimate of 18,700,000 boxes compared to a revised estimate of production last year of 15,075,000 boxes. Shipments the past year, that is November 1, 1919, to October 31, 1920, were 35,547 cars of which at least 2,000 cars were Valencias carried over from the previous year, thus leaving total shipments of the 1919-20 crop at about 33,500 cars or 15,075,000 boxes. The Navel crop of the present year was reported of excellent quality, but in some districts running to small sizes and small sizes would tend to reduce the number of packed boxes.

Grapefruit is included in the foregoing estimate of oranges, and will probably amount to about 325,000 boxes.

Lemons

Shipments of lemons of the 1919-20 crop showed a production of about 3,900,000 boxes. All reports indicate a larger crop for 1920-21. Unless some improvement can be brought about in market conditions, it is doubtful if the present crop will all be harvested as many growers will be unable to sell their lemons for enough to pay the packing and transportation charges, to say nothing of the cost of growing.

Grapes

First reports of the season indicated the grape crop would be equal to or better than in 1919. As the season advanced, however, and the effect of the severe drouth of previous years became more apparent, a decline in condition was generally noted. Two days of exceedingly high temperatures the latter half of June, followed by a similar experience in July, cut down the raisin crop a possible 25 per cent from early expectations. The average yield of raisins per acre was estimated at about 1,900 pounds and the area harvested at 190,000 acres, making the estimated total production 180,000 tons. The new bearing acreage of raisins is largely confined to Thompsons, and the production of this variety in comparison with the total crop shows an increased percentage over former years.

The total grape shipments the present year, as reported by the transportation companies, amounted to about 26,100 cars, of which 24,065 were from north of the Tehachapi. Just what proportion of this total was table grapes it is impossible to say, but a reasonable estimate would appear to be about 50 per cent, or in other words 13,000 cars of table grapes found their way outside of the state the past year. On the basis of an average of 12 tons per car and the consumption within the state, the table grape crop was estimated to have been 160,000 tons. Inquiry developed that a fair average price received for these grapes was about $2,300 per car. Price to the grower would be considerably less as investigation showed there would be a charge for packing, loading, transportation, icing and selling of about $1.35 per crate which on the average loading of 1,000 crates per car would amount to $1,350, leaving the average price to the grower but little better than $900 per car or approximately $75 per ton.

An estimate of the production of wine grapes is still more difficult under present conditions. All reports indicated a slight decrease in comparison with the previous year. Reports as to the disposition of the crop of 1919 indicated a production of about 400,000 tons. Placing this year's

total production at 95 per cent of the crop in 1919 was directly in line with the reports of correspondents and others interested in wine grapes. A price of $65 per ton on the average may seem rather low when one thinks of the sales reported at $150 per ton or better, but it must be remembered that it is an average price to the grower which we are seeking and that the 30,000 or 40,000 tons of cull table grapes used for crushing brought a very low average and will tend to offset the extremely high prices received for certain varieties of wine grapes.

Figs

The fig crop is another one that is very hard to estimate at the present time. Planting of figs has been exceedingly heavy the past few years, but so far production does not indicate any increase in bearing acreage. It would not be surprising if it was necessary to revise this estimate upward.

Olives

No very satisfactory data are available regarding olive production although monthly reports on condition and a final estimate of production compared with a normal have been made for the past decade. The crop has become of sufficient importance to warrant more complete reports, and a determined drive among olive growers will be made next year to put the olive crop on the map and give it the attention rightly deserved.

Reports the past season showed rather a poor crop in the South, fair to good in the North, and a total production of about 65 per cent of a normal. What is a normal production in tons? Who can answer?

Walnuts

A revised estimate of the walnut crop of 1919 brings the total production up to 28,100 tons, or about five per cent greater than the December 1, 1919, estimate. Notwithstanding new bearing and older trees, this year's crop showed a decrease of nearly 7,000 tons. A larger percentage than usual of walnuts was put through the cracking machines of the Growers Association.

Almonds

Adverse weather conditions at blossom time and the drouth had more or less influence on the production of almonds the past year. Conditions were very spotted, some counties reporting practically a normal crop while in others not over 20 per cent of a normal crop was harvested. A final check on production in 1919 indicated a crop of about 7,000 tons. Production this year was hardly 80 per cent of the 1919 crop, or about 5,500 tons.

Other Fruits

Avocados, dates, pomegranates and persimmons are gradually increasing in production, and add many thousands of dollars to the enormous value of California's fruits.

Strawberries, blackberries, raspberries and loganberries are important crops in certain localities, and their value easily runs to more than a million dollars to the growers.

Nursery products have long held an important place in the horticultural wealth of the state, and the past year has undoubtedly shown a comfortable increase in the value of the output of the nurseryman and florist.

NATIONAL TRACTOR SHOW

The National Tractor Show, one of the two to be held during 1921, closes on Saturday of this week at Columbus, Ohio. Trucks and farm implements are also admitted and space has been demanded by exhibitors in excess of any possibility of furnishing. The attendance of farmers from all portions of the Middle West has been very large.

SAN QUENTIN GRAIN BAGS

The price of San Quentin grain bags has been fixed at seven and a half cents each, and this price will remain in effect until April 1, 1921.

The California Cooperative Canneries is conducting a state wide campaign for new members.

BEST TRACKLAYER SIXTY PULLING THREE GANGS OF STOCKTON PLOWS 10 INCHES DEEP

Tell Us How Much You Have to Plow

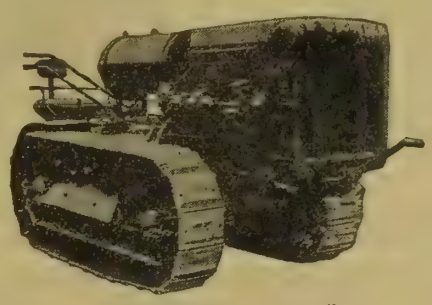
Whether you need a Best Tracklayer *Sixty* or a Best Tracklayer *Thirty*, depends upon the size of your farm and the nature of your work.

Give us the details and we will show you how you can use economically one of the famous Best Tracklayer Tractors for your plowing, cultivating, harvesting, hauling, etc.

There's no need to tell you of the many years of successful performance back of the Best line. There's no need to tell you of what the Best line—developed on the Pacific Coast—has done for the Pacific Coast farmer.

Interesting as this is, it is ancient history to you, What you want to know is "How can I adopt the Best way to my farming problems?"

That is the question we want to help answer for you. There's no better time than the present in which to put the Best Tracklayer to the test. Plowing time is here and plowing must be started at once and completed promptly. You need Best dependability and stamina and low operating cost, and you need a tractor that will go unimpeded over soft, loose or rough ground.



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Let us tell you all about the points that have made Best Tracklayer reputation, and give you the name and address of our nearest dealer where you can see the Tracklayer. Now is the time.

C. L. Best Tractor Co.
San Leandro, - California

BEST TRACKLAYER TRACTORS

Dependable Trees
FROM OREGON

We solicit your inquiries for any Fruit trees you may need for Spring planting. We have a limited number of especially nice trees of

Yellow Belleflower, Delicious, Jonathan, McIntosh Red, Newtown Pippin, Northern Spy, Rome Beauty, Winter Banana and other apples.
Bartlett, Bosc, Anjou, Comice, B. Hardy, and other pears.
French and other prunes.
Muir, Lovell, Elberta and Tuscan peaches in small grades.
Small Fruits, Shade Trees and a splendid assortment of Shrubbery.

We have served planters of California for many, many years; Orenco Trees are planted by the tens of thousands in your state and many planters will use none other. Shipments will be made promptly and you will, we are confident, be highly satisfied. Address

Oregon Nursery Company
Orenco, Oregon

—28th Annual—

Seed Catalog

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The Big Annual comprises 112 pages—being the most complete ever published. Has several hundred illustrations. Answers over 1,000 questions. IS MAILED ABSOLUTELY FREE. If you have not received your copy—WRITE FOR IT TODAY. Address, Aggeler & Musser Seed Company, 620 South Spring Street, Los Angeles, Calif.

When Writing to Advertisers Say You Saw Their Ads in the California Cultivator

FRUIT TREES

Ask about our **JUNE BUDDED TREES** also the **DOUBLE BUDDED DORMANT STOCKS.** They can be planted with splendid results. We still have a limited supply of one year trees. All of them are the leading commercial varieties.

FIG TREES

All the leading varieties such as Black Mission, Calimyrna, Kadota and White Adriatic.

GRAPE VINES

A Choice Selection of First Class Number One Vines.
Emperor, Flame Tokay, Malaga, Muscat,
Thompson Seedless.

—OUR NEW DESCRIPTIVE CATALOG MAILED FREE—

Kirkman Nurseries

FRESNO CALIFORNIA

TEAGUE TREES

Ask the man who has planted them and he will tell you that Teague Trees are unequaled in growth and productiveness.

They are the best that can be produced.

If you intend planting CITRUS TREES it will pay you to come and see our stock and let us figure on your requirements while we still have a good assortment to select from, as the supply of good trees is limited.

Avocados, Feijoas and other Tropical fruit trees in all of the recommended varieties.

Send for our new descriptive price list and tell us what you intend to plant.

The R. M. Teague Nurseries

Box A. San Dimas, California

Founded in 1889 by R. M. Teague

Washington Navel Valencia Late Oranges
Eureka Lemon Marsh Seedless Grapefruit
Exchange Buds

100,000 Florida Sour Stock Orange Seedlings
Absolutely Clean of All Scale

GRAPE CUTTINGS of the Black Malvoise, Black Mission, Cornichon, Tokay and Persian.

T. J. Walker Nurseries

(Established 1895)

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100,000 Plants

Loganberry
Currant
Gooseberry
Raspberry
Blackberry

Trees & Vines

Fruit, Shade and Ornamental.
Palms
Shrubs
Roses, etc.

300,000 ASPARAGUS Six leading sorts, including rust-proof Reading, Grant and Washington

Write for Prices CROW'S NURSERIES, Gilroy, Cal.

PLANT FIG and PEAR TREES For PROFIT

Order Fruit Trees NOW—Stock Scarce
Write For Price List—Full Line—Good Stock
CITRUS, TROPICAL and Full Line of ORNAMENTAL PLANTS
PIONEER NURSERY OF MONROVIA

When Writing Advertisers Mention California Cultivator.

Processing Citron

In response to many requests we are reprinting directions for preparing the regular "citron of commerce," as given in former Cultivator:

In preparing citron for preserving it is halved, put in brine for three weeks, and said brine must be strong enough to bear the weight of an egg the entire time the citron is in it. By keeping up the proper strength of the brine, the citron can be kept in storage until necessary to use it, being kept this way many months.

You can not depulp the citron raw, as the fiber between pulp and rind is too strong. The citron is boiled in water from 45 minutes to an hour, which boiling loosens up the pulp so it can be easily removed with a spoon. The boiling also brings out the salt in the fruit and after it is dipped in two washings of cold water all salt should have been removed.

Now the citron is ready for taking up the syrups. Since the citron has already been boiled in only water for about one hour, its texture is softened up so that syrups can soak through it evenly. A syrup can be prepared thick as honey and the citron boiled in it (do not put into the syrup more than one-half its weight of citron—into 100 pounds of syrup put only 50 pounds of citron), the water in the citron will dilute the strength of the syrup. Hence the water of the citron must pass off as steam during the cooking and at the end of one hour the syrup should be just as dense as at the start. Now the citron can be removed with its syrup and both allowed to stand for nearly a week in some vessel.

At the end of the first week the cook will find that the strength of the syrup has greatly decreased. Now the syrup should be brought to its proper strength and the citron cooked in it a second time.

Each time the citron is removed from the vessel in which it is cooked to the vessel it is to stand in, the syrup should be of proper strength. This recooking should take place as often as the syrup is found below the standard in strength. When the syrup has become constant in density, the citron can be kept stored this way at the desire of the cook as long as the syrup covers the fruit, though it is exposed to the air. Dense syrups are preservatives, but weak ones invite fermentation.

Citron should cure up in the syrup for at least four weeks. After this time the syrup should be drained from it and the fruit allowed to dry upon trays in a dry place away from the sun and the bees. It will take from five to seven days for the fruit to dry.

When it is dried, it is dipped into a crystallizing syrup made from pure cane sugar. This syrup is prepared by dissolving sugar in boiling water until you get a super saturated solution—allow the syrup to stand for five hours when a crust of sugar will be formed upon the top—remove the crust and dip the fruit well. Next lay the fruit upon clean trays and after 24 hours standing a nice crystallization of sugar will cover the fruit. At last the fruit is ready for boxing for shipment.

Prepare your syrups used for cooking three-fifths glucose and two-fifths cane sugar. Cooked in clear glucose the flavor is lost and fruit is too tough. Cooked in straight sugar syrup after standing awhile the sugar crystallizes in it, and transparent condition is lost and fruit becomes brittle.

Orange and lemon peel can be candied according to the same process.

Increase the Duty of Water

By A Practical Irrigator

IN each locality methods may be worked out that are satisfactory for the kind of crop raised, the texture of the soil and the degree of the slope. The various combinations of these three variables differ so that it is impossible to lay down set rules that will apply.

With the development of new territory, due to the very fact that the conditions of each tract of land are variable, it takes keen judgment to design a system to attain the best results, and any suggestions that the contractors may offer are well worth while.

Before going ahead with this subject let us define an "Ideal Furrow Irrigation."

To wet the surface, or just under the surface, of the entire field to an even depth without the following injurious effects: without loss of water; without eroding the soil; without an undue amount of leaching of fertilizer.

First, without loss of water: In running excessive amounts of water off the lower end of a field, a great deal of valuable humus is lost, besides the waste of water.

Second, without eroding the soil: The principal erosion occurs at the upper end, washing out the best parts of the soil, and thereby lessening the yield of the crops. In case of orchards at the upper end the tree rows are soon left on a high ridge, and this soil is deposited at the lower end. In orange groves the lower end suffers the most as gum disease soon sets in, and often kills the trees.

Third, without an undue amount of leaching of fertilizer: Few people appreciate the amount of humus and other salts lost by being dissolved in irrigation or rainwater and carried down below the reach of trees or field crops. Of course, this leaching is most in gravelly or sandy soils. Some writers give the amount of lime alone lost in this way as from one to two tons per acre per year. When we think how insoluble lime is, it is very easy to imagine the loss that must occur of other more soluble salts.

Professor Etcheverry, formerly head of the department of irrigation of the University of California, gives a summary of his experiences. "To decrease the loss by deep percolation the remedy is to divide the field or orchard into short furrows or runs, the length depending on the character of the soil, and to run the water more quickly in the furrows or over the field by using larger heads, especially for porous soils. It is probably safe to assume that the loss due to deep percolation will average no less than 25 per cent of the water delivered to the farm."

In the hillside orchard districts it is much better to lay out the irrigation system first and subdivide the property accordingly. Often the furrows can be run at an angle with the slope with very little grading, thus keeping the grade flatter with less danger of excessive erosion and percolation. In exceptional cases it is better to lay out the rows of the orchards so they can be irrigated on a contour. With a level and a little practice, anybody can learn to stake out orchards in this way and at the same time get the rows located so they will look well and cultivate well. This sort of a system will bring the rows not parallel with one edge of the property and of uneven length. However, in orchard cultivation the tractors and implements used are small, and the extra turning is not an objectionable feature.

Professor Smith, professor of irrigation engineering of the University of Arizona, in a recent bulletin says: "Heavy grading is also objectionable because it may strip the fertile soil from a large part of the field. If water can be run in deep furrows, the land can be graded in the simplest manner by smoothing it and dividing it into a number of plane surfaces, each plane having approximately the same slope given it by nature. This method saves money and saves land. The question involves, therefore, the possibility of irrigating in steep furrows. Can the field be wetted uniformly? The efficiency of irrigation depends upon the uniformity of distribution even more than upon the depth applied. If a large head of water is turned into

each furrow the soil may be washed and eroded, or on a clay soil the water may reach the lower end and have to be turned off before much has been absorbed. If the head is too small and the soil is sandy, the water will be absorbed in the upper part of the field and the lower part will receive little or none. Evidently the head should be the dependent variable. The best quantity to run in each furrow must be determined by trial. Different parts of the same ranch may require different heads."

In regard to length of rows it is a mistake to try to run water too far. Generally speaking, for orchards, the length of furrows should not exceed 330 feet. Heavy soils in which the slope is under three feet per 100 feet offer the best chance for longer runs. In case of young orchards, 660 feet might be permissible, but as the groves get a little older intermediate lines should be installed.

To irrigate successfully it is most important to find effective means of conducting and dividing the water in the head ditch. Of all the systems that have been used the concrete pipe system is the most successful. Good pipe should test 100 to 200 feet internal pressure and should be used with success on main lines with pressures up to 50 feet. However, a system equipped with orchard valves operates most successfully when the pressures are kept below ten feet. When the pressure exceeds this amount cut off gates or overflows should be provided to break the head.

Laterals equipped with stand pipes under pressure should preferably not exceed 1,320 feet in length.

Again quoting Professor Smith: "On account of the complexity of conditions general principles of irrigation are difficult of statement. I believe, however, that discussions such as the above lead to more study of local conditions and to a more scientific and economical distribution of water."

BLACK FLY OF CITRUS

Owing to its continued successful spread the following notes on the tropical citrus pest, Aleurocanthus woglumi, commonly known as the spiny citrus white fly, and in Spanish, Mosca prieta, is herewith reproduced from the U. S. bureau of entomology bulletin.

The black fly (Aleurocanthus woglumi Ashby) is a tropical pest of the Old World that has made its appearance in the tropics of the Americas. Its apparently rapid spread in the New World, along with the fact that it now threatens to gain entrance into Florida from Cuba and Nassau, makes it a pest of special interest from the plant quarantine point of view.

The authors, Dietz and Zetek, say further: "There is perhaps only one way that an insect like Aleurocanthus woglumi can be introduced from an infested region to an uninfested, suitable, far distant one and become established. This is on a well infested host plant, or parts thereof, on which the leaves are allowed to remain so packed that the various stages of the insect can continue their development throughout the journey, or at least withstand it. This is because there are several checks to its successful establishment: first, a high mortality of the individuals, especially in the early instars or at molting time, if subjected to adverse conditions, such as drying out or heavy rains; secondly, the fact that parthenogenesis occurs in Aleurocanthus woglumi just as in other white flies whose life history has been worked out; and, thirdly, the fact that the larvae are not vigorous crawlers and seldom get more than an inch away from the eggs from which they hatch. These factors are considered at length in a discussion of the life history of this insect.

"When Aleurocanthus woglumi is favorably introduced into a new locality, however, there are several ways in which it may spread and become thoroughly established in a region. These methods are the natural and the artificial. The natural method includes: first, the natural flight or migration of the adults from infested to clean plants; second, the carriage of the adults and possibly larvae by winds. The artificial method includes: first, the carrying of infested plants from one place to another, either in the form of pot or specimen plants or in numbers as in the case of nursery stock or as cuttings; second, the carrying of adults on vehicles, trains, automobiles, or the clothes of persons passing or working among infested trees."

THRIVING APPLE SECTION

By Annie Viola Hoge

When the present town of Julian, about 60 miles from San Diego, was founded about 40 years ago, the one thought of its founders was gold, and since that time more than $7,000,000 of the precious metal is said to have been taken from the mines in that vicinity. Gold is no longer produced in any great quantity there, but another and surer means of wealth has been discovered.

Julian is more famous now for its yield of apples and pears than it ever was for its gold, and annually many thousands of dollars are paid growers for their fruit crop. Some of the finest apples and pears grown anywhere in the West are grown in Julian, where the combination of soil, altitude (about 4,000 feet) and general climatic conditions unite to make the firm, highly colored, splendid keeping fruit of wonderful flavor. Irrigation is unnecessary because of the heavy winter rains and fall and summer showers. Destroying frosts have been experienced only about once in 20 years. About 350 acres in the valleys surrounding Julian are planted to apples alone. In the early days many varieties were planted, but most of the orchards have now been worked over to a few standard sorts, and all of the new orchards are being planted with but three or four varieties, so that the output from this section is becoming standardized. King David, Delicious, Grimes Golden, Jonathan and Yellow Newtowns are the principal varieties that have been grown successfully, and the Bartlett, Anjou and Santa Ana pears. The only handicap to Julian apple growers in past years is said to have been lack of good roads. This has been entirely overcome and Julian is in good shape for shipment of fruit by auto truck to San Diego for reshipment by boat and rail.

CROP INSURANCE

Crop producers will find interest in Bulletin No. 912 of the U. S. department of agriculture, "Hail Insurance on Farm Crops in the United States." At present there is no hail insurance company, cooperative or otherwise, in the entire southwest or southeast portion of the county, but in the Middle West, especially Kansas, North Dakota and Iowa, farmers are carrying millions of dollars of hail insurance. North and South Dakota and Nebraska have state hail insurance departments. While this bulletin has no immediate interest for Californians, that is, so far as hail insurance is concerned, there is much of general information for cooperative crop insurance concerns.

The railroad commission has issued to the Southern California Edison Company permission to proceed with program which calls for expenditure of $48,000,000 in the headwaters of the San Joaquin and other central and northern state rivers. The plans call for construction of one tunnel 11 miles in length.

Your Future Income

Foot-hill grown trees are practically immune to crown-gall and diseases common to other localities
Roots such as are grown only on our foot hill soil and location They are Tree Insurance

Your future income in based upon what you do today.

California fruit has paid a greater income on investments than any other industry in the State.

Constructive orchard planting today will, five years hence, repay you each year, profits equal to your original investment.

Five years hence, the present financial readjustments will be forgotten history, but the investment you make today in a producing orchard will insure your financial status then.

The time to plant trees is right now. We are prepared to make immediate deliveries on all orders.

Prunes, Pears, Plums, Clingstone Peaches, Freestone Peaches, Cherries, Apricots, Apples, Almonds, Walnuts, Grapes, Olives.

—all are profitable according to their adaptability to your location.

Submit today a list of your tree wants for prices while our assortment of foot-hill grown trees is still complete.

Trees well grown, carefully graded, hardy and with a root system such as no other locality can produce. Send us your list today.

Write for catalog free.

J. E. Bergtholdt
Secy. and Mgr.

THE SILVA-BERGTHOLDT CO. CALIFORNIA FRUITS NEWCASTLE, CAL.

Silva-Bergtholdt.
Newcastle, Cal.

"I couldn't afford not to buy!"

Two farmers were talking over the outlook for this year. "I've just bought a new E-B plow," said one, "and I'm figuring on a new cultivator. Expect to place my order this week."

"What's the hurry?" asked the other. "Do you think this is a good time to buy?"

"Well, I thought at first I couldn't afford them, right now," said the first, "but when I began to think about profits this year I decided ***I couldn't afford NOT to buy.*** As I see it, there's only one way to be sure of a successful year—to plow and plant as many acres as I can take care of, and make every day count for bigger crops at less expense. That means better implements—tools I can depend on to save me time and do the work thoroughly. The old machines may have pulled me through last year, but they won't stand another season's use."

Can you afford to put off buying this year? It's worth thinking about seriously. Let your E-B dealer show you the time and labor-saving features in E-B tools. You'll see how they can help you farm more profitably.

Emerson-Brantingham Implement Co., Inc.

Established 1852 **Rockford, Illinois**

B. HAYMAN CO., INC., LOS ANGELES, CALIFORNIA

A Complete Line of Farm Machinery Manufactured and Guaranteed by One Company

LEARN AUTO AND TRACTOR

PRACTICAL TRAINING

Big Demand for Trained Auto and Tractor Men, Oxy-Acetylene Welders, Tire Vulcanizers

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Write for free 100-page illustrated catalogue, "America's Largest Trade School System."

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Dept. 6
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RAISIN GROWERS START NEW CONTRACT CAMPAIGN

By Cultivator Staff Writer

"THE biggest idea in California today is the intelligent marketing of farm products, and tonight this idea hangs in the balance," were the words of President Wylie M. Giffen at the opening of the new contract campaign to perpetuate the California Associated Raisin Company, at a mass meeting of citizens of the Sacramento and San Joaquin Valleys which packed the great Fresno Auditorium to the very doors, on Monday night, February 7.

The meeting was perhaps one of the most cosmopolitan ever held in the state in that men and women representing practically every business and every nationality in the valley were present. Despite the cosmopolitan appearance of the gathering, all were there for a single purpose—to perpetuate the California Associated Raisin Company. The purpose of the meeting, as stated by R. L. Rogers, a large raisin grower and chairman of the meeting, was to offer the raisin growers of the state a new contract and to discuss it fairly, honestly and in temperate language, so that all might thoroughly understand its provisions. The new contracts had been placed in the mails by the raisin company, so that practically all of the growers present were familiar with its contents. Mr. Rogers advised every grower to sit down quietly at home and read the contract over carefully with his wife and family, and if there were any provisions which were not understood to go to their lawyer, banker or merchant or to their neighbors and discuss the provisions, and when understood fully, to sign at once and take it to the office of the company. He declared that there must be no lagging in this campaign and that all must do their share to prevent the return of the conditions in the raisin district prior to the organization of the growers. He quoted a grower as having stated to him that before the raisin company was organized a grower was a liability to the community, but that now the same grower was an asset.

President Giffen Explains New Contract

President Wylie M. Giffen of the Associated Raisin Company briefly explained the provisions of the new contract, after having dealt with the history of the raisin industry in the valley and with the history of the recent government suit to dissolve the company.

After Mr. Giffen's talk, Chase S. Osborne, president of the Fresno County chamber of commerce and publisher of the Fresno Republican and the Fresno Herald, spoke on the value of the association to the commuunity, Lloyd W. Wilbur, a grower from Sutter County, brought the message from the northern counties that the growers would stand back of the organization to the limit.

The Japanese growers, through their representative, promised 100 per cent support to the association, as did Madera, Kern and Kings Counties. Bankers, merchants, ministers, civic organizations from all parts of the two great valleys expressed their willingness to contribute their efforts toward the successful conclusion of the campaign, and when a very strong resolution was offered by W. B. Nichols, banker and raisin grower of Dinuba, indorsing the new contract and the management of the company, it was adopted unanimously in a round of applause.

The Contract

The new contract which is being offered to the growers by the raisin company is for 15 years and calls for the sale to the association of all the raisin grapes, dried currants and dried grapes of all varieties other than raisin grapes. The grower, however, is given the privilege of withdrawing from the company at the end of three years or, in the words of the contract, "The seller is hereby given the right to file with the buyer, between December 20 and December 31 of either of the years 1923, 1925, 1927, 1929, 1931 and 1933, a written notice of his desire to withdraw from this contract as to any or all of the varieties of raisins, dried currants and dried grapes covered thereby, and thereupon

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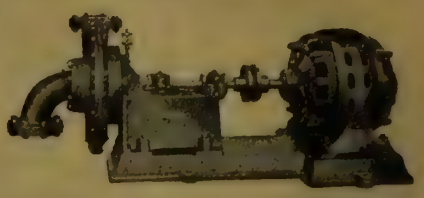

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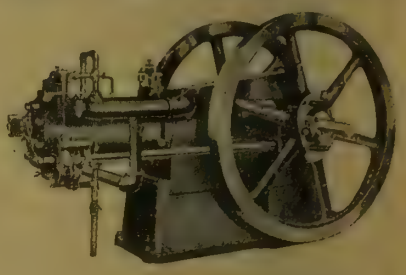

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said contract shall be cancelled as to the designated variety or varieties of the crops of that and succeeding years of the contract period.

The association guarantees a four cent price to the grower for all standard quality raisins six days after receipt of the goods and provides for the collection of three cents per pound as liquidated damages for breach of contract.

Before the close of the meeting Mr. Giffen asked the growers not to forget that the government had held in the recent suit that it had obtained its former contracts by undue persuasion and coercion and begged them to watch their step during the present campaign so that no man could say that such tactics had been resorted to in securing the new contracts.

THE GLENN COUNTY BUROC BREEDERS SALE

The annual sale of bred Duroc-Jersey sows and gilts, scheduled for January 24, by the Duroc breeders of Glenn County, was postponed on account of rain until Friday, February 4. The breeders consigning were satisfied with the $50 average they received. The top of sale was a two year old sow consigned by C. E. Bright and purchased by David Nelson, Redding, at $92.50. The next top was received by Hollingshead & Sons on a senior gilt purchased by B. J. Bills, Orland, at $75.

Missourians living in or visiting California will hold mid-winter picnic at Sycamore Grove, Los Angeles, Thursday, February 17.

Chop Out Extravagance From State Government!

It Was Done in Illinois!

It Should Be Done In California!

Will Governor Stephens lop off scores of useless high-salaried departments from the State's payroll, and consolidate essential ones?

The King excess tax bill now pending in the State Legislature proposes to arbitrarily boost the State's 1921-1922 tax budget from $47,000,000 to $81,000,000.

Even allowing $18,000,000 of this vast sum for school purposes, the proposed budget would still be $63,000,000, or around $16,000,000 more than last year's budget!

Governor Stephens and his friends in the California Legislature are fighting to have the Legislature pass this unjust and iniquitous measure when the Legislature resumes sessions, February 24th.

Will California's taxpayers, already grossly overburdened by taxes, stand for this tremendous boost in the State's budget to continue the administration's era of extravagance?

The King bill is ostensibly designed to tax the public utility corporations of the State. But when it is realized that the corporations merely pay taxes in a lump sum to the State and then collect them again from the public in turn, through added cost for service, the people—all the people—should demand the chopping off of wasteful expenditures of the people's money!

Governor Johnson's tax budget in 1915, for two years, was $36,000,000
Governor Stephens' tax budget for 1919, for two years, was $47,000,000

And now Governor Stephens and his high-salaried departments demand a total of $81,000,000 for state expenses in the next two years!

Will You Stand for It?

Or, will YOU write, 'phone or telegraph Governor Stephens and the legislators from YOUR district that YOU WILL NOT STAND FOR IT?

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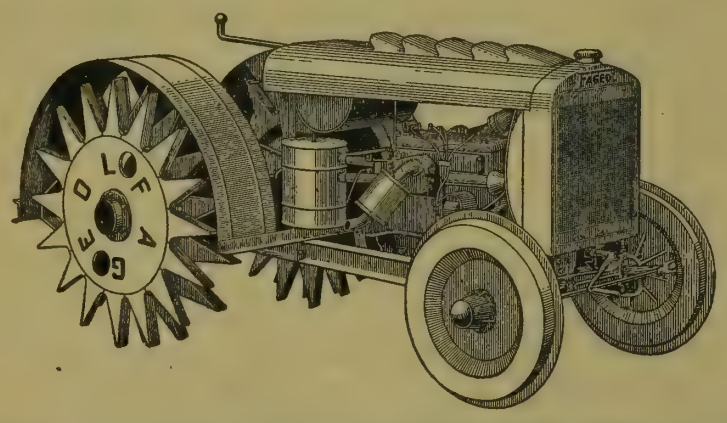

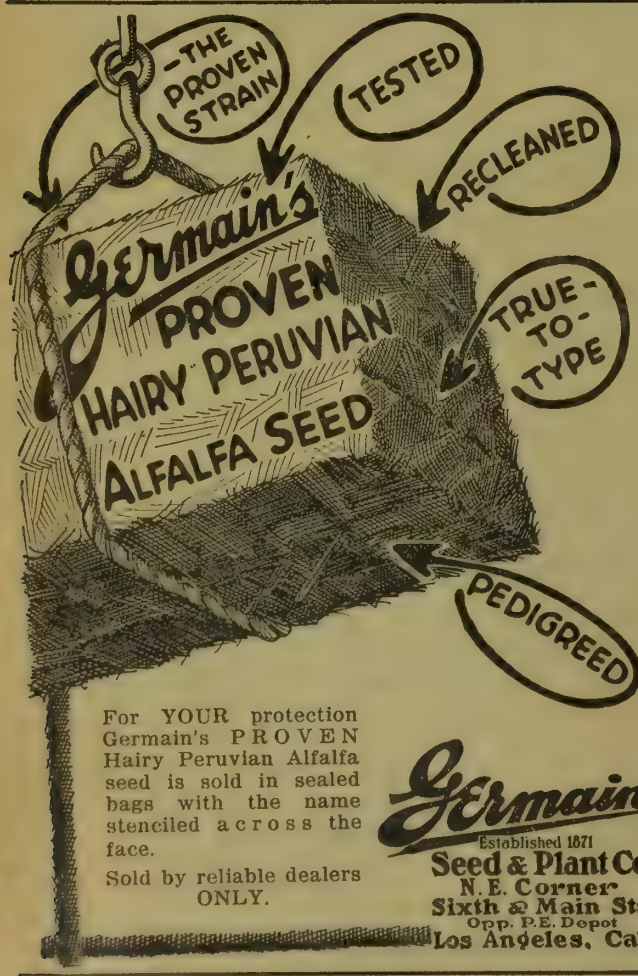

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February in the Vegetable Garden

Southern California

By D. F. Reichard

DID you plan your spring and summer garden as suggested in the Cultivator's January calendar? If not, it would be a good idea to lay out some kind of a plan that will help you with your work. The main thing is to arrange your garden in rows so that it will be easy to care for. The rains of the last month have put the ground in fine shape for working. It is essential that this moisture be conserved now for the plants to use during the dry months that are to come. Have the garden plot all thoroughly worked, either plowed and harrowed or spaded and raked. If you are to have a permanent garden get your asparagus, rhubarb and artichoke roots in at the earliest possible moment as well as blackberries, loganberries, raspberries and other berries and fruit trees and vines.

It is a little early yet to plant beans, corn, melons and squash in most sections. There are, however, many warm slopes in Southern California where any or all of these more tender vegetables may be grown at this time with success. If there is any doubt as to your particular location confine your plantings during the first part of the month to the hardier vegetables. Make plantings of radishes, spinach seeds and lettuce plants. These will soon be ready to harvest and out of the way to make room for setting out late tomato, eggplant and pepper plants. If there is room put in potatoes and onion sets or seed. It is not advisable generally to plant peas after the last of this month so if a few good messes of this pleasing vegetable are wanted for next April and May you should get them planted during this month.

Plant carrots, beets, turnips, lettuce and parsnips for succession. Set out plants of cauliflower, cabbage and kale for late spring supply.

Watch the growing plants, see that they are thinned out so as to allow for proper development. Give your root vegetables four to six inches between each plant; lettuce should be a foot apart; spinach should be not closer than an inch or two. These distances give the plants opportunity, if properly fertilized and cared for, to make that quick but steady growth that produces the fine crisp vegetables we all appreciate.

Pruning of all dormant plants and trees should be attended to at once—before the sap begins to flow. Spray all plants and trees with Bordeaux mixture or lime-sulphur solution for prevention of fungus attacks. Apply of your seedman for a spraying calendar; they usually have these as compliments of spray pump manufacturers. A spray pump is something every gardener should have as there is use for it nearly every month in the year for controlling plant pests of some kind.

Northern California

By A. R. Gould

THE continued rains are encouraging to the gardener and should give us a very prosperous season. Now is the time to begin active work in the vegetable garden. Order your seeds from the most reliable seedsman and get the best and avoid waste of time. The question of manure will also arise, and remember that every time you take a crop off you have left the soil poorer, and if you expect good crops you must supply the plant food necessary by manuring. We consider farmyard manure the best and most lasting. However, there are also some very useful artificial fertilizers on the market, and these are sulphate of ammonia, dried blood and bone meal. Heavy clay or adobe soils will be the better for an application of lime. Give these points your careful consideration and prepare your soil for the coming season by deeply trenching the plots. Continue with successional sowings of seasonable crops.

Broad Beans and Canadian Wonder

The first named, sometimes known as the Horse bean, will need spraying no doubt for aphis or black fly, which can be destroyed by a solution of nicotine extract. The Canadian Wonder may be sown now in rows, two inches apart in the row, which should be two feet apart.

Carrots

Thin out those sown last month to four inches apart, and make a sowing of Chantenay, a fine early variety. Sow thinly in rows 18 inches apart, in rich soil.

Peas

Make successional sowings of the main crop, such varieties as Stratagem and Yorkshire Hero, Dwarf Telephone, also the edible pod Melting Sugar. Sow in rows two to three feet apart and keep the cultivator busy between the rows of those earlier sown, and be on the alert for aphis.

Onions

This crop will need cultivating and the earlier varieties will require thinning out and they may also be transplanted.

Lettuce

Sow for succession Los Angeles, Big Boston and White Paris Cos in well prepared soil very thinly, in rows 18 to 20 inches apart.

Turnips

Make a sowing of White Egg and Early Snowball in rich soil in rows two feet apart.

Beets

Sow Early Detroit and Improved Globe in rows 18 inches apart. Swiss chard or Sea Kale beet should also be sown for use as spinach.

Asparagus and Rhubarb

Established beds of these must be well top dressed with manure. Rhubarb roots may still be planted. The best varieties are Myatt's Victoria and Crimson Winter.

Berries

These are very profitable, and only the best varieties should be planted, a selection of which we gave in our notes last month. Keep the soil well cultivated between the rows and heavily manure any old established plots.

Parsley

Sow Moss Curled in rows very thinly in fairly rich soil.

Herbs

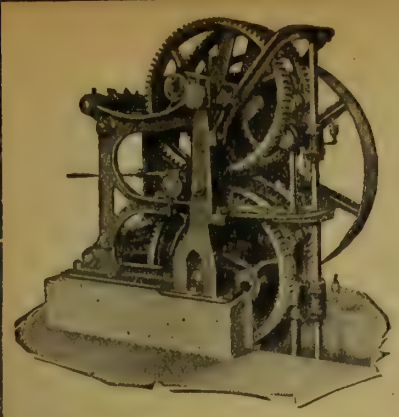
Secure plants of sage, thyme, chives, rosemary, sweet marjoram, and wormwood to plant out now.

Southern Arizona

By M. E. Bemis

FEBRUARY to the home gardener who is seeking to vary the monotony of gardening with as large a variety as possible, offers more inducement than possibly any other month in the year.

This is one of the most favorable months for the planting of the common garden vegetables such as beets, mustard, parlsey and turnips. The growth will be more rapid and the pleasures and profits of gardening will be greater. In the raising of beets



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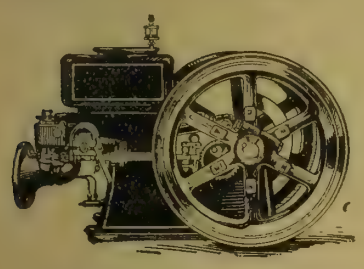

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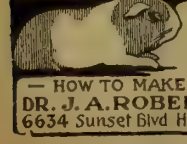

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the Crosby's' Egyptian, Early Blood Turnip and Early Eclipse varieties are to be recommended; in carrots, Danver's Half Long, Improved Long Orange and the Oxheart are possibly the favorites. Spinach, while a little late for commercial crops, may be planted for the home garden. The same is true of lettuce. Potatoes may be safely planted in February. Of the varieties which have been proven to do well let me mention the Arizona Red, Irish Cobbler, Early Triumph, Early White Rose and Peerless. Potatoes require a light and extremely rich soil, and the land should be thoroughly plowed and the seedbed made extremely fine. The best success has been had in Southern Arizona where the ground is thoroughly saturated with water before planting or where there is natural sub-irrigation. Water should be withheld until the top growth is well established and the tubers are formed. Three feet apart is a good distance for the rows. Potatoes should be cut with one to two eyes to the piece and planted 12 to 14 inches apart in the row, covering to a depth of three or four inches. If planted in furrows and the earth gradually drawn to the plants as they mature this will result in leveling the surface and later slightly ridging it, making a natural channel for irrigation water between the rows. Potatoes planted in February ought to mature in May or June before the extremely hot weather begins.

Sweet potatoes, for growing the slips, should be bedded at this season. With the small gardener, however, it is far cheaper and saves a lot of worry to buy the slips later, say the latter part of March or April at the time when they should be put into the ground. It is not too late to plant the wrinkled varieties of peas. The Yorkshire Hero is one of the favorite varieties in Phoenix and the Salt River Valley. The Gradus is also a pea of rapid growth and the Stratagem is a favorite in the Phoenix markets.

Bush squash may be planted the latter part of February. These make a rapid growth and are frequently on the market before the inexperienced gardener thinks it is time to plant them. The White Bush Early and the White Bush Scallop are the earliest maturing varieties. The Summer Crookedneck comes on a little later.

Tomatoes may be started in the hot beds or in small boxes in the house. The Royal Red produces heavily under Arizona climatic conditions and has a heavy foliage which protects the fruit from the intense heat in the summer. These tomatoes are large and smooth. The Phoenix Special is a bright purple scarlet. It is extremely productive and quite early. This also has a heavy foliage. The Dwarf Stone, Dwarf Champion and Chalk's Early Jewel have been favorites here for many years. Tomatoes are not grown for commercial use to as large an extent as in many communities, owing principally to the fact that we have no large canneries to take care of the surplus, and shipments to distant markets are attended with some difficulties.

Onion sets and asparagus roots should be planted in February. An onion grower at Benson has had remarkable success in growing the Valencia onion. Seed for this are planted in July or early August and the plants transplanted in February. These are planted in rows 16 inches apart and the onion sets six inches apart in the row.

THE TELEMEGAPHONE

The human voice may now be clearly heard by an audience of 150,000 people. A device known as the telemegaphone transmits the words of a speaker so that they can be easily heard in the open air for a distance of 600 feet. A series of telephone receivers are placed near the speaker pointing towards him from every angle, so that no matter which way he may turn his voice is certain to be caught. The receivers in turn are transmitted to points amid the audience and thrown out simultaneously in five directions. A device similar to the megaphone magnifies the sound, while keeping the enunciation clear and distinct.—Boys Life.

The Bean Giant at work in 600-acre Baker-Langdon Orchards at Walla Walla, Washington.

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Correspondence School

Is there any school or college in California that teaches construction of evaporators and the drying of fruit by evaporation? I would be interested in a course that would fit me to contract the building of evaporators. If there is no school in California is there any school that has correspondence courses?—Subscriber.

We do not think there are any special courses given in construction of evaporators. However, that is a question which has been thoroughly studied by Prof. Cruess and his helpers in the University of California. The effort to conserve our fruits has been encouraged by the university by sending specialists to make demonstrations and even construct evaporators for communities, therefore would suggest that our inquirer write Prof. W. V. Cruess, University of California, Berkeley. The university offers many different correspondence courses, as does the University of Southern California. There appeared in the Cultivator of June 19, 1920, on page 977 an excellent illustrated article written by Prof. W. V. Cruess which may be of interest to the inquirer.

Scale on Asparagus

Will you kindly tell me what kind of spray to use or other means of ridding my asparagus sprengeri of rose scale. I have cut off and burned the infested parts, leaving only the young shoots which had not become infested, several times, but as this process greatly diminishes the beauty

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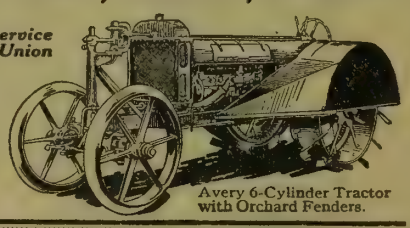

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of the plant I would like to find some other effective method of destroying the pest. The plant is attacked every fall or winter but has remained free from scale during the remainder of the season after removing all the old branches which had scale on them.—Subscriber, Watsonville.

The rose scale, Diaspis (Aulacaspis) rosae, is very easily controlled on rose bushes, berry plants, etc., by lime-sulphur spray or by a simple soap spray. One pound of whale oil or other good soap in a gallon of water may be a better material for ornamentals as it is less unsightly than lime-sulphur.

Sour Pot Soil

What shall I do to keep soil in flower pots sweet? If I keep the soil as damp as it should be it soon smells sour. Is there not something I can put in to sweeten the soil and not injure the plants?—Subscriber, Escondido.

Such condition suggests poor drainage but relief may be afforded by application of lime water. Put a lump of lime in a vessel of water, stir it until it slakes, let water settle until clear and use this to water soil. The water will not hold enough lime in solution to be injurious to plant life no matter how thick the original mixture. It may be placed in bottles, tightly corked, and used occasionally. But see that potted soils are well drained.

Tree Whitewash

Please give me the formula for whitewashing the butts of fruit trees —Subscriber, San Fernando.

We assume the subscriber is asking as to a covering for large wounds made in trees. Whitewash is sometimes used for this purpose but is not as permament as paint. Another column of this issue gives formula for making whitewash. White lead and oil paint applied rather thickly is good but one should use care not to allow the oil to run down over the bark. On the cut surface it does no injury. The ordinary grafting wax and asphaltum are often used.

Avocados—Mangoes

Is the avocado the same fruit as the mango in the Phillipines? — Subscriber, Live Oak.

No, these two are entirely distinct fruits. Both are grown in California, but as yet the mango has not become in this state a commercial fruit. There are thousands of avocado trees, however, and every day of the year finds avocados in all of our larger markets.

Rebudding Orange Trees

I have a ten year old Valencia orange tree that I want to bud or graft to a Washington Navel if feasible. Please tell me which would be best and just how and when to do it. Or would it be best to dig out the old tree and plant a new one? — Subscriber.

Unless one understands budding and making over the tree or is able to secure one qualified to handle the case we believe it would be better to remove and plant new vigorous trees. The working over of older trees calls for considerable experience and as there are more or less of misses in rebudding it is hard to secure a uniform tree.

Oranges and Lemons for Fertilizer

To settle an argument will you please give your opinion on the following. I hold that oranges and lemons unsold make fine fertilizer; my friend is afraid of them.—Subscriber, Compton.

Personally the writer would be glad to have either oranges or lemons dumped on the orchard soil and would plow them in expecting the decay to care for any acids in the fruit. We know of a case at Pomona where in 1913 frozen oranges were dumped nearly a foot thick to test effect on acid in the soil. About the only difference noted in this section was that the soil was in rather better condition where the fruit had been allowed to rot than where no fruit had been used. As the decaying of a potato or sugar beet destroys the starch and sugar content so the decaying of a citrus fruit destroys the citric acid. There is, however, but little fertilizing value in the fruit so that one would not care to pay any material sum for it to use as a fertilizer. The bulk is too great compared with the fertility content.

The contemplated Kern irrigation district plans impounding and conservation which will permit irrigation of 292,000 acres. It is estimated it will cost about $65 per acre.

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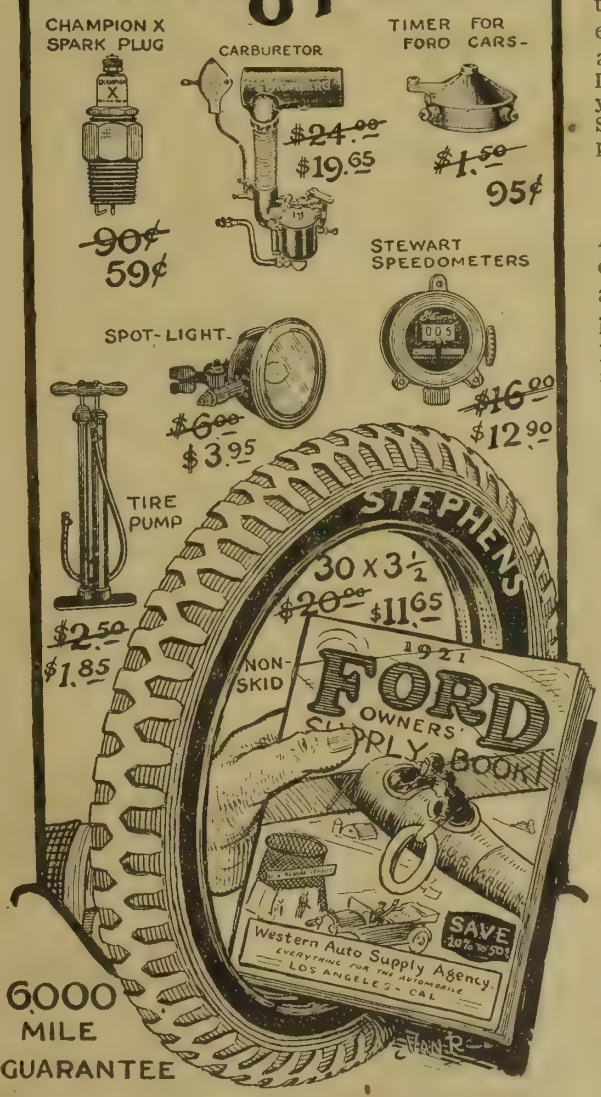

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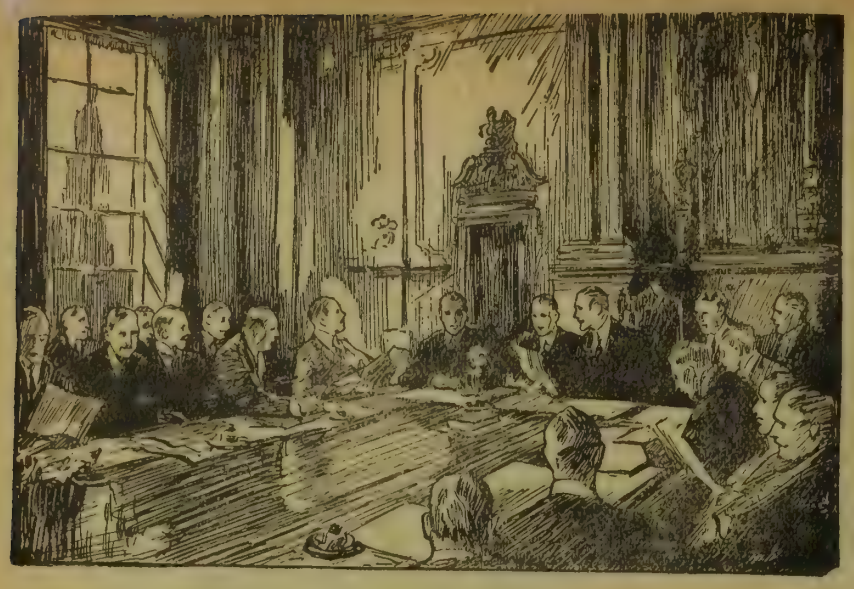

On the Basis of Facts

The life of our country is built around its Public Utilities. Our social, industrial and Government activities could not exist today without the continued operation of their indispensable services.

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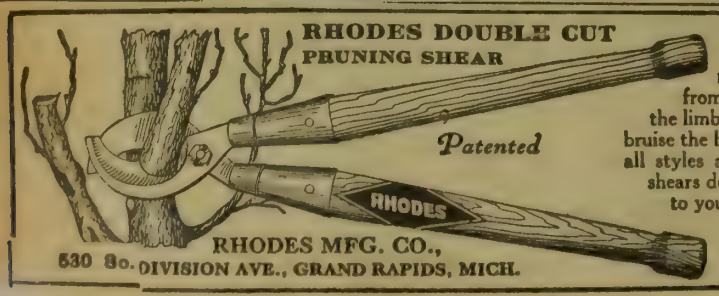

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Household Department

LINCOLN

We worship heroes only when they're dead.
In life we stone or censure or neglect.
We know them not till over them is shed
The tinsel halo of a world's respect.
And thus it was with Lincoln. He was decked
In such a homely semblance that the race
Of human jackdaws at his great name pecked
And shrilled derision at his grief worn face.
It needed a new age to find his rightful place.

The modern Pharisees, the slaves of form,
The Mammon worshipers, the self-deemed wise,
Saw not his mighty heart with man-love warm,
Nor the great soul behind his patient eyes.
These never know a prophet till he dies—
Not even then unless the world's acclaim
Distends his figure to gigantic size
And so creates a fashion of his fame.
Then the lip servers come with tributes to his name.

Yet this, too, is a blessing—that the good
In him so soon has overcome dispraise;
That he is known and loved and understood
Who was misrepresented all his days.
It teaches us that Truth has power to raise
Her standard far aloft for all to see
And that so fair she is the whole world's gaze
Returns to her throughout the years to be.
Thus all the Truth at last all men shall render free.

Four qualities did Lincoln body forth.
The first was this same truth, in him so strong
He sought it as the needle seeks the north;
It would not let him advocate the Wrong.
The second was his faith. Through all the long,
Dark years he felt at last would come the light.
Beneath the sorrow in his heart a song
Sang ever of the triumph of the right.
He held to God, the source of every great soul's might.

His third strength was simplicity. He sought
The heart of every question, stripped it free
Of all confusions, then in clearest thought
And plainest speech he made all men to see.
His last great force was love. In mercy he
Outstripped all men this stern old world has seen
Since One who taught and wept in Galilee.
Between these two no love like theirs has been,
And this it is which keeps their memories so green.—James A. Edgerton.

LINCOLN'S BIRTHDAY

Today, February 12, is Abraham Lincoln's birthday, a day that means as much to us now as February 22, which we honor as the birthday of our first president, George Washington.

Lincoln was as intolerant of hazy, indirect speech as he was of hazy, indirect action. Here are quotations from some of his utterances which show the characteristic clarity of his expression—and vision:

"That this nation, under God, shall have a new birth of freedom and that government of the people, by the people, for the people, shall not perish from the earth."

"With malice toward none, with charity for all, with firmness in the right, as God gives us to see the right."

This is said about strong drink:

"Do not put an enemy in your mouth to steal away your brains."

"Temporizing will do no longer; now is the time for decision, for firm, persistent, resolute decision."

"You must not expect me to give up this government without playing my last card."

"You stand on middle ground and hold the ship level and steady."

"This Union shall never be abandoned unless the possibility of its existence shall cease to exist without the necessity of throwing passengers and cargo overboard."

"Broken eggs can never be mended, and the longer the breaking proceeds the more will be broken."

"The ballot is stronger than bullets."

"Perhaps a man's character is like a tree and his reputation like its shadow. The shadow is what we think of it; the tree is the real thing.

"And having thus chosen our course, without guile and with pure purpose, let us renew our trust in God and go forward without fear and with manly hearts."

"I have not suffered by the South. I have suffered with the South."

"A rat in the larder is easier to catch than a rat that has the run of the cellar."

TO SWEETEN RANCID LARD

Quick and generous response has come from Cultivator housekeepers to request on the household page of January 29 for practical means of sweetening rancid lard. All suggest cooking ing potatoes in the lard, and we give a number of the letters, each of which makes some one point in distinction from the others.

Let Chickens Eat the Potatoes

If Subscriber, Napa, will heat her rancid lard quite hot and fry thinly sliced potatoes therein (about one medium sized potato to one quart melted lard), then strain and set lard in cool place, she will find it sweet as when newly made. And the potatoes—well, the chickens and cats will relish those more than will the family!—Mrs. E. N. C., El Centro.

To Sweeten Butter Also

If "Napa Subscriber" will peel and slice about four good sized raw Irish potatoes in her 20 pounds of rancid lard and cook it for about 20 minutes or half an hour, it will sweeten it, if the lard is not too old. She might try a small quantity first with one potato, and if it did not absorb all the rancidity, take it out and put in a fresh potato and cook again. Carrots will answer the same purpose.

To sweeten butter that has become too strong for table use, soak it over night in sweet milk, being careful to work the milk thoroughly into the butter, and wash out in the morning with cold water.—Subscriber, Del Mar.

"Busy Grease Never Burns"

Our Napa subscriber will have to apply our grandmother's remedy for the rancid lard. Heat it very hot. There was method in our grandmothers' way of putting in a few slices of ptotato, as "busy" grease never burns and the potato slices keep it busy so it may be heated very hot without burning. If I were doing it I should divide it in four measures and do one at a time.—Cultivator Reader, Wasco.

Don't Burn the Lard

In regard to keeping the lard fresh, tell your correspondent that if she will heat up her lard and fry a potato (sliced thin) in it, being careful not to burn it, she will find her lard freshened.—Subscriber, Anaheim.

Doughnuts from Restored Lard

I read the request of "How to Sweeten Lard" in today's paper and will give you my remedy for it. If you haven't already received a better recipe it may help the Napa subscriber. Heat the lard and slice in raw potato. Cook until the potato is quite brown. Adding pieces of charcoal to the lard and boiling will also sweeten. After your lard is ready the following doughnut recipe is fine: 1 cup sugar, 1 large egg, 1 tablespoon melted butter or Crisco, salt and nutmeg to taste and one-fourth teaspoon ginger (prevents soaking lard). Beat all together and add 1 cup milk, 2 teaspoons baking powder, and flour to make a soft dough. Fry in hot lard and roll in sugar.—Bakersfield Subscriber.

McGUFFEY'S FIFTH READER

The household department had requests for information as to making yeast and sweetening lard and loyal household readers came back so liberally that we have no space for McGuffey and readings of other days. The next installment, however, will consist of "The Last Sigh of the Moor" and "Impeachment of Warren Hastings."

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Strain Through Cloth

In answer to an inquiry in this column about how to sweeten rancid lard, will say if the subscriber will heat the lard and slice one medium sized potato to every two pounds of lard and let potatoes fry light brown and until tender through, the lard will be sweet and fresh. Strain through cloth into container.—Subscriber, San Bernardino.

Cover With Paraffin

In Cultivator of January 29 Subscriber, Napa, asks how to sweeten rancid lard. If she will melt slowly, then to each pound of lard add a good sized Irish potato, sliced thinly, and cook slowly for 30 minutes or more the lard will be as sweet as new. Throw away potatoes and put lard in small containers and cover with paraffine and it will keep sweet. The same treatment will make rancid butter sweet so it can be used for cooking. This is absolutely reliable, as I have used it on both butter and lard many times and with perfect results. —P. I. W., El Monte.

With Apple and Water

To sweeten rancid lard, put in a cup of water and a large apple and cook it until the water is all cooked away. You will have sweet lard.—Paula Walker, Wasco.

Same Treatment Improves Beef Fat

If the party who has the rancid lard will cook it over and slice in a quantity of potato I think she will find her lard fit for use. By the time the potato is cooked brown it has absorbed the strong taste of the lard. If beef fat is treated the same it is much nicer for cooking.—Mrs. J. T. Flynn, Redlands.

Skim and Strain

Answering request in the household queries in the Cultivator of January 29 on how to restore rancid lard:

To sweeten lard melt and to every three quarts add one piece stale bread, one onion, one raw potato, one apple, the potatoes and apples with skin on. Boil slowly 20 minutes, skim and strain into clean containers. Store in cool place.—Mrs. Carl Froberg, El Cajon.

Render Fresh Fat

In answer to question of Napa subscriber in January 29 Cultivator the method I use in freshening rancid lard is to take about four pounds either beef or pork fat, prepared to render out. The fat is added to the rancid lard, fried until cracklings are brown, then strained off in the usual way. The cracklings carry off the rancid taste. This sweetens ten pounds of rancid lard. — Mrs. W. F. Doemsky, Gonzales.

HOME MADE YEAST

Making Yeast Without Starter

For the benefit of the mountain subscriber I herewith enclose my recipe for making yeast cakes which I have used and found good:

Stir into a pint of good lively yeast a tablespoon of salt, and rye or wheat flour to make a thick batter. When risen, stir in corn meal till of the right consistency to roll out. When risen again, roll them out very thin, cut them into cakes with a tumbler and dry them, in summer time, in the shade in clear windy weather. In winter time dry them in moderate warm room. When perfectly dry, tie them up in a bag and keep them in a cool dry place. One of these cakes dissolved in a little lukewarm water will make four or five loaves of bread or one cake can be used for potato yeast starter.—Subscriber, Neenach.

Grandmother's Way

I am sending a recipe for home made yeast that my grandmother and my mother both used: When boiling potatoes for dinner reserve the water they are boiled in, mashing one potato fine and adding it to water. Have ready a bowl with a tablespoonful of salt, one of sugar and about a cup of sifted flour. Pour the potato water gradually over this, stirring all the while, and set aside to cool. When nearly cold stir into it two cakes of magic yeast which has been soaked in sufficient water to make it very soft and set in a warm place to work. Keep in a cool place, freshening it now and then by adding more potato water with salt, sugar and flour.—O. F. S., Verona.

Homemade Potato Yeast

In the issue of the California Cultivator for January 29, page 145, you ask for a recipe for homemade potato yeast which is desired by a mountain subscriber. I take pleasure in sending you the following recipe used for several years while living in the Adirondack mountains. I have never had better bread than was made with this yeast as a wetting and can heartily recommend it.

Peel a dozen large potatoes and put on to cook in three quarts of slightly salted water. While they are cooking mix well together one pint of flour, half a pint each of salt and sugar and add sufficient cold water to make a thin paste, stirring until smooth. Add two quarts of boiling water, stir and cook until it thickens and is clear. As soon as tender press the potatoes through a sieve or ricer directly into this cooked mixture, stir and add the water in which they were boiled. Strain into a two gallon crock; let stand until lukewarm, then add four yeast cakes (magic) which have been soaled in tepid water until dissolved. Add more warm water, if necessary, to fill the crock to within four inches of the top. When frothy and light, stir down once. When it rises a second time, cover and set away in a cooler or any cool place.

Use this yeast as the sole wetting for the bread. One quart of yeast with three quarts of flour will make two large or three small loaves.

Quick Yeast in Summer

At noon put one yeast cake to soak in one-half cup warm water. Place where it will keep warm. A double boiler would be excellent. In the evening cook two large potatoes, drain and mash, then return to the water in which they were cooked. When cool add 1 teaspoon salt, 1 tablespoon sugar ½ teaspoon ginger and the soaked yeast cake. Keep in a warm place for 36 hours. It will be beautifully light. I use this to make my bread. The climatic conditions greatly affect yeast and bread making. During the hot summer months this yeast is up light and fine the first morning after it is made. Winter months require a longer time.—One of the Cultivator's Housewives.

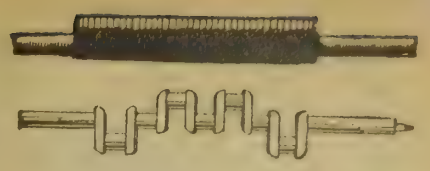
Everlasting Yeast and Bread Recipe

In answer to mountain subscriber in regard to everlasting yeast: 1 cup mashed potatoes, 1 cup warm water, ½ cup sugar, ½ teaspoon salt, 1 yeast cake, preferably yeast foam. Dissolve yeast cake in the water, add the other ingredients and enough flour to be easily stirred with a spoon. Set in a warm place to rise for about 12 hours. It should then be ready for use. When wanted for bread take 1 cup mashed potatoes, 2 cups warm water ½ cup sugar, ½ the everlasting yeast previously prepared, thicken with flour and beat it smooth with a heavy spoon and set in a warm place over night. In the morning sift flour in mixing bowl, add 1 teaspoon salt and yeast and just enough warm water to rinse out the yeast container, mix to a stiff dough, knead well, set in a warm place to raise. When twice its former size, work down and when dough is raised the second time mold into loaves and put into baking pan and again let rise to double size and bake in slow oven for about one hour. If these directions are strictly followed and the bread is not good, the fault is with the flour.

In addition I would say to mountain subscriber: To the remaining ½ of the everlasting yeast add ½ cup each of water, sugar and flour and set in a cool place till wanted again. stir well.—Mrs. F. M. Hubbell, Woodland.

Fresh Yeast for Each Batch of Bread

Homemade Yeast—When I plan to bake bread I use the water in which I have boiled potatoes for a meal. Drain the potatoes and set the water aside to cool. When blood warm add 1 tablespoon of sugar and 1 cup of starter or 1 yeast cake and set to rise. I make fresh yeast for each new batch of bread and use equal measure of this yeast and warm water or milk. I save one cup of starter for the next time—Mrs. G. H. Williams, Petaluma.



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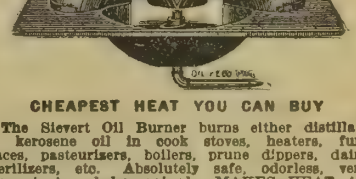

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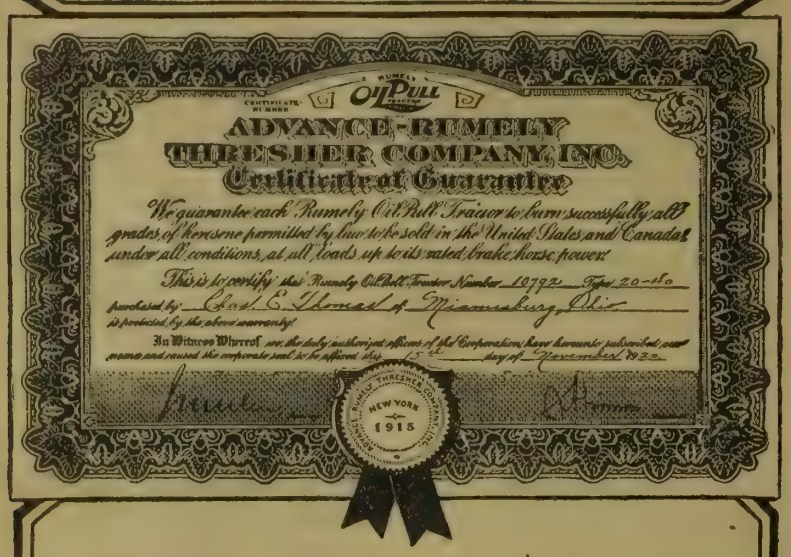
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—land similar to that which through many years has **yielded from 20 to 45 bushels of wheat to the acre.** Hundreds of farmers in Western Canada have raised crops in a single season worth more than the whole cost of their land. With such crops come prosperity, independence, good homes, and all the comforts and conveniences which make for happy living.

Farm Gardens—Poultry—Dairying

are sources of income second only to grain growing and stock raising. Good climate, good neighbors, churches, schools, rural telephone, etc., give you the opportunities of a new land with the conveniences of old settled districts.

For illustrated literature, maps, description of farm opportunities in Manitoba, Saskatchewan, and Alberta, reduced railway rates, etc., write Department of Immigration, Ottawa, Can., or

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Fig - Pear - Citrus - Avocado. Strong Vigorous Nursery Stock.
Ornamental Plants and Shrubs
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Yeast and Quickly Made Bread

As early as possible in the morning put two yeast cakes in a little water to soak. Take two tablespoons of salt, two of sugar and three of flour. Put in a basin and pour over it one pint of boiling water. When cool enough put in the soaked yeast cake and let rise until noon. Boil 12 large potatoes and rub through a sieve or colander. Pour over them one quart boiling and one of cold water. When lukewarm add the prepared yeast and let stand over night; afterwards cover tightly and keep in a cool place. One pint makes one loaf of bread. Mix hard, mold well and put directly into the baking tins. To make nice shape, after it is ready for the tins, melt grease and grease the loaf all over instead of greasing the tins. This will prevent cracking open. It should be pressed flat in the pans, so that it will rise as much on the sides as in the center. Give close attention to the baking. This method obviates starting the bread over night, for in using the yeast for the only moistening the bread will be ready for the table in about two hours It will be found especially convenient for fresh rolls.—Subscriber Anaheim.

Starter

As I was reading the Cultivator I noticed Mountain Subscriber asked the best way of making homemade yeast. This is what I found to be excellent. I call this a "Starter":

Take four good sized potatoes and two quarts water. Cook, then mash fine and add three tablespoons sugar, one dry yeast cake. Start this at noon and in the evening take out one quart and seal in jar and save for next time. Do not add salt to this. Now take the balance of this and add one-half cup of shortening, one heaping teaspoon salt, one pint of warm water and two cups flour or little more, according to the amount of bread wanted. Let stand covered until morning. Mix stiff. This will make four or more loaves bread.—M. F. B., Paw Paw, Illinois.

Buttermilk Dry Yeast

One pint of buttermilk, ¼ cup sugar; ½ cup flour made smooth with cold buttermilk while the first two ingredients are boiling. Stir in the flour and cook well. When it is cool add a cake of magic yeast which has been softened by soaking in water, then when it works and is light, stiffen with corn meal and make into cakes and let dry. One-fourth of cup will make three large loaves. It keeps longer than any other yeast.—Mary L. Hootman, Puente.

Starter

One cake magic yeast soaked in one pint of lukewarm water for one hour. Then add two tablespoons sugar and three of flour and let rise. Cook three good sized potatoes and mash well, adding two tablespoons sugar, with one quart of potato water lukewarm. Mix both together in evening and let it rise over night. Can keep a starter from the above recipe by keeping out one-half pint. When ready for next baking add two tablespoons of sugar, three of flour and one-half pint of water.—Subscriber, Tracy.

Homemade Yeast

Dry yeast 1 package, potatoes (medium) 6, water 3 quarts, flour 4 heaping teaspoons, sugar 4 level teaspoons. Break up dry yeast and put to soak in one pint lukewarm water. Wash and dice potatoes into one inch cubes (do not peel, as peelings contain many activating agents). Put potatoes and three quarts water to boil. Put flour and sugar into six quart or two gallon earthenware jar. Pour well boiled potatoes (water and all) over contents in jar. Mash and stir thoroughly. Set aside to cool. When cooled to bear hand, use hands (clean) to break up all particles and lumps (the finer the better). Add and stir in the dissolved yeast. Cover jar with clean cloth and set in cool place. In 12 to 14 hours it is ready for use. Strain yeast as used. Use one cup liquid yeast where you would one cake dry yeast. To replenish jar of yeast after using out of it once or twice, add 1 teaspoon sugar, 1 tablespoon flour and each week one boiled potato mashed, also water potatoes have been boiled in. In this way this yeast is lively and good for a month or more. This recipe can be reduced or doubled to suit size of family.—S. F. Steendahl, Los Altos.

$7.50 = After 30 Days Free Trial

The Belgian Melotte Separator—with the wonderful Self-Balancing Bowl. No other like it.

30 days' free trial—then, if satisfied, only $7.50 and a few easy payments—AND—the wonderful Belgian Melotte Separator is *YOURS.*

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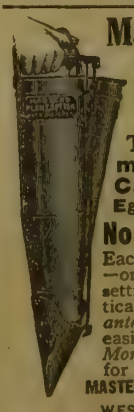

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Aggeler & Musser Seed Co., Los Angeles, Calif.
Germain Seed & Plant Co., Los Angeles, Calif.

TWO BIG DUROC DAYS

Do not forget February 16 and 17, for they will be great days in Duroc circles in Southern California. On the 16th the Diamond Bar Ranch at Spadra will sell 35 of the best sows and gilts they could pick out of their big herd. These will include daughters of Pathfinder and of his sons, Great Pathfinder and Ace of Pathfinders, along with daughters of other great boars. They are all bred to the Ace or to the other great herd boars, Mammoth Sensation and Diamond Sensation, who is by Great Orion Sensation, the world's grand champion boar.

On the 17th the Falfadale Farm at Perris will disperse its fine herd of sows, all of which will be bred to Great Orion Sensation Junior, the grand champion boar at Tulare, Los Angeles, and Riverside. The grand champion will also be sold and he is the best Duroc boar ever sold at auction in this state. A young boar, Orion Pathfinder, by the Ace and out of J. P. Walker's great $1,500 sow, will also be included in the sale. Both sales will be under cover and a big time is expected at each.

ITALIAN VINEYARD CO. SALE

1, Real Type's Lady Goods, Sept. 29, 1919, J. Francis O'Connor, Santa Rosa, $225.
2, Duke's Princess 11th, April 7, 1918.
3, Wilsonia Princess Laurel, March 1, 1917, E. J. Barker, Thornton, Ind., $350.
5, Silberfa Ames 2nd, May 16, 1918, A. R. White, Ontario, $210.
6, Escalon Belle 4th, March 6, 1919, C. D. Johns, Cucamonga, $195.
7, Natomas Riverby Princess 3rd, March 13, 1919, Chas. Stern & Son, Wineville, $105.
8, Natomas Symboleer Belle 2nd, Chaffey Union High School, Ontario, $140.
9, Natomas Symboleer Belle 3rd, March 21, Chas. Stern & Son, $95.
10, Natomas Rookwood Lady, October 25, 1917, Geo. Stingle, El Monte, $165.
12, Champion Violet 4th, Aug. 9, 1918, D. J. Bastanchury, La Habra, $110.
13, Natomas Symboleer Laurel, Feb. 8, 1918, Geo. Stingle, $135.
14, Riverby Princess 2nd, Feb. 20, 1915, R. S. Jones, Etiwanda, $170.
15, Rival's Lady Duchess 3rd, March 16, 1919, J. R. Densmore, Las Vegas, Nev., $80.
16, Symboleer's Lady Harlan, June 28, 1918, R. S. Jones, $115.
18, Superior May 3rd, Dec. 15, 1918, H. C. Muddox, Sacramento, $120.
19, Emblem's Lady Goods 11th, March 6, 1918, Chaffey Union High School, $170.
20, Live Oak Princess 2nd, April 9, 1919, Chas. Stern & Son, $105.
21, Rookwood Lady Double, Oct. 10, 1917, J. Francis O'Connor, $125.
22, Natomas Rookwood Duchess 3rd, April 4, 1919, F. B. Kealiher, Anaheim, $160.
23, Rival's Wilentha Lady 2nd, Sept. 30, 1919, Jas. Sharp, Cucamonga, $130.
24, Natomas Lee Lady 6th, March 11, 1919, L. L. Clark, El Monte, $80.
25, Natomas Rookwood, E. J. Barker, $200.
26, Rival B. Princess, Oct. 20, 1916, F. L. Hall, Perris, $150.
27, Emblem's Lady Goods 20th, Feb. 2, 1919, F. B. Kealiher, $115.
28, Natomas Duchess 10th, July 4, 1919, F. B. Kealiher, $100.
29, Emblem's Lady Value 5th, Nov. 12, 1918, F. B. Kealiher, $140.
30, Live Oak Laurel, April 24, 1917, A. B. Humphrey, Escalon, $160.
32, Del Paso Lady, Jan. 22, 1919, Chas. Talmadge, Salem, Ore., $150.
33, Duke's Natomas Princess 2nd, April 18, 1918, F. B. Kealiher, $200.
34, Duke's Natomas Belle 2nd, Inglewood High School, Inglewood, $105.
37, Natomas Duchess 8th, F. B. Kealiher, $100.

THE JAS. J. JEFFRIES SALE

The dispersal of the Jas. J. Jeffries herd of registered Holsteins attracted a crowd of over 1,500 people and resulted in a most successful sale, with no really sensational prices considering the quality of cattle offered. A general summary of the sale shows that the 28 females of milking age averaged $1,246; 10 bred heifers averaged $528; 15 open heifers and heifer calves averaged $404; one herd bull sold for $4,300; three young bulls averaged $933; five reactor cows and heifers averaged $371. The entire 62 head catalogued sold for an average of $888.

A new top price for a Holstein female at public sale in California was registered when De Kol Pet Segis went to Fred Hartsook, Lankershim, for $4,500.

THE W. A. THOMPSON DISPERSAL

In the W. A. Thompson dispersal of registered Holsteins at Hynes on February 5, the females averaged $337, bull calves $137. Two females reached $800 each. Detailed report will appear next week.

"Red Top" Steel Fence Posts

will be exhibited at the Eleventh National Orange Show, San Bernardino

Booth 3
Section B

The exhibit will be in charge of Mr. A. A. Farnsworth, field operator, who will explain in detail the merits of

"RED TOP" Steel Fence Posts

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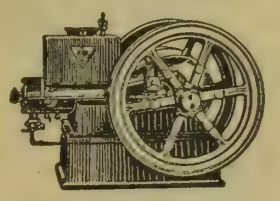
For Kerosene, Distillate or Gasoline. Before you invest in any kind of power, post yourself on this superior engine.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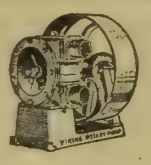
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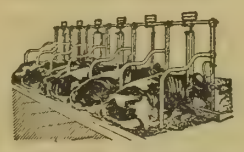
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Italian Vineyard Company Big Type Berkshires

The long, deep, big-boned kind that matures rapidly and makes pork quickly. We can supply breeding stock of either sex and have some very special bargains for new breeders and farmers.

All animals tuberculin tested and cholera immune.

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Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

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A healthy Holstein, this. She is a 3-year-old junior champion, with a seven-day score of 581 pounds milk; 29.3 lbs. butter fat.

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THE whole scheme of profitable dairying leads back to the subject of health. No way of escaping it. A cow is profitable or not, according to the degree of vigor of her milk-making organs.

Watch the milk-yield closely; it's the barometer of health. Reduced milk-flow means the presence or approach of disease.

Each year more thousands of dairy farmers are learning the value of the simple Kow-Kare home treatment—both as a preventive and reliable aid in relieving diseases of the genital and digestive organs. Barrenness, Abortion, Retained Afterbirth, Scouring, Lost Appetite, Bunches can be kept out of your dairy with the aid of this great cow medicine.

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Average of his Dam and Sire's Dam (Both Former World Record Holders)

At Average Age of 4 yrs. 2 mo. 10 dys. — 1062.64 lb. Butter
Semi-Official, 365 Days — 21173.75 lb. Milk

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R. F. Guerin — Visalia, Cal.

Turn of the Tide for the Cattlemen

By A. L. Spellmeyer

SO FAR as nature is concerned the cattlemen of California are having the best year of a decade for their stock. A warm wet California winter, with spring in the air already in many portions of the state, grass abundant or coming, and a market so short that they are shipping in beef from Denver and Kansas for the supply of Los Angeles city, which is alone killing 28,000 cattle monthly.

The season is made. The cattlemen are now confident as to range and no other part of the Southwest has had the rain or weather to make possible competition. This state has after years of drouth returned to normal and fulfilled the expectations of man. Southern Arizona, which last year had such a wonderful year that they put forth grass beef in competition with California, is dry. The great Phoenix desert has had light rains, but feed is backward, and the California sheepmen will again have the crop that killers must have. There is no state that gives greater hardships in drouth than California, with the possible exception of parts of Texas and Kansas, and no state that gives richer feed and makes the early beef from grass when we do have a good year.

The northern part of California was a garden spot before Christmas and the coast soon thereafter. Middle California has had wonderful rains, and the district southeast of Bakersfield is the best it has been for 20 years. Bakersfield proper and to the west and north was slower but it is coming fine now, and the mild winter that makes possible the thinning of beets at such an early date on the Coast is the same weather which makes grass abundant and luxurious.

No feed known can fatten like the California alfilaria and burr clover. Actual tests have shown a six pound daily gain in a large steer. Cattle that look as if they weighed 800 pounds in January have been known to go over the scales 1,200 pounds by May, a gain that no feeding of meal or even corn can approximate.

Buyers claim that cows have stiffened $5 per head, at least on the California ranges, in the last 30 days. You hear of men now in the market for young steers. Money is easing up; the note of optimism is sounded in newspapers and banking circles. Some cowmen prophesy the highest priced grass cattle California has ever known for July and make the statement in the face of Denver cows at $7.50 delivered Los Angeles and Kansas City steers at $10.

The new figures of the department of agriculture show a depreciation in national cattle numbers of over 2,000,000 head. The statistics of steers on feed and on range show great number decline.

Some of the larger California men have been selling steers up to $10.50 and cows up to $8.50, but the ordinary man could well figure a cent under that as his price. No wonder these large men oppose stockyards. California has had the highest comparative cattle market in the country although at that cattlemen have been heavy losers for the last year.

From reports obtainable it would seem that this market will be able to secure no Phoenix cattle and few from Nevada or Utah for beef slaughter during the next four months. Imperial is said to have 3,000 or 4,000 head and there are about 6,000 being fed locally around Los Angeles.

The Coast and middle California will have grass beef soon, and the grass run will be this year ahead of schedule. The only competition that California has will be Eastern price for beef animals plus railroad freights and shrink. The same expense that proved a dire hardship when California was shipping to the Middle West market last year is now proving to be in favor of price here, when the only obtainable beef must stand identical expense.

The cattlemen have little organization that is truly cooperative and cannot be relied upon to protect their price to insure a profit, and this lack of organization is the only thing that would prevent them from securing a fair price for their grass beef this year. Whether they have progressed in the hardships they have had to meet and will unite and make their association a power instead of a form remains to be proven by this year's actions. If enough of them rush to a low contract price for their grass cattle they will be as usual the sport of killers and will shear from $10 to $20 per head from the prospective price they have the right and the isolation of supply to demand.

From the best sources I can hear, cows from grass may go 7 to 8 cents and steers 9 to 10. Packer cow beef of good quality is quoted to 17½ cents by the carcass. Some junk cow beef is being peddled at 12 to 14 cents. There has been little, if any, drop retail in the cities, although some country killers are having difficulty in selling loins and hind quarters of the eight cent cows they are killing, and some of the country shops have made material reduction in beef owing to their custom dropping considerably in its monthly meat bill. This situation is unusual, and if prophetic, may show what will happen soon to retail trade in the cities and would surely force down the profiteering margins now exacted in many city shops. Very good loin steaks can be bought in country shops within 20 miles of Los Angeles for 35 cents per pound, and first class rib roasts as low as 30 cents. I have seen excellent hams I can vouch for as to taste and quality being offered at 38 cents, and bacon as good at 40, in these suburban shops.

The junk beef can be readily told by consumers owing to its lean blue look, and much of it comes from old dairy cows or Mexican stags and steers. The firm red beef with white fat is plentiful in the market right now, and if consumers would pass the cheap tough blue meat and demand the right sort this 12 and 14 cent carcass competition wouldn't last long.

This is the first change with a definite backing that is now taking place in the cattle business for many months. A good grass year, easier money and easier prospects to be soon felt by the trade generally, stimulated demand owing to shortage, and the long delayed surrender of the profiteering retailers, all make for encouragement. Nothing is sure, but the outlook is better than for a year in the California cattle trade, and you hear talk now as if men had hope.

Market Barley Through Hogs---Good Hogs

By Harvey M. Berglund

WITH the barley market at its present low mark, most Sacramento Valley communities are facing a rather serious condition. In my community around Dixon there is at present around $200,000 worth of unsold barley in the warehouses, figuring it at $30 a ton. It could have been sold at harvest time at an average of around $60 a ton, or a total of $400,000. There has therefore been a net loss of $200,000, together with interest at eight per cent for six months, or $32,000. This makes a total loss to the farmers of one community of nearly a quarter of a million dollars.

What is to be the future of the barley market? Optimists talk of a recurrence of high markets, but the facts as they stand at present do not warrant so rosy a future for three reasons.

In the first place Great Britain, the chief importer of the world's barley crop, is buying on a cheaper market elsewhere, Argentine and South Africa being their chief sources of supply. Both of those countries have an abundance of cheap labor. Argentine's new barley crop will be harvested in March and April and export-

ers in that country are now offering this new crop at a price around $4 a ton less than the lowest price we can quote.

In the second place, prohibition has practically cut off the demand for brewing barley in this country, and even though such were not the case it would help little, for most of the California crop is not of brewing grade. The Middle West has the largest corn crop on record and growers are being offered around $20 a ton for their crop by the elevator companies. So there is no outlet in that direction. As a matter of fact, Eastern corn is now being shipped out here for feeding and milling purposes. It has a higher feed value than barley.

In the third place, less than a third of the barley is now used for local consumption by stock than was the case ten years ago, due to the extensive use of tractors, motor trucks and autos.

The foregoing statements are not theoretical, but are the facts as they stand today and should give the farmer who is holding his barley for high price food for thought.

Great Britain will not pay the high prices that grain growers would like because she does not have to; the Middle West is overstocked with corn; and brewers cannot use the barley even though they want to. Those conditions leave only one outlet that offers a solution to the problem, and that is greater home consumption.

Home consumption necessarily means feeding more livestock of all kinds. The grain farmer can accomplish this either by feeding more stock himself or by cooperating with those who are feeding livestock so they can handle more stock and thereby use more feed. This latter plan would probably entail a system of credits, which could be arranged through local bankers.

In my community we are not only producing too little livestock but the quality is not as high as it should be, due to a lack of care, and even more to the lack of grain that should be fed liberally. The livestock we send to market as a finished product is far inferior to the average eastern animal. This is true, I believe, in cattle and sheep as well as hogs. However, I refer mostly to the hog situation as I am better posted on that score.

A year ago the situation of the pork producer was very grave, with a low market and all grains sky high. It put a great many out of business during the past spring and summer from the actual loss they incurred, or because they could make easier money selling their grain. Ninety per cent of the first class were men who flocked into the business with the idea of making easy fortune. The grain growers saw no reason to bother themselves feeding grain to livestock with grain selling at the unheard of prices then prevailing. The result has been that there are now over six million

PROGRAM OF STOCKMEN'S WEEK, UNIVERSITY FARM, DAVIS
FEBRUARY 22 TO 25

Tuesday, February 22

Senator B. F. Rush, presiding. 9:30—Greetings, H. E. Van Norman, dean of the University Farm School; Stockmen's Week, R. F. Miller, acting head animal husbandry division; What the Future Holds for the Pure Bred Beef Cattle Industry, W. A. Cochel, American Shorthorn Breeders; Preservation of the National Forests, C. E. Rachford, forest service.

Afternoon—California Shorthorn Breeders Consignment Sale.

Wednesday, February 23

T. H. Ramsey, president California Cattlemen, presiding. 9:00—Meeting California Cattlemen, District 2; Annual Pacific Coast Hereford Cattle Breeders; Annual California Aberdeen-Angus Breeders; Stabilization of the Forest Grazing Permits, Paul G. Redington, district forester; Range Management, T. N. Lorenzen, forest service; Progressive Policies of the Beef Cattle Industry, R. J. Kinzer, secretary American Hereford Cattle Breeders.

Afternoon—Pacific Coast Hereford Cattle Breeders Consignment Sale.

Farmers and Stockmen's Mass Meeting

H. E. Van Norman, dean University Farm School, presiding. 7:15—Motion picture film, "A Year in Jersey History," Dr. H. G. Gross, American Jersey Cattle Club; Relation of the College of Agriculture to the Livestock Industry, Professor Walter Mulford, acting dean; Development of the Farm Bureau, Dr. H. W. Walker, president California Farm Bureau Federation and vice-president National; the Work of the Agricultural Legislative Committee, R. N. Wilson, secretary agricultural legislative committee.

Thursday, February 24

J. M. Henderson, Jr., presiding. 9:00—The Development of Official Testing in California, Paul I. Dougherty; What the Future Holds for the Dairyman, J. E. Dorman, chief federal dairy bureau; Meeting the Competition of Dairy Products Substitutes, S. H. Greene, California Dairy Council; Better Sires Campaign, C. W. Rubel, assistant state leader; Greater Dairy Production, E. H. Webster, former chief U. S. dairy division and dean and director Kansas experment station.

1:00 p. m.—Calfornia State Dairy Cow Competition, F. W. Woll; Feeding the Dairy Herd, W. E. Tomson, animal husbandry division; Problems of the Dairymen in the Coast Region, L. W. Wing Jr., Elkhorn Ayrshire Farm; Developing a High Producing Herd, Frank L. Morris; Proposed Pacific Slope Dairy Show, S. H. Greene; Meeting California Jersey Breeders Association; meeting California Holstein Breeders Association; meeting California Guernsey Breeders Assocaton.

1:00—Sale of pure bred Berkshire hogs, Western Berkshire Congress.
7:00—Banquet and meeting Western Berkshire Congress.

Friday, February 25

J. I. Thompson, presiding. 9:00—Annual meeting California Swine Breeders Association; Commercial Marketing of Hogs, Roy M. Filcher; Closer Cooperation Among Swine Breeders in California, C. B. Cunningham; Relation of the California Experiment Station to the Swine Industry, Dr. C. M. Haring; Commercializing the Pure Bred Hog Business, Park Bennett; Contagious Abortion in Swine, Dr. F. M. Hayes; Hog Feeding, E. H. Hughes, animal husbandry division.

12:00—Meeting California Poland China Breeders; meeting California Duroc-Jersey Breeders; meeting California Hampshire Swine Breeders.

Afternoon—California Poland China Breeders Consignment Sale.

Railroad Gives Reduced Rates

Reduced rates on railroads providing 150 with tickets costing $1 or more, attend and ask for and register at the meetings their receipts. All attendants should ask receipt at purchasing point. Buy tickets to Davis, not to Sacramento.

Hotels

Accommodations at Davis are limited, so reservations should be made at Sacramento hotels. Train and stage service regular.

Cut the Costs—Swell the Profits

The stock-grower who keeps his cost of production low enough is safe on any market. Selling on a high market he gets *big* profits—on a low market he gets *some* profits instead of facing a loss.

And whether you produce dairy products, beef, pork, mutton or wool you can surely reduce costs by regularly adding to the ration the tested, dependable stock tonic—

Pratts Animal Regulator

It helps build and preserve stock health:—that means work animals in the harness every day, steady milk production from every cow, rapid growth of young stock. It aids digestion:—that means a saving of food, all used, none wasted. It strengthens and tones up the whole system:—that means strength, vigor and vitality without which any animal is of little value.

Cut costs, too, by checking contagious diseases which may kill some of your stock and seriously injure the rest. Use, regularly and freely,

Pratts Dip and Disinfectant

to kill disease germs and parasites. As a dip to exterminate lice and ticks and overcome skin troubles. As a disinfectant to maintain stables and pens in sanitary condition. Low in cost—safe—powerful—efficient.

Make this your motto—"Every animal on the job every day." Then make good by using Pratts Stock Preparations. You must be pleased—

"Your Money Back If YOU Are Not Satisfied"

Get the Genuine Pratts' Preparations
There's a Pratt Dealer near you.

PRATT FOOD CO. Philadelphia Chicago Toronto

Makers of Pratts Poultry Regulator, Buttermilk Baby Chick Food, Cow Tonic, Hog Tonic, Stock and Poultry Remedies. AD-49

Pratts

USE **CONCRETE**

It's feed corn not seed corn so why throw it in the mud? A concrete Feeding Floor in the hog lot will turn every grain into pork.

PORTLAND CEMENT ASSOCIATION

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GEORGE W. BELL

A BUSINESS AUCTIONEER

When in need of high class auctioneering service I would be glad to have breeders and farmers correspond with me. I have had years of experience, know values and know pedigrees. I am selling for many of the leading breeders of California and am prepared to deliver the same results that have attracted this custom. Terms reasonable. Write, wire or phone.

GEO. W. BELL Tulare, California

With the Tide, or Against It?

Sir Aaggie De Kol Acme

His sire, ARALIA DE KOL PONTIAC SEGIS, is a son of Aralia De Kol, the first cow to make over 28,000 lbs. milk in one year, and she also made 1142 lbs. butter in one year. We believe she is the only 1100 lb. cow to have two daughters and a granddaughter each above 1100 lbs. and a 2 year old granddaughter above 930 lbs. He has a number of daughters with substantial records in heifer form.

His dam, AAGGIE ACME OF RIVERSIDE 2ND, holds the world's strictly official record of 1331.47 lbs. butter in one year. She is out of the great foundation cow Aaggie Acme of Riverside, 1054 lbs. butter in one year. She is the dam of Miss Aaggie Acme Burke, 1024 lbs. butter in one year as a first calf junior 2 year old from over 24,000 lbs. milk, the latter a world's record in class when made, and she in turn is the dam of the $41,000.00 bull King Korndyke Pontiac Acme. This heifer at her last freshening as a junior 4 year old made 35.38 lbs. butter from 726.2 lbs. milk in 7 days.

SIR AAGGIE DE KOL ACME is being given the largest opportunity of any sire we have developed to date, as he is being bred to a very large number of females, and the performance of his first daughters confirms our belief in his ability to transmit the outstanding production of his near ancestors.

He is owned jointly by ourselves and

Fred W. Kiesel
Jane Garden Farm
Sacramento Cal.

Why waste time and energy pulling against the tide, when its power would carry you on if you choose its direction?

The tide in California's Holstein breeding runs strong to the blood of the great families developed in this herd, a tide that is gaining force and power steadily as the enormous capacity for milk and butter production is constantly being demonstrated by descendants of these families in the hands of many different breeders.

Are you going with the tide of breeding represented by Aaggie Acme of Riverside, Miss Valley Mead De Kol Walker, Aralia De Kol, Aaggie Acme of Riverside 2nd, De Kol of Valley Mead, and Tilly Alcartra?

If not, you are missing a wonderful opportunity to benefit through the work of many of the best breeders of California who are successfully developing herds based on this breeding.

A bull bred in these lines will start your herd in the right direction. Let us hear from you NOW We may have the right bull to head your herd, and if not our knowledge of and experience with these families may be of benefit to you.

A. W. Morris & Sons Corporation
Woodland, California

60 REGISTERED HEREFORDS 60

AT PUBLIC AUCTION

University Farm, Davis, Cal.

Wednesday, February 23, 1921

Under Auspices of

Pacific Coast Hereford Cattle Breeders Association
J. I. Cazier, Pres., Wells, Nevada J. A. Bunting, Sec., Mission San Jose, Cal.

The individuals for this sale were personally selected by Mr. Frank Van Natta, the noted judge and former breeder, and represent herds from four western states.

The needs of the western rangeman and breeder have been kept constantly in mind in selecting this offering, which will consist of

40 Registered Hereford Bulls
20 Registered Hereford Cows and Heifers

Herefords topped the Chicago market more than 77% of the days during 1920, and won high honors consistently in the fat classes under all varying conditions.

Good Hereford Blood in Your Herd Will Produce the Sorts of Cattle That Fetch the Higher Prices and Greater Profits

Catalog of sale free on request.

Auctioneer:
Col. H. L. Hull
Des Moines, Iowa

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

less hogs in this country than last year. Feeds have dropped close to 60 per cent, while hogs have dropped less than 30 per cent. The shortage of hogs is already being felt in most parts of the country. The demand for pork products in this country is far better than it was a year ago, for many persons are now using pork who could not afford to before. Foreign trade is slightly better. I have heard a number of men predict a high pork market for the coming summer and fall because of these things, but if I were to make a guess it would be this: that grain and pork have struck their relative levels; that is, if grain goes up so will pork in proportion, and vice versa. The increased consumption and the actual shortage that exists cannot help but make for a steady market.

How much will your barley bring you if you market it through hogs?

If one had a lot of prime hogs to put on the market now it would bring around $50 a ton, a nice profit over the present grain market; and if fed properly hogs could be turned off at seven months instead of from 14 to 18 months as is occasionally done now.

If you have scrub sows and feel that you cannot afford to buy pure breds at present, get hold of a good pure bred boar to mate them with.

Some hog raisers have had excellent results crossing two breeds, using pure bred boars of one breed and sows of another. However, some others have had very poor results from this practice. This brings to mind the experience of a dairyman who crossed a Holstein and a Jersey. He wanted an animal that would give the great flow of milk of the Holstein and the high test of the Jersey. He got the milk production of the Jersey and the test of the Holstein from the offspring. Cross-breeding is a gamble at the best. The safest and best road in the long run is to use pure breds of one breed. Your pig crop will be more uniform.

Which breed to select is sometimes a question. If you have a very strong liking for one particular breed over all others, adopt that breed and stay with it. If you are in doubt as to which to select, look up the records of the various leading breeds and adopt the one that is being most universally selected by the pork producers of this country—then you surely cannot go wrong.

With the wonderful production of barley and our alfalfa for pasture, no other state can raise hogs cheaper or better.

Raise more and better hogs, and if you feel the need of speculating go down to San Francisco and play the call board; you won't have to wait six months or a year to find out how much you are going to lose, or if this is too strenuous, indulge occasionally in that "great American indoor sport," called poker, to satisfy that craving for speculating that seems to be in the blood of so many of the grain farmers.

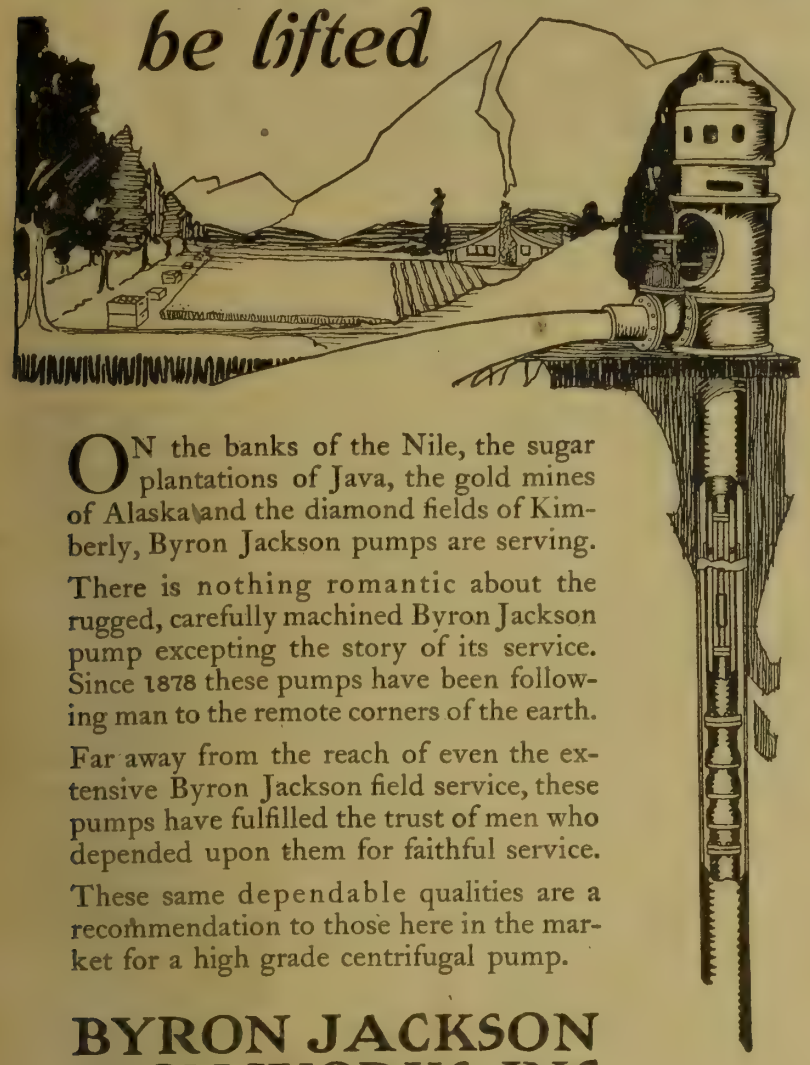
THE BERGLUND AND HARROLD DUROC SALE

The second annual sale of bred Duroc sows and gilts held by Harvey Berglund and Boyd Harrold of Dixon, February 5, drew a good sized crowd of neighboring farmers. This was a good indication of the interest being taken in better stock by the pork producers. Twenty-five head were sold at a $50 average, which was regarded as satisfactory to both buyers and seller. The top price was $120 for a two year old sow purchased by Stanley Rogers, Davis.

The Wyndham Dairy of Redding has recently purchased six head of high class Ayrshires from leading Canadian herds and plans adding several more. Included in the purchase is a young cow that as a two year old produced 453 pounds of butter fat from 10,765 pounds of milk, which is said to have been the best two year old record in Canada at the time it was made.

Dr. J. A. Roberts of Hollywood reports winning two silver cups, 23 first prizes, 9 seconds, 4 thirds, 4 fourths and 2 fifths, and 42 ribbons out of 54 entries, on cavies exhibited at the Southern California Rabbit and Pet Stock Association show at Los Angeles, February 3-7.

Wherever water is to be lifted



ON the banks of the Nile, the sugar plantations of Java, the gold mines of Alaska and the diamond fields of Kimberly, Byron Jackson pumps are serving.

There is nothing romantic about the rugged, carefully machined Byron Jackson pump excepting the story of its service. Since 1878 these pumps have been following man to the remote corners of the earth.

Far away from the reach of even the extensive Byron Jackson field service, these pumps have fulfilled the trust of men who depended upon them for faithful service.

These same dependable qualities are a recommendation to those here in the market for a high grade centrifugal pump.

BYRON JACKSON IRON WORKS-INC
408 Sharon Building, SAN FRANCISCO
Wherever water is to be lifted

NEVADA HEREFORD RANCH

We always carry a large herd of high-class Herefords and at the present time we are offering:

A splendid lot of young cows with Harris Standard 2nd calves at foot, and many of them rebred.

A nice selection of young cows and heifers bred to our herd bulls.

A choice collection of open heifers.

A lot of good rugged range bulls. These are the real money making kind, and they are priced to make money for the buyers. We will sell them in car lots or in lots to suit buyers.

We also have some choice young bulls of herd-header caliber that we will sell well worth the money.

We invite your inspection.

John H. Cazier & Sons Co.
Otis Cordell, Herdsman — Wells, Nevada

Our ranch is on the main line of both the S. P. and W. P. railroads and only a twenty minutes drive from Wells.

Veramont Herefords

Headed by Patrician 5th and Don Woodford 5th. If in need of a herd bull, study the get of Patrician 5th. His sons topped the last two Association sales.

There's a Reason

Heavy-boned, blocky range bulls and a carload of purebred, unregistered cows for sale. See our consignment to the February sale.

H. M. Barngrover — **Santa Clara, Cal.**

THE 1921 GUARANTY SALE

50 REGISTERED

HOLSTEINS

State Fair Grounds

Sacramento, Cal.

Thursday, March 17, 1921

A splendid offering of picked cattle, composed of real foundation females and a limited number of top herd bull prospects.

COMMITTEE OF SELECTION:

H. V. Bridgford, Patterson. — G. M. Brown, Los Angeles.
Alex Whaley, Tulare. — C. L. Hughes, Sacramento.

Every animal guaranteed a breeder and sold subject to 60 day retest.

Auctioneer: Col. Ben A. Rhoades, Los Angeles

Management
California Breeders Sales and Pedigree Co.
C. L. HUGHES, Sales Manager, Sacramento, Calif.

Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

BURR FARM
Box 220, Route 2. East 26th and Downey Road, Los Angeles

The Fifth Public Sale of

SHORTHORNS

Under the Auspices of
California Shorthorn Breeders Association
Will be Held at
The University Farm, Davis, California
Tuesday, February 22, 1921

A Very Choice Selection of Cattle Has Been Listed for This Sale

50 Bulls — SHORTHORNS — 25 Heifers

Following is List of Consignors to this Sale:

Ormondale Ranch, Portola Valley
Roselawn Stock Farm (Henry M. Elberg), Woodland
Thos. T. Miller, Hollister
Jack London Ranch, Glen Ellen
L. N. Pabst, Cedarville
R. T. McGurk, Stockton
A. L. Klopping, Underwood, Iowa
University Farm, Davis
Brighton Farm (E. H. Murphy), Perkins
Blackhawk Ranch (Easton & Ward), Diablo
San Julian Ranch (Thos. B. Dibblee Est.), Lompoc
W. M. Carruthers, Live Oak
Fair Oaks Ranch (W. T. Chapple), Willits
Straloch Farm (C. Harold Hopkins), Woodland
Howard Vaughn, Dixon
Geo. E. Dierssen (Box 913), Sacramento
Geo. Gardner Pierce, Davis

CLYDE N. MOORE, AUCTIONEER

Apply for Catalog:
California Shorthorn Breeders Association
222 Sharon Building, San Francisco, Cal.

SIERRA VISTA HEREFORDS

One of the largest herds in the West. Built on a Repeater and Fairfax foundation. At present we have to offer 24 choice young bulls ready for service.

Sierra Vista Vineyard Co. Minturn, On Highway 2 — Madera County, 2 Miles North of Chowchilla — Cal.

When Writing Advertisers Mention California Cultivator.

Diamond Bar Ranch

DUROC-JERSEY

The Most Profitable Hog
Buy NOW Before Prices Advance

Bred Sow Sale
Wednesday, February 16th

Sale at 11 A.M.

Under cover on the ranch 28 miles east of Los Angeles on the paved Pomona Boulevard. Busses leave Fifth and Los Angeles Streets, Los Angeles, for Diamond Bar Ranch every half hour.

TAKE THIS OPPORTUNITY

to put some better hogs into your herd at your own price.

We guarantee everything safe with pig or refund the entire purchase price.

Pigs by these Boars Will Make Your Herd Popular and Profitable

Ace of Pathfinders The Greatest Son of Pathfinder

Mammoth Sensation Jr. A Grand Champion Sire of Giant Durocs

Diamond Sensation An Outstanding Son of the World's Champion, Great Orion Sensation

Col. G. W. Bell
Auctioneer

Dr. L. J. Anderson
Assistant

DIAMOND BAR RANCH

SPADRA
Los Angeles County,
California

F. E. LEWIS,
Owner & Manager
R. K. WALKER,
Hog Department

Mammoth Dispersal Sale

Falfadale Farm Durocs

We Will Sell Two of the Greatest Duroc Boars in the West

Great Orion Sensation Junior

Grand Champion at Tulare, Los Angeles and Riverside. A son of the world's greatest sire and show boar, Great Orion Sensation, and himself a sire of show winners, including Miss Defender Sensation, 1st at Sacramento in class of 72 and junior champion at Riverside.

Orion Pathfinder

By Ace of Pathfinders and Out of J. P. Walker's $1500 Creator Sow

Thursday, Feb. 17

40 Bred Sows and Gilts

Daughters of Pathfinder, Winsor's Giant Orion, Grand Model 8th, Orion King Gano, and Pathfinder's Likeness

Sale will be under cover at the Farm. Write for catalog and do not fail to attend.

Falfadale Farm

Perris, Cal.

B. H. Wilkinson, Mgr. Col. G. W. Bell, Auctioneer

Attention Duroc Breeders

I am offering for sale Golden Cherry 264101, my two year old boar by Great Model and out of the great sow, Cherry Blossom. Here is a pioneer sire and real herd header. Also have a few young boars and gilts for sale. Prices reasonable.

C. E. BORDEN

P. O. Box 51 Oceanside, Cal.

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Cowpeas for Pasturage

IT is not considered the best farm practice to use cowpeas strictly as pasture, but under certain conditions it is advisable and profitable, say specialists of the United States department of agriculture, in Farmers Bulletin 1153, "Cowpeas: Utilization," just published by the department. Cowpeas furnish a pasture crop during a period of the year when such forage can be used to the best advantage. The small amount of work and the small cash outlay always associated with the grazing of stock commends the practice to the average farmer, and scarcity of labor often makes it necessary to pasture a crop whenever possible. Another advantage in pasturing cowpeas is that not only is the soil benefited, but the waste vines and animal droppings are also left on the land. The soil, after cowpeas have been pastured, is in an excellent condition of productivity for the fall sowing of wheat.

Best at Maturity

The best time for turning the stock on cowpeas is when the crop has reached the stage of maturity considered best for hay; that is, when the first pods have matured. This practice, however, is not generally followed, as it is usual to gather at least a part of the seed. When cowpeas are grown in corn the grazing is deferred until the corn has been gathered. Cattle usually are turned on earlier than hogs or sheep, the hogs being pastured on the ripe seed. If the stock are turned on before the plants have attained full size, there is more waste from trampling. As with most green pasture crops, there is danger of bloat when sheep or cattle are first turned on cowpeas, especially in wet weather. The danger from bloat, however, is far less than with alfalfa, and decreases as the cowpeas become more mature. If the seeds are sufficiently mature, frost will not greatly lessen the pasture value of the vines.

Practical experience shows that good results are obtained by pasturing cowpeas with any kind of livestock. The most common practice is to hog them down. For young hogs cowpeas are a good feed, but some grain is required in connection with the cowpeas for best results. Hogs usually will feed on the mature pods first and leave the vines and leaves, especially when dry. After hogs have been pastured on a field for some time, cattle or sheep may be used profitably to pasture off the leaves and vines which the hogs leave. Sheep may be used on cowpeas in the same way as hogs. When sown in corn, the stover blades and cowpea seed make a fine ration for fattening fall lambs and wethers. Dairy cows show the effect of such pasturage in a much increased flow of milk.

At the Arkansas agricultural experiment station steers fattened on cowpea pasture and cottonseed meal made an average gain of two pounds a day for 90 days. As long as the cowpea vines were green and considerable seed was available, very little cottonseed meal was eaten. The cost per pound of gain was only two cents for the cottonseed meal, thus showing the high value of the cowpea pasturage. The Oklahoma agricultural experiment station reports that cowpeas planted in July furnished two grazing periods for milk cows before frost, and that the flow of milk was noticeably increased.

Benefits Hogs and Cows

In a feeding trial at the Alabama agricultural experiment station it was found that pigs fed on corn alone gained 0.36 pound daily, while hogs on cowpea pasture and corn gained 0.97 pound daily, consuming 36 per cent less corn for each pound gained. The same station conducted a feeding experiment with pasturage for dairy cows, using an upland cornfield from which the ears had been removed and in which cowpeas had been drilled between the rows. The field was first pastured by three milk cows and later by three dry cows. The milk cows in the meantime received three pounds of cottonseed meal daily. On this pasturage the yield of milk was 15.8 per cent greater and the yield of butter 9.5 per cent higher than when the cows with the same grain feed ran on a good pasture of Bermuda grass, carpet grass and lespedeza. In addition to the increase in milk and butter the cows gained a total of 85 pounds during the 19 days, and the dry cows 53 pounds in nine days.

SHORTHORN SALE

The business of breeding high class Shorthorn cattle, though perhaps still a young industry in California, will demonstrate at Davis on February 22 that it is a strong and lusty infant. Importations from the East and direct from Britain have given this state's herds the best blood strains of the world as well as some outstanding individuals, and the Californians who own and handle these herds are second to none in their ability to advance the breed. The results of the last few years of importations and breeding will be seen in the first sale of Shorthorns to be conducted by the California Shorthorn Breeders Association at the university farm, in Stockmen's Week.

The consigners are: W. M. Carruthers, C. N. Hawkins, Geo. G. Pierce, W. T. Chapple, Henry M. Elberg, Thos. T. Miller, Ormondale Ranch, Mrs. Eliza Shepard, T. Wilson Dibblee, Thornton S. Glide, Edw. Cebrian, Howard Vaughn, L. N. Pabst, Geo. E. Dierrsen, C. Harold Hopkins, A. L. Klopping, R. T. McGurk, University Farm, Robt. F. Miller, Senator B. F. Rush, Easton & Ward, Wm. Bond.

MORE THAN 10 000 ADVANCED REGISTER GUERNSEY RECORDS

On December 15, 1920, the number of Advanced Register records completed by Guernsey cows exceeded the 10,000 mark. A total of 10,033 records had been completed by 8,469 cows. Six cows had completed five records each; 26 had completed four records; 196 had completed three records; and 564 had completed two records. The average production of all records completed by Guernseys of all ages was 9,068.27 pounds of milk and 454.06 pounds of butter fat, with an average test of 5.005 per cent. Of the total number of records, 37.6 per cent were completed by cows two years of age.

The system of yearly testing for the Advanced Register, which has been adopted in only slightly modified form by all dairy breed associations, was first established by The American Guernsey Cattle Club in May, 1901, almost a score of years ago. The first cow to complete an Advanced Register record was Glenwood Girl 6th 9113, whose record was 12,187.33 pounds of milk and 572.30 pounds of butter fat.

CARE OF SOWS AND SPRING PIGS

A record of the date of service of each sow should be kept, so that the date of farrowing will be known in advance. The period of gestation in sows is usually placed at 112 days. Often young sows will farrow a few days sooner than the stated time and old sows will frequently go a few days over it. Ten or 12 days before farrowing, the sow should be separated from other hogs and placed into a farrowing pen, so as to become accustomed to her surroundings and changed conditions before the pigs are born. The farrowing pen should be dry, well ventilated, and free from drafts. It is a good plan to provide the pen with a guard rail at the sides of the pen a little above the bed to prevent the sow from lying against the partition, and lessen the danger of injury to the little pigs, which often find space under the guard a very convenient refuge. A moderate amount of cut straw or some good bedding should be placed in the farrowing pen shortly before time for farrowing. Sows should be treated kindly and kept quiet at farrowing time.

After farrowing the sow should not be disturbed. If she lies quietly for ten or 12 hours, or even more, it is to her advantage. If she wants anything she will make it known by coming to the trough or searching for it. One should not be hasty in trying to feed her. At first she should have a

JERSEYS

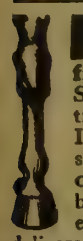
Venadera Herd
REGISTER OF MERIT JERSEYS
Offers two cows six years old that have yearly Register of Merit records. Also a few bull calves sired by Jap's Perfection Owl.
GUY H. MILLER
Route 1 - Modesto, Cal.

Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
W. J. Hackett
Modesto Cal.

Wonderful Show Prospect
Fifteen months old registered Jersey heifer. $225 if taken at once. Bought her to show this fall but must move.
Gardiner Blackman
Inglewood Cal.

Use Hereford Bulls
The Hereford is the range bull without a peer.
My Herefords have size, bone, constitution and are notably thick fleshed. Visit my ranch and get my prices. Send for free literature.
Mission Hereford Farm
John A. Bunting
Mission San Jose Cal.

DIAMOND G HEREFORDS
A few choice young bulls, big, heavy-coned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.
H. H. Gable Esparto, Cal.


ABSORBINE STOPS LAMENESS
from a Bone Spavin, Ring Bone, Splint, Curb, Side Bone, or similar troubles and gets horse going sound. It acts mildly but quickly and good results are lasting. Does not blister or remove the hair and horse can be worked. Page 17 in pamphlet with each bottle tells how. $2.50 a bottle delivered. Horse Book 9 R free.
ABSORBINE, JR., the antiseptic liniment for mankind, reduces Painful Swellings, Enlarged Glands, Wens, Bruises, Varicose Veins; heals Sores. Allays Pain. Will tell you more if you write. $1.25 a bottle at dealers or delivered. Liberal trial bottle for 10c stamps.
W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

BERKSHIRES
The Cheapest gains are made with the quiet, easy feeding Berkshires.
Address
Western Berkshire Congress
P. O. Box 56, Santa Rosa, Calif.
The Profitable Hog

Prize Winning Berkshire Gilt
WILL FARROW IN MARCH
She won two firsts, one second, and one fourth, at recent fairs. Cheap.
Gardiner Blackman
Inglewood Cal.

TIM ANSPACH
Livestock Auctioneer
30th & R Streets Sacramento, Cal.
Write or Wire for Sales Dates

For Profitable Durocs
As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.
D. G. Cummins & Son
Route 1 Visalia, Cal.

very light feed. A thin slop of middlings is very satisfactory. Constipation should be avoided if possible. It is well to bear this in mind some time before farrowing. If the sow becomes constipated before farrowing she may lose her pigs, and possibly her own life. When it once occurs very little can be done to overcome it, so it is well to use preventive measures. No sudden changes in the ration should be made. If a sow is taken directly from the pasture, shut up in her pen, and fed an exclusive meal ration, trouble is almost sure to occur. The ration should be kept practically the same after taking the sow into the pen as it was before. If anything the feed should be made rather more sloppy. Some meal should be fed to sows while on pasture for a time before they are brought to farrowing pens. A small amount of linseed meal is helpful in preventing constipation. Wheat bran in small amounts serves well for this purpose. During the first three days after farrowing, much care should be exercised to avoid over feeding. After this, the feed may be increased gradually, taking a week or more to reach full feed.

When the little pigs are about three weeks old it is a good plan to give them access to another pen where they may be fed away from the sow. A little skim milk with middlings stirred into it is very satisfactory for pigs of this age. The quantity of middlings can be increased gradually as the pigs grow older. Scattering soaked corn or some other grain on the floor of the pen or in the lot will cause them to take exercise which is very necessary. Exercise is very important for both the young pigs and the sow and provision should be made for it. If they do not exercise willingly they should be forced to do so.

These suggestions are based on results at the Georgia experiment station, at other experiment stations, and by swine breeders.

FEEDING VALUE OF COTTONSEED

One hundred pounds whole cottonseed has a productive value of 17.09 pounds and contains 13 pounds digestible protein on an average. One hundred pounds cold pressed cottonseed contains 12 pounds productive value and has a content of 19.7 pounds digestible protein, says G. S. Fraps of the Texas experiment station. The cold pressed cottonseed, therefore, contains 50 per cent more digestible protein, but has only about two-thirds the productive value of cottonseed.

The whole pressed cottonseed would have a greater feeding value than the whole cottonseed as long as the ration fed was deficient in protein, but as soon as the ration supplies enough protein for the needs of the animal, the excess of whole pressed cottonseed would have only two-thirds the value of the cottonseed. On the other hand it is not advisable to feed more than four or five pounds per day of cottonseed to fattening cattle as the larger quantities are liable to injure their digestion, cause digestive disturbances, and give poor results.

The relative values of cottonseed and cold pressed cottonseed for feeding cattle would depend upon the object of the feeding and the kind of other feeds available. Cottonseed may be compared with corn or milo better than with cold pressed cake. It is nearly equal to milo in feeding value and has about 15 per cent less feeding value than corn.

A VALUABLE EXPERIMENT

In Glasgow they tell of a resourceful clergyman who is never at a loss for a retort. He was once called to the bedside of a very wealthy but stingy man.

"If," he gasped to the clergyman, "if I leave several thousands to the church, will my salvation be assured?"

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For Sale — Mountain grown Brandywine Strawberry plants, $1.50 per hundred, $10.00 per thousand. By mail postpaid. B. Bryan, Camp Baldy, California.

100,000 Grape Rootings $30.00 a 1,000. Figs, prunes, apples, pears, peach, apricots, almond, orange trees. Reduced price. Farm and garden seeds, 4 kinds of alfalfa. Box 501, Fowler, Cal.

Seedling all kinds — Thornless blackberry—how many—Brandywine strawberries. Box 301, Sebastopol, California.

Pumpkin Seed — Mixed Pumpkin Seed, good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

Durango Cotton Seed for sale; small lots, 4c a lb.; 1000 lbs. or more, 3½c. F. O. B. Coachella, California; C. M. Devore.

Our Introductions—Wonderful New Hybrid Alfalfa. Write J. L. Lawson, Reliable Tree and Seedman, San Jose.

Chilean Alfalfa Seed—Cleaned by most modern method. 22 cents per pound. C. H. Biggin, Redlands, California.

For Sale—Rooted grape vines, California Concord or Pierce. Robert McIntosh, Box 936, R. D. 2, San Gabriel.

5400 Lbs. Good Clean Common Variety Alfalfa Seed at market price. Chas. A. Haug, Star Route, Corona, California.

California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

ROOFING MATERIALS

ROOFING PAPER
One ply $1.50, 2 ply $2.00, 3 ply $2.50 complete with fixtures. Rubber roof paint 50c per gallon in 5 gal. lots
ANGELUS ROOFING & PAPER CO
766-768 So. San Pedro St., Los Angeles
Broadway 5401

PHEASANTS

Beautiful Chinese Ringnecked Pheasants—Mated pairs $12.50, eggs $5 setting. Pause Pheasantry, Fair Oaks, California.

Pheasants—Beautiful Chinese Ringnecks, pairs for sale. Orders booked for eggs. W. Leland Smith, Fair Oaks, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT. Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

RABBITS

Pedigreed Flemish Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California.

TREES

For Sale—Fruit trees, all leading varieties, including Bartlett Pears, Royal Apricots, Tuscan Cling and Phillip Cling Peaches, Satsuma and Santa Rosa Plums, Eureka and Placentia Perfection Walnuts. Write for catalog and price list. Orange County Nursery Co., Anaheim, Calif. Salesyard: North Los Angeles Street.

For Sale: All kinds of citrus nursery stock, one and two year buds, fine roots. Y. Yamaguchi, Upland, 10th Street and Cucamonga Avenue. Phone Sunset 386-W.

10,000 Valencias; 2,000 Eureka lemons; 3,000 Texas Umbrellas; 3,000 Mission olives; 500 Wonderful Pomegranates; 100,000 sweet, 100,000 sour orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colorado 6352.

Royal Apricots, Tuscan, Sims and McClure Clings, Elberta and J. H. Hale Freestone Peaches, Santa Rosa and Beauty Plums, Pear, Apple and Walnut Trees. Grapevines, Berries, etc. Order now; leading varieties scarce. Los Nietos Valley Nursery, Downey, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

Special Sale—5000 Improved French Prune on peach root.
6-8 ft. 60c — 5-7 ft. 50c
4-6 ft. 45c — 3-4 ft. 40c
Better trees are not grown. Write for prices on other trees. J. F. Miller & Sons, Healdsburg, California.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

Cling Peaches, Apricots, Almonds — All varieties and sizes. Concord, Mayette, Franquette Walnuts, Cory Thornless Blackberry; large stock. State your wants and let us quote. Ekstein Nurseries, Modesto, California.

For Sale—A few hundred each of Tragedy and Sugar Prunes, Grand Duke, Diamond and Giant Plums, Texas and Drake Almonds, Bartlett Pears; a general assortment of nursery stock of all kinds. Burke's Nursery, Lodi, California.

Budded Avocado Trees. Leading varieties. Order early to secure best selection. Dr. Stonebrook's Avocado Nursery, 15 N. Raymond Ave., Pasadena. Phone Colorado 208.

For Sale—Walnut trees, fine stock, Eurekas grafted on black root. Prices, 8 to 10 feet in height $2.50 10 to 12 $2.75. La Puente Walnut Nursery, Puente, California. Phone 103.

For Sale — Peaches, Cherries and other fruit trees. Full line of shrubbery and roses, also flowering plants. Write City Nurseries, 109A Orange St., Redlands, California.

For Sale — 100,000 **Florida Sour Orange Seed-bed Trees; 100,000 California sweet** seedling orange seed-bed trees. SOUTHLAND NURSERIES, 1941 East Colorado Street, Pasadena, California.

Nursery Stock: Extra fine Ehrhardt budded walnut trees. V. Ehrhardt, Minnie Street, four blocks south of gas plant, Santa Ana, California. Phone 454-M.

Fine Straight Rooted Florida Sour and Sweet SEED BED STOCK, 10 inches to 15 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Placentia and Eureka walnut trees specialists. Nurseries, Ventura and Los Angeles Counties. R. E. Pierce, Oxnard, California. A. G. Snow.

For Sale: Avocado Seeds, also a few seedling plants six to twelve inches. L. B. Cadwell, Carpinteria, California.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

For Sale—About 230 one year old Avocado seedling nursery stock. H. Fordyce, Ojai, Ventura County, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited.

Citrus Seed Bed Stock—Orange, Lemon, Grapefruit trees. L. A. Tuttle, R. 1, Box 385, Pasadena.

For Sale—Placentia and Eureka Walnut trees grafted on Northern Black Root. Box 33, R. F. D. El Monte, California.

For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

For Sale—Walnut grafting wood, Payne and Eureka, 10 cents foot. A. C. Kuhn Ranch, San Jose, California.

Buy Your Trees, Grape Vines and Berry Plants of Bishop's Nursery, Highland. Send for circular.

For Sale—1,500 Lovell, 500 Phillips Cling, Dormant buds on Salway root. A. bargain. Frank A. Tetley, Riverside.

Wanted at Once—4000 Placentia Perfection Walnut Scions, John M. Koller, Puente.

MISCELLANEOUS

Distributors to appoint agents and sell Powerene at wholesale. Agents make $30 a day. Special terms to distributors. Equals gasoline at 5c. The equivalent of 20 gallons, express prepaid, $1.00. P. Barnes, H424, Santa Rosa, California.

Leaf Tobacco prepaid, 5 lb. packages medium smoking $1.80; weak $1.35, sample 10c. Aden Francis, Dept. Y, Dresden, Tennessee.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

Taylor's Tampa Havana 5-in. Cigars—$7.50 for 100, postpaid. J. R. Taylor, Box 661, Tampa, Florida.

WANTED

Wanted to Exchange—50 acres river bottom partially improved alfalfa land in dairy and fruit section, close to Fresno, at $10,600, $3,000 down, for small acreage or city property as second payment. R. W. Sharp, 601 N. 4th Street, Fresno, California.

Wanted—To Rent small farm of easy worked loamy soil, with own irrigation water. Give location, full description of soil, water, improvements, school and lowest terms. W. A. L., Box 143, Calipatria, California.

Position Wanted by agricultural college graduate, three years' experience horticultural lines, also business references. A. B., Cultivator.

Wanted: White Holland tom flock header, blue ribbon winner. If you have one for sale, write me at once giving price. L. A. Robinson, Hemet, California.

Wanted—Trees, mostly Grape Fruit, some Oranges; trees on sour orange roots. Write, give best wholesale prices. G. H. Dorton, Nurseryman, Harlingen, Texas.

Turkey Man, practical, wants employment by the month or shares. Wm. Burt, Box 15, Willows.

Wanted—To hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin.

MACHINERY

Rebuilt Windmills, irrigating pipe, tanks, pumps, cylinders, rods, fittings.
WHY PAY MORE
WE SELL FOR LESS.
New 1,000 gal. galv. tanks $47.25; 2,000, $67.25; 10,000 gal. redwood, $115; 25,000, $195. Many other bargains. 350 ft. 8 in. galv. irrigating pipe 35c. SPECIAL in complete pumping plant 15 h. p. Western engine, deep well double acting Ames pump with pipe, rods, cylinder for 90 ft. lift $950. This is only what pump alone would cost new. DEMMITT CO., Upstairs, 120 N. Main, Los Angeles.

For Sale: 12-20 Yuba, 8-ft. Killefer automatic double disc, 8-ft. Killefer chisel, 4 gang power lift John Deere 12-inch plow, new tracks on tractor, engine just overhauled. Must have money. $1,750 takes the outfit. O. B. Lolmaugh, Phone Hemet 8847, Hemet, California.

Homespun Tobacco 2½ lbs. $1.00 prepaid. Five different grades, try this and select the grade that suits your taste best. Address Farmers Leaf Tobacco Ass'n, Dukedom, Tenn.

For Sale—16 horse power Stover engine, or will trade for 25 horse power engine. G. H. Lillard, Norwalk.

CATTLE

Will Sell Part of our purchase of Judge Lindley herd imported and domestic registered Guernsey cows, heifers and bull calves. Brown Bulb and Seed Ranch, Capitola, California.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Shorthorns — Registered and grade bulls for sale from my herd bull, Orange Flash Frank E. Collier, Wildomar, Riverside County.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

For Sale—Jersey bull 6 months old out of imported bull Helen's Oxford Son. Price $75.00. J. R. Carhart, Fullerton, Calif.

For Sale, 10 registered Holstein cows, all milking. Write Mrs. G. U. Clark, Hanford, California.

Ayrshires: A few well marked and well put up bull calves from high producing stock. Wyndham Dairy, Redding, Calif.

GEESE

Toulouse Goose Eggs, 35c and 50c each. Turkey eggs producing ¾ Giant Bronze birds 35c each; Duck eggs, all varieties, $1.50 dozen. Place orders now. Mokelumne Poultry Ranch, Lockeford, California.

5 Great Novelties 20 cts.

AUTUMN GLORY. A new hardy plant. The most showy Autumn bloomer, surpassing all others. It is the latest to bloom, showing its full glory after frost has killed all tender flowers. Greatest novelty in twenty years. Succeeds everywhere, reaching perfection the first season from seed, and continues blooming for years. 20 cts. per pkt.
With each order we send one trial packet each of: PINK WOOLFLOWERS, new—nothing can surpass the mass of pink flowers which it shows all season.
DAHLIA LORD GOFF, lilac pink, in great profusion. Blooms in 3 to 4 months.
JAPAN IRIS, new hybrids of all colors. Magnificent.
DIENER TOMATO, grows to weigh 3 lbs. As smooth and beautiful as an apple. Most startling new vegetable.
And our Big Catalog, all for 20 cts.
Big Catalog, free. All flower and vegetable seeds, bulbs, plants and new berries. We grow the finest Gladioli, Dahlias, Cannas, Irises, Peonies, Perennials, Shrubs, Vines, etc. All prize strains—many sterling novelties.
JOHN LEWIS CHILDS, Inc. Floral Park, N.Y

HINTS ON GARDENING

Morris & Snow Seed Company, 420 South Main Street, Los Angeles, is issuing its catalog for 1921. More correctly, the title is "A Few Hints on Gardening." The best hint of all is perhaps the calendar of planting operations to which some two or three pages are given. There are also sowing tables, seed required to an acre, and a number of other valuable hints. In addition a freely illustrated list of ornamentals, vegetables and plants of all kinds is given.

GRAPEWILD FARM BERKSHIRE SALE

The sale of bred Berkshire sows and gilts held by A. B. Humphery's Grapewild Farm, Escalon, Thursday, February 3, was very successful. Considering the quality of the offering and the prestige of the Grapewild herd both as show winners and breeding stock, the range of prices really should have been higher. However, under the existing circumsances the prices obtained were very satisfactory. The local support by neighboring farmers was not as good as the offering deserved. This seems to be the existing condition at most of the sales and seems unexplainable as the present price of grain and pork will yield the greatest profit that has been possible in years. Over half of the sows and gilts in this sale sold at a figure where any pork producer could have made money by using them to grade up his pork herd.

The top of the sale was lot No. 1, Leader's Escalon Princess 4th, purchased by H. C. Muddux & Son, Sacremento, for $350.

Alex Wilson of the Italian Vineyard Company, Guasti; J. Francis O'Connor, Santa Rosa; Fred Makinsen, Modesto; Montezuma Ranch, Collinsville, and Calla Gove Farm, Manteca, were all strong buyers and bidders.

With L. E. Frost of Chicago in the ring and Col. John A. Davis, Manteca, on the block, the sale was conducted in a high class manner. The average price was $99 per head.

Following is a list of sales:

1, H. C. Muddox & Son, Sacramento, $350.
2, Italian Vineyard Co., Guasti, $155.
3, H. C. Duddox & Son, $60.
5, H. C. Muddox & Son, $115.
6, Calla Grove Farm, Manteca, $150.
7, D. J. Bastanchury, La Habra, $150.
9, J. Francis O'Connor, Santa Rosa, $80.
10, Montezuma Ranch, Collinsville, $70.
11, Butte City Ranch, Butte City, $100.
12, H. C. Muddox & Son, $105.
13, Fred Makinson, Modesto, $95.
14, J. Francis O'Connor, $75.
15, J. R. Dinsmore, Las Vegas, Nev., $130.
16, J. Francis O'Connor, $125.
17, Montezuma Ranch, $80.
18-19, J. Francis O'Connor, $60-$60.
20, Montezuma Ranch, $60.
21, Kamehameha School, Hawaii, $100.
22, Calla Grove Farm, $85.
23, T. W. Powell, Lodi, 85.
24, J. Francis O'Connor, $75.
25, Fred Makinson, $80.
26, Montezuma Ranch, $60.
29, Italian Vineyard Co., $160.
30, Calla Grove Farm, $65.
31, Italian Vineyard Co., $50.
32, Fred Makinson, $50.

THE CALIFORNIA DUROC BREEDERS SALE

The second annual consignment sale of the California Duroc Breeders Association, held at the university farm, Davis, Saturday, February 5, was a decided success. The offering was presented in good condition, and while some of the individuals should have been of higher class, the offering as a whole was good. The average on the entire offering sold was $95 per head.

The way the offering sold and the number of new buyers interested in the sale were taken as a good indication of future business. A large crowd was present, including many of the students at the state farm, several of whom were buyers. The students gave added strength to the sale by their consistent bidding.

The top of the sale was lot 27, a splendid fall yearling sired by Pathfinder, consigned by Winsor Ranch, Bonita. After a spirited bidding contest between the state farm and Dr. Sorensen of the Western Laboratory Co., Stockton, she was knocked down to the latter at $500. The next top was an entry from the Diamond Bar Ranch, Spadra. This good young sow was sold for $300 to G. W. Atterbury, Woodland, who was one of the heaviest buyers and bidders present. The Western Laboratory Company of Stockton, F. C. Lundy, Napa, and W. W. Chandler, Vacaville, were also good buyers. Col. Geo. W. Bell, Tulare, sold the offering in a high class manner. Following is a list of sales:

2, G. W. Atterbury, Woodland, $55.
5, W. W. Chandler, Vacaville, $70.
6, G. W. Atterbury, $65.
7, R. E. Clifford, Davis, $120.
8, G. W. Atterbury, $150.
9, W. W. Chandler, $95.
10, Harvey Berglund, Dixon, $55.
11, Harvey Berglund, $60.
12, Western Laboratory Co., Stockton, $55.
13, Western Laboratory Co., $60.
15, F. C. Lundy, Napa, $85.
17, E. Varney, Davis, $60.
19, O. V. Humason, Davis, $80.
27, Western Laboratory Co., $500.
31, G. W. Atterbury, $300.

Guernsey Females

Our herd reduction sale still continues and there is a lot of fine Imported and A. R. cows with high production records and show ring honors left to be sold. We are also offering the choicest lot of young stock ever in one herd in the West. A number of bulls of all ages from the above sired by King of Hollow-Hill and Effie's King.

Also 30 head of females 15/16 Guernsey that will make wonderful family cows.

All T. B. tested and guaranteed breeders.

Everything Priced Reasonably.

Hollow-Hill Farm

Colton, California

Bassett, Ross and Crawshaw Sale

Hanford, Cal. Tuesday, Feb. 15th, 1921

Sale at 10 A.M.

20 High Class Percherons at Auction

2 Aged Stallions

2 Four Year Old Stallions

10 Mares 6 Geldings

All well broken and matched teams from 3 to 5 years old. The best lot of young draft horses to be sold in the state.

25 choice Poland China gilts, sired by Big Tim, King's Tim, King's Gerstdale, Some Price and Giant Bob. Bred to California Sensation, Western Rainbow, The Comet, Buster's Wonder and a choice son of Surprise Prospect. Your opportunity to purchase some of the best gilts in the state at your price. Remember the sale starts at 10 a. m

Bassett, Ross and Crawshaw

Hanford, Cal.

Col. G. W. Bell, Auctioneer

Buy These Shorthorn Bulls

I have for sale at moderate prices 20 well bred, heavy boned red and roan Shorthorn bulls, from 13 to 24 months old, that are just right for top range bulls. Several are Scotch. Also a few yearling heifers. Come and see these bulls, or write for prices.

H. W. Vaughn **Dixon, Cal.**

MERRITT-BOWERS COMPANY, Tagus Ranch, Tulare, California

have just got in two carloads of registered Shorthorns and Hereford bulls, and have a large assortment of draft stallions of all breeds, work horses and mules, as well as Mammoth Jacks, Duroc-Jersey Hogs and Poland China Hogs for sale, with a guarantee on every animal.

America's Pioneer Dog Medicines

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DOG DISEASES
And How to Feed
Mailed free to any address by the Author
H. CLAY GLOVER CO., Inc.,
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MACHINERY
OF EVERY DESCRIPTION
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When Writing Advertisers Mention California Cultivator.

Veterinary

Pigs With Cough

We have some young pigs that cough quite a bit, especially early in the morning when they get up. One died the other day and we cut it open and found that the lungs were all right but the liver was yellow or about half yellow. They have coughed ever since they were born. They have been running on alfalfa and green grass. For last three or four months have fed milk and raw potato off and on. Please tell us what is wrong with them.—Subscriber, Paicines.

It is very difficult from what you say to diagnose the trouble with your pigs. The symptoms of coughing would indicate some inflammation of either the lungs or windpipe. If upon a post-mortem examination it is impossible to find the trouble, it would be wise to consult a competent veterinarian who could, no doubt, upon personal examination, diagnose the trouble and suggest a satisfactory remedy.

THE ECONOMICS OF BETTER LIVESTOCK

(Continued from Page 195.)

further comment. All that has been said in regard to improving dairy and beef herds holds true with equal force for swine and sheep.

The writer could go into greater detail, but the point should have been made clear that pure bred livestock is capable of improving the common stocks of livestock and that such improvement makes for greater profit, and that in short is the one big argument for urging wider use of better blood. The man who refuses to adopt better methods when once the practicability of such methods has been pointed out deserves no more consideration than he is getting. The world is moving too fast for the public to pay serious attention to the lamentations of the man engaged in any line of production until he first of all manifests a desire to help himself. Until we as individuals put into practice every factor calculated to increase the efficiency of our business we cannot expect our organizations to be in position to place our needs before the public.

If we refuse to join cow testing associations so that we can find out which cows are making a profit, and until we use methods to increase our production, until we use a better class of bulls on our ranges and a better class of sires throughout our breeding operations, until we lay aside our prejudice and are willing to adopt progressive methods, until we learn the truth that we will be compensated in proportion to the effort we expend, until we learn that the use of better livestock is nothing more than an economic proposition—that it is not by any matter of means an impractical or "fancy" notion, we will be paying the piper without much chance of enjoying the dance.

COST OF PRODUCING MILK

What does it cost to produce milk? This is the question that has brought increasing concern to each dairyman. In answer to it the United States department of agriculture through the dairy division conducted a series of studies to give dairymen reliable information. These studies were begun in 1915, but the most recent upon which any data have been published was begun in 1917, in Skagit County, Washington, about 70 miles north of Seattle. The report of this study is contained in Department Bulletin 919, "Unit Requirements for Producing Milk in Western Washington."

A study of the results given in the bulletin shows that at the time of the study 56.4 per cent of the total cost of producing milk at the dairies investigated was for feed and bedding; 23.5 per cent for labor; 17.6 per cent for other costs; and 2.5 per cent for depreciation. The requirements for producing 100 pounds of milk during the winter were: Concentrates, 29.4 pounds; dry roughage, 92.9 pounds; succulent roughage, 143.3 pounds; bedding, 9 pounds; human labor, 1.9 hours; horse labor, .01 of an hour; other costs, $0.576. During the summer milk could be produced at much less cost, there being required a comparatively small amount of concentrates.

During the two years covered by the study, 44.5 per cent of each year's income from milk was obtained during the winter. During the first year records were obtained on 17 herds having an average size of 31.3 cows, with an average annual production of 7,369 pounds of 3.74 per cent milk per cow. During the second year 18 herds, 15 of which had been in the first year's work, had an average size of 28.6 cows and produced an average of 8,323 pounds of 3.59 per cent milk per cow. From each 100 cows in the herds during the two years, 55 freshened during the winter six months period and 42 during the summer season, while three cows did not calve during the year. Nearly one-half of the cows freshening dropped their calves during the months from February to May, inclusive.

Most of the milk in this section is sold for condensing purposes and is delivered by motor truck to large milk condenseries. All the herds selected for study were representative of dairy conditions found in that section. It is the custom to hire milkers who milk and take care of 25 to 30 cows per man and give their entire time to the herd.

In western Washington the pasture plays a very important part in milk production. With cool weather throughout most of the summer, plenty of moisture and a rich soil, there is abundant pasture until late in the fall. During the pasture season almost 60 per cent of the milk for the year was produced and at one-third of the yearly feed, bedding and pasture cost. The annual pasture charge per cow amounted to 1.1 acres, or $23.04. Such items as veterinary fees, medicine, disinfectants and other items amounted to $1.45 per cow per year. It was found that the number of hours required to care for a cow did not differ materially between the summer and winter seasons. However, due to the increased flow of milk in summer, the time required to produce 100 pounds of milk in that season was materially less in summer than in winter.

AN APPRECIATION OF THE GOAT

I enjoyed Mrs. Koethen's article in the Cultivator on "Lorraine — the Goat." It was interesting to me, as I have had a similar experience.

For several years I have had tuberculosis of the lungs. With outdoor life and light work and plenty of rest I am able to do my own cooking and care for a few chickens and rabbits. Last summer with the warm weather I lost considerable weight and didn't feel so well, so the family thought I ought to have a goat and in August bought Mamie, paying $25 for her. She had her third kidding in June and when I got her was giving two quarts of milk a day. Since then she has dropped to one quart a day. By November I had gained ten pounds and feel better all the time. My feed bill is about $2.50 a month, or eight cents a day. Of course, I don't feed as well as Mrs. Koethen does. Mamie eats a mash of bran and barley while I'm milking her. During the day I stake her on the hills, which abound in tecalote and which she devours greedily. After I milk her at night she gets alfalfa or oat hay. She is the most affectionate thing but surely has a will of her own. — Clarence W. Churchill, Fallbrook.

MILKICISMS

In these days of adulteration, first thing we know they'll be running milk trains without a cowcatcher.—North Adam (Mass.) Herald.

Some poor city children visited a farm. Each was given a glass of milk. "Well, boys, how do you like it?" "Fine! I wish our milkman had a cow."—Dallas Morning News.

For sale: Cow that gives quarts of milk a day, also two grindstones and one set of harness.—Winnipeg Free Press.

WITH EVERYTHING ELSE

At Sadieville, Kentucky, a tourist called to an old colored man: "Hey, Uncle! How far is it to Lexington?"

"I do' know, suh; hit used to be 'bout 25 miles, but ev'rything's gone up so I speck hit's 'bout fohty now, suh."—Youth's Companion.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Burglary Loss

Some boys broke into my house and did a great deal of damage. They were arrested and fined, but I have not yet been paid for the loss. How shall I proceed to collect?—Subscriber, Escondido.

It is probable that your only remedy is an action against the different boys for the damage caused, as the mere fact of parentage alone does not render a parent liable for the wrongs done by his minor child if unauthorized and unratified by the parent.

Right of Way Only

I bought a piece of land, through which the grantor reserved the right of way for road purposes only. This right of way is bordered on each side by trees and the orchard. Can the grantor pick the fruit or otherwise damage or remove the trees if he has ample room within which to drive over the established road?—Subscriber, Paradise.

The grantor has no right or interest in the property other than the mere right to travel over it. If he picks the fruit or injures trees he is liable as a trespasser.

No City Benefits

Some 51 families live in the city, pay all city taxes but they receive no benefits. What steps can be taken to compel water and fire protection?—Subscriber, Escondido.

The best method is to take the matter up with the city council and if the present city council does not take action, see that a council is elected which will, or you might take such proceedings to exclude you from the city.

Water Polluted.

I have a domestic water pipe running over a neighbor's land with his consent. At one point there has been an open stand placed through which the water runs. Six feet from the running water the neighbor has carelessly made an installation which will contaminate the water. Can I require its removal if the neighbor objects? What is the procedure?—Subscriber, Claremont.

If the water is polluted it is unquestionably a nuisance and you could have action by way of injunction to require the neighbor to remove the cause. It is even probable that the maintenance of such an installation which would pollute the water would render the neighbor liable for punishment for misdemeanor.

Minor Married

A girl marries a man who stated in the license that he was 21 years of age. It now appears that he is only eighteen. She was 22. Can the girl's parents take action to annul the marriage in case she should not wish to do so? What could be done?—Subscriber, Saugus.

It has been held that it is only in cases where the party seeking to annul the marriage is under the age of consent to a marriage, that is, respectively, 18 and 15 years, that the action may be taken to annul the marriage, and in that case only by the party who is under the age of consent. It is true that the law provides that the county clerk shall issue no marriage license if the male is under the age of 21 years or the female under the age of 18 years, except with the written consent of the parents of the person under age, but in the case stated it was held that even when the county clerk, willfully or through mistake, issued such license to the person under the age last stated without the consent of the parent, and such marriage was afterwards solemnized, it is neither void or avoidable by reason of the failure of the clerk to perform his duty. Certainly, in the case stated, the only person who could take any action whatever to annul the marriage would be the party under age. The young man in making his application for marriage license, being obliged to swear to his true age, unquestionably committed perjury, but that would not affect the validity of the marriage and would merely render him personally liable, if convicted, to punishment.

Net Weight of Grain

Has there been a state law passed recently deducting the weight of sacks when selling grain or corn?—Subscriber, Imperial.

Under amendment to Net Container Act of 1913 it is provided that the quantity of contents shall be the net amount of food or stuff or other commodity in the package or container. The term container is defined as "any receptacle or carton into which any commodity is wrapped or put for sale." The provision under the original act was that the quantity of contents required to be marked on the outside or on the label or tag attached to the container should be the amount of food or stuff in a package, the change being the word "net" before the word "amount."

BARLEYS FOR CALIFORNIA

Mariout barley is best for light or sandy soils; for dry localities; when fall planted, but will stand spring planting better than other varieties; should not be fall planted on heavy, cold, wet soils in Northern California.

Tennessee Winter barley is best for fall planting on heavy, moist, cold soils in Northern California; for the cooler mountainous districts in Northern California; must be planted prior to January 1 to get the best results; not adapted to sandy soils or to the warm, dry grain districts of Southern California.

Four Thousand barley is a pure line selection of common barley which is ten per cent more productive than ordinary common barley under all conditions; it should replace common barley under all average conditions in which the special drouth resistance of Mariout, or the special cold and wet soil resistance of Tennessee Winter, are not required; it is a more prolific variety than Beldi, and is now recommended for all situations where Beldi was formerly grown.

Because the above named varieties have been found superior, Beldi barley is no longer being recommended or distributed by the state experiment station.—G. W. Hendry, University Farm, Davis.

TOO MUCH ALFALFA?

The department of agriculture is concerned over the large planting of alfalfa. The slump in cotton is turning cotton growers to other crops, at least to a limited extent. Especially is this found true in irrigated lands of all the Southwest. The cotton growers are now disappointed at market conditions, and their present tendency is to turn their cotton land back to alfalfa, because alfalfa during the last season has been scarce and prices high. Department specialists believe there is danger that this irrigated land will be planted to alfalfa to such an extent that by the end of next season the supply of alfalfa hay will be in excess of the local feed requirements. It would seem the part of wisdom to continue to devote a fair proportion of the irrigated land to cotton, using the most efficient and economical methods of production, in the expectation that market conditions next year will give a fair return for the crop.

In any event an excessive alfalfa acreage should be avoided because the livestock population of these irrigated valleys is now below normal and the alfalfa crop is too bulky to be moved long distances to market. In general, the action most urgently needed in the valleys of the Southwest is the increase of livestock, so as to permit a return to a sound basis of diversified farming.

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ROLLER BEARINGS

HYATT BEARINGS make farm tractors better because they carry the severest loads under all conditions without wear on the rolling parts and never require adjustment. They reduce the need for oiling to once or twice a season.

You can obtain almost any kind of farm operating equipment—be it tractor, truck, motor car, plow or threshing machine—Hyatt-equipped.

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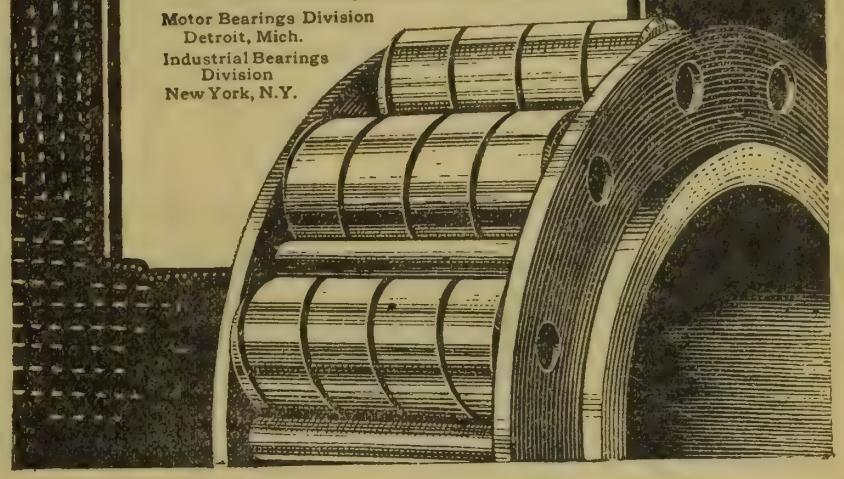

ALFALFA SEED

HAIRY PERUVIAN

Buy Direct From Source of Supply

Every bag of our seed came from fields that had been inspected by an official of the State of Arizona Department of Agriculture

Before the Seed Crop Had been Harvested

Not until then was it possible to have every bag of seed CERTIFIED, TAGGED and SEALED by this same official or one of his assistants under his direct supervision.

This is the Seed You Buy From Us and Our Price is Reasonable Too

$32.00 per Hundred lbs., f.o.b., Yuma, Ariz.

OTHER VARIETIES OF ALFALFA SEED

SMOOTH PERUVIAN.....$28.00 per cwt.
COMMON (Chilian) .....$22.00 per cwt.
F. O. B. YUMA, ARIZONA

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Delta Seed & Feed Co.

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References: First Nat. Bank, Yuma, Ariz.; Yuma Nat. Bank, Yuma, Ariz.

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we suggest for immediate planting—

the usual Citrus and Tropical Fruits:
the feijoa, avocados, mangos, kumquats, limes.

the sturdy Deciduous Fruits:
apples, peaches, pears, plums, nectarines, strawberries, raspberries, nuts and all the bush fruits.

Where space is limited, we suggest the Citrus Combination Tree which bears five kinds of fruit—tangerine, lime, lemon, and two kinds of oranges. You can pick ripened fruit from this tree every month of the year.

Write for our beautifully illustrated 1921 Catalog describing these and hundreds of other varieties of Fruits, and a full line of the Ornamentals—shrubs, climbing vines, roses, hedges, palms and shade trees.

Armstrong Nurseries

Established 1889.

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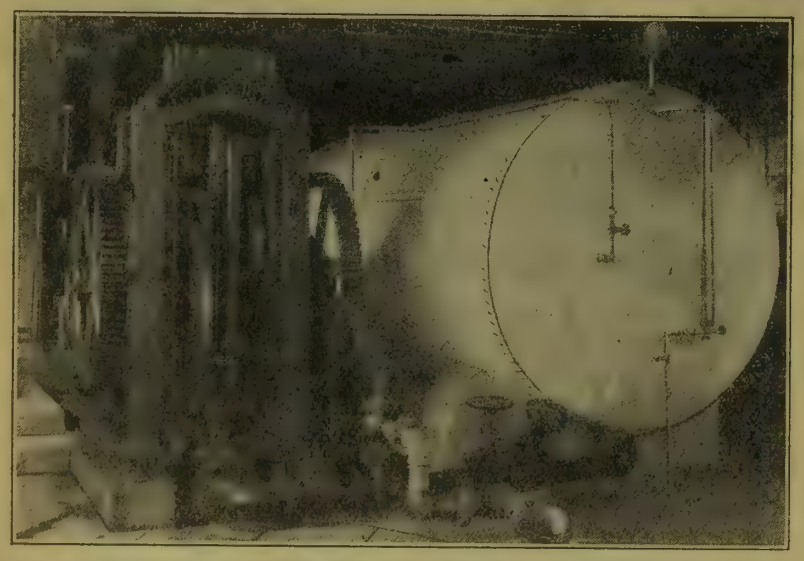

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Automatically controlled—Drawing water from well and putting same under high pressure for domestic use, fire protection, irrigation sprinklers and other purposes.

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WRITE US FOR PRICES ON

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AMERICAN STEEL PIPE AND TANK CO.

354 Pacific Electric Bldg. LOS ANGELES, CAL.
1228 H Street FRESNO, CAL.

Los Angeles Markets

Los Angeles, February 9, 1921.

BUTTER

Butter: creamery extras, Produce Exchange price 55 cents.

Feb.	2	3	4	5	7	8
'21 ...	42	42	40	40	41	41

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 32 per dozen. Case count Produce Exchange closing price 30 per dozen; pullets, produce Exchange closing price 29 per dozen.

Dairy Exchange price last week on extras:

Feb.	2	3	4	5	7	8
'21 ...	40	40	38	38	35	32

Manager Stanley of the Poultry Producers of Southern California reports that:

Conditions over East generally weak. Chicago prices around 33½, New York were 39-44 on Tuesday, while a Wednesday morning wire indicates 3 cents lower.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, February 8, by Los Angeles wholesalers from their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market unsettled. Stocktons: Burbanks, quality poor, mostly 2.25@2.50. Idahos: Russets mostly 2.00@2.25. Local: White Rose mostly 90@1.00 per lug; 2.25@2.50 per 100 lb. sack.
lb. sack. Sweet potatoes: Supplies light, market strong. Best mostly 1.75@2.00.

Onions: Supplies heavy, market dull. Stockton: White, cold storage, 2.50@3.00; sacked. Brown, mostly 1.25@1.35 cwt. sacked.

Garlic: Local best mostly 12@15 lb.

VEGETABLES

These are the actual prices obtained February 8, by the Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 1.50@2.00.
Beets: Doz., 40@50; sk., 1.75@2.00.
Cabbage: Field cr. best mostly 75@1.00.
Carrots: Doz., 30@35; sk., 1.00@1.25.
Cauliflower: Supply light, field cr., best, 2.25@2.75.
Celery: Cr., best 2.50@3.00.
Cucumber: Hothouse, best, 2.00@2.50.
Egg Plant: Lb., 9@11.
Lettuce: Local field cr. mostly 40@75; few 1.00.
Peas: Sk. sales, 14@15 per lb.; small lots 14@16 per lb.; seconds, 10@12.
Peppers: Bells, 15@18; Chilis, 25@27.
Radishes: 15@20 doz.
Rhubarb: Crimson Winter, best bx., 1.40@1.60.
Spinach: Doz., 25@30.
Squash: Local Hubbard and Banana, lb., 1½@2; Italian, per flat, 1.75@2.00.
Tomatoes: Mexican, per lug, original 3.75, repacked lug 4.25, repacked crates, 3.00. Local, best 2.00@2.50.
Turnips: Per dozen, 30@35; sk., 90@1.10.

NUTS

California Walnut Growers' Association announces prices on 1920 walnuts: No. 1, soft shell, 12½; No. 2, 18½; Budded, 25½; standard budded, 22½ per lb.

GRAIN AND FEEDS

Grain Exch. price bid February 8:
Milo: Carlots, 1.90; No. 2, Eastern blk., 1.50@1.68¾.
Kafir: Eastern, No. 2, 1.57½.
Corn: Bulk, No. 3 Yellow, 1.45@1.50.
Bran: Kansas, 34.25.
Barley: 1.41¼.

HAY

Alfalfa Growers of California report under date of February 9:

Receipts of alfalfa hay during the week showed some increase and were readily absorbed by the current demand at a slight concession from previous prices. Offerings from Nevada continue at prices somewhat below the market for California hay, though these prices, on account of the high freight rates to here, do not net the Nevada growers more than about $10 a ton at shipping point for their best quality. Since the cost of baling and hauling easily absorbs half of this there would not seem to be much left for the grower. The market for wheat, barley, corn, etc., touched new low levels during the week, bringing prices still farther below cost of production and threatening the growers with losses on the coming crop, in addition to those on the old.

There were 850 tons received on the tracks in Los Angeles the week ending February 5, with 90 tons held over as against 600 tons the week before.

Rabbit alfalfa 38.00
No. 1 dairy alfalfa 26.00
Standard alfalfa 23.00
Stock alfalfa 18.00

Quotations by Nichols - Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats .....20.00@24.00
Barley .....18.00@22.00
Alfalfa .....18.00@26.00
Barley straw .....8.00@12.00

San Francisco Markets

San Francisco, February 8, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 40½
Dairy Exchange prices extras this week and year ago:

Feb.	1	2	3	4	5	7
'21 ...	44½	42½	40½	40½	..	40¼
'20 ...	..	69	67½	67½	..	63½

Rcts. wk. ending Feb. 7, 3,210 centals.

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 36½
Extra Pullets 35
Undersized 34

Dairy Exchange prices, extras this week and year ago:

Feb.	1	2	3	4	5	7
'21 ...	45½	46	44½	40	..	36½
'20 ...	..	53	52½	47½	..	50½

Rcts. wk. ending Feb. 7, 309,599 dozen.

POULTRY

Wholesale prices are:
Hens: Colored, 35@37; White Leghorn, 35@37; strictly young roosters, 37@40; old roosters, 22@23; fryers, 45@50; broilers, 56@60.
Ducks: 30@35.
Squabs: 75@85 per lb.
Turkeys: Dressed, fancy, 50@55; poor quality 42@45 per lb.; live, 43@45.
Geese: 32@35 per lb.
Pigeons: Old, 2.50@3.00 dozen.
Belgian Hares: Live, 26@28 per lb.
Jackrabbits: 2.50@3.00 per doz.

LIVESTOCK

Western Meat Co. prices:
Cattle: Steers, No. 1, 9@9½; do, second quality, 8@8½; do, thin, 5½@7.
Cows and Heifers: No. 1, 7@7½; do, second quality, 5½@6½; do, thin, 3@4.
Calves: Light weight, 10½@11½; medium, 8½@9½; heavy, 7½@8½.
Lambs: Milk, 10@11; yearlings, 8@8½.
Sheep: Wethers, 7@8; ewes, 4@6.
Hogs: Hard, fat, grain-fed, weighing

TREE SPRAYS

The trees in your orchard are your stock in trade, your merchandise in warehouse. You cannot afford to take chances. They should be protected.

B T S

is a dry Barium Sulphur insecticide and fungicide. It is effective in killing scale insects, red spiders, etc. It is the spray material to use during the dormant season.

B T S is economical. Leakage is eliminated — 80% of the weight is eliminated. It is safe to use and easy to dissolve.

B T S controls peach leaf curl and twig borer; controls apple and pear scab; may be used in combination with arsenate of lead.

ORCHARD BRAND

Bordeaux mixture made of the highest grade materials adapted for treatment of deciduous fruit trees, citrus trees, grape vines, and berry plants.

UNIVERSAL BRAND

Miscible Oil and Soluble Oil for thrips control, and insecticidal value in killing scale insects. Both are highly concentrated and effective.

ORCHARD BRAND

Arsenate of Lead in both paste and powder forms — standard spray material for codling moth control — manufactured in California. Supplied promptly in good condition, convenient for use, widely known, thoroughly reliable and sold for reasonable prices.

ORCHARD BRAND

Lime Sulphur Solution is of maximum concentration, free from sediment, convenient and is the best known material for general dormant spraying on deciduous fruit trees and to control peach leaf curl, twig borers, brown rot of apricot, etc.

ORCHARD BRAND

Atomic Sulphur is the most effective fungicide for the control of powdery mildew on fruit trees, vines, truck, grapes and ornamental plants.

Write for our free booklet on insecticides and fungicides. Tell us about your orchard troubles—our entomologist will write you fully, giving helpful suggestions, based on years of experience in Pacific Coast Orchards.

ORCHARD BRAND SPRAY MATERIALS

GENERAL CHEMICAL COMPANY

770 Royal Insurance Building Dept. B.
SAN FRANCISCO, CALIFORNIA

100 to 225 pounds 11; 225 to 300 pounds, 10½; 300 to 400 pounds, 9½.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 21 lb.; Sunmaid seeded, 36 15-oz. pkgs., 23 lb.; seedless Sultanas, 25-lb. bxs. 21½ lb.; Thompson seedless, 25-lb. bxs., 22 lb.; do, 48 15-oz. bxs. 23 lb; 3-cr. L. M.,

Apricots: Fancy, 25 lb. boxes, 29 lb.; extra choice, do, 24 lb.; choice, do, 23 lb.; standard, do, 18½ lb.

Peaches: Blue Ribbon brand, 48 11 oz to cs, $10 cs; Blue Ribbon brand, 24 2 lb bxs to cs, $11; fancy, 25 lb. bxs, 19c; extra choice, 25 lb. bxs, 17c; choice, 25 lb bxs, 15c.

Pears: Fancy, 25 lb. bxs., 20; extra choice, 25 lb. bxs., 15; choice, 25 lb. bxs., 12.

Figs: Fancy black, 25 lb. bxs., 12 lb.; extra choice, do., 9 lb.; choice do, 8 lb.; fancy white, do, 15 lb.; extra choice, white, do, 12 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4 layer, 10 lb., 2.00 box; choice 4 layer, 10 lb. boxes, 1.75 box.

Prunes: 30-40s, 25 lb. bxs., 15 lb.; 40-50s, do, 12 lb.; 50-60s, do, 10 lb.; 60-70s, do, 8½ lb.; 70-80s, do, 7½ lb.; 80-90s, do, 6½ lb.; 90-199s, do, 5½ lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 9 lb.; choice, do, 8 lb.

HOPS

Cal. 1920, lb., 33@35.

RICE

Rice growers of Glenn and Colusa Counties have pooled their 1920 crop and will market it through a committee. The growers of Butte, Yolo, Yuba and Sutter Counties will be urged to join the association and endeavor to market their crops on a paying basis.

Fancy Japan rice, spot, 4.50.

Citrus Markets

Los Angeles, February 9, 1921.

Storms and cold weather have prevented free movement and the orange market generally is very quiet Approximately one-third of oranges have been moved to market. F. o. b. quotations are running as high as $3.25.

There are now more lemons afloat than for some months, and there is no relief for the lemon grower in the immediate future.

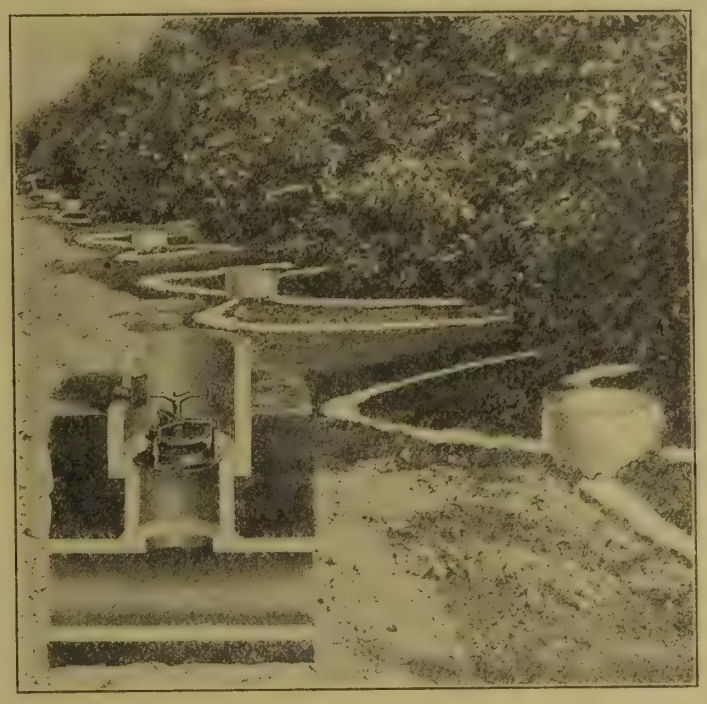
Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 5,548 cars: lemons, 1,520; total, 7,068. To same date last season: Oranges, 6,244; lemons, 1,339: total, 7,583. From Central California to date, this season: Oranges, 3,987; lemons, 75; total, 4,062. To same date last season: Oranges, 3,426: lemons, 179; total, 3,605. From Northern Califoriia to date this season: Oranges, 304; lemons, 4; total, 308. To same date last season: Oranges, 261; lemons, 20; total, 281.

SAVE WATER LABOR LAND

A Modern Irrigation System on the Ranch Frequently Saves Its Cost Annually—Your Nearest Pipe Manufacturer Will Give Information and Estimates

A "SNOW" INSTALLATION ILLUSTRATED



An Orchard Stand and Orchard Valve

One Stand for each row of trees

Valve Controls flow

Galvvanized Gates distribute flow into four or six small Streams

Illustrated treatise on "Irrigation by Flooding" and on "Irrigation by Furrows," by leading authorities, is now on the press and will be ready for free distribution in a very few days. File your name and address and a copy will be mailed to you.

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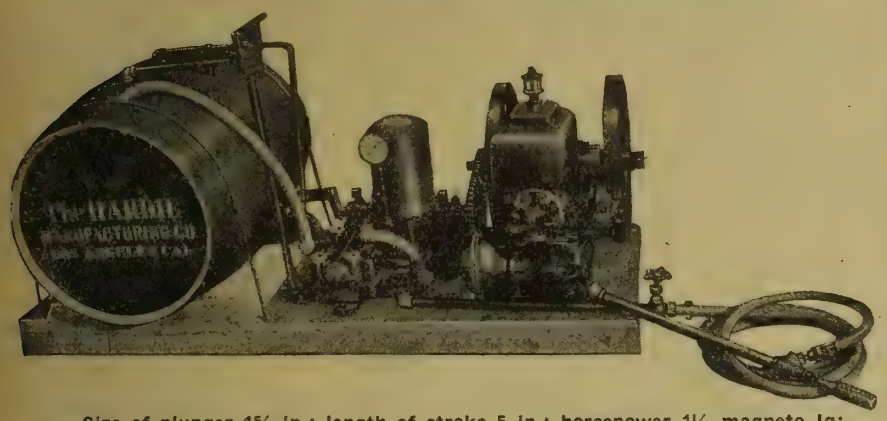
No. 1000 BABY JUNIOR



Size of plunger 1⅝ in.; length of stroke 5 in.; horsepower 1½ magneto Ig; speed of pump 60; capacity 4½ gal. per minute; wood frame; working pressure 225 lbs.

OUR SPECIAL FOR SMALL ORCHARDISTS

This Famous Junior Power Sprayer

is in use in every fruit section of AMERICA. For satisfactory service and low upkeep cost it can't be beat.

Its low price makes it available to the small grower who has thought he could not afford a power sprayer. In fact, thousands have seen in this HARDIE JUNIOR POWER SPRAYER their opportunity to get away from the hard work of hand pumping and the inefficiency of low pressure hand spraying.

When you buy a sprayer you don't want to experiment, you want one that will give satisfaction; that is what a HARDIE will give. They are built to stand up and render satisfactory effective spraying.

SPECIFICATIONS:

1. Engine—1½ h. p. HARDIE Magneto ignition.
2. Pump—Famous HARDIE Junior pump.
3. Tank—50 gal. barrel, fitted with mechanical agitator.
4. Regulator—HARDIE relief valve.
5. Drive—Steel roller block chain running on steel cut sprocket.
6. Equipment—25 ft. HARDIE best spray hose fitted with "Stay-there" hose clamp, one angle cut-off, one Vapo nozzle, one 10 ft. bamboo spray rod.
7. Price—$270.00 F.O.B. Los Angeles.
8. Weight—500 lbs.
9. Hardie Gun instead of rod, add $5.00.
10. Truck—add $60.00.
11. Duplex pump instead of Hardie Jr. pump, add $25.00.
12. Rapid tank filler, add $25.00.

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That Give Satisfaction

They Have Quality

Send for "Hints on Gardening" It's Free

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Ever grown at our Betabel Nursery.

The excellent root system on these trees attracts favorable attention wherever seen. Send us a list of your nursery stock need for our quotation.

FRUIT TREES—a little of almost everything still available.

CITRUS TREES—balled or in large cans.

GRAPE VINES—commercial and table sorts.

BERRIES—all the best varieties. Grapes and berries, and many other kinds of stock can be sent in small lots by parcel post.

ORNAMENTAL AND SHADE TREES—of all kinds.

SEND FOR CATALOG PROMPT DELIVERY

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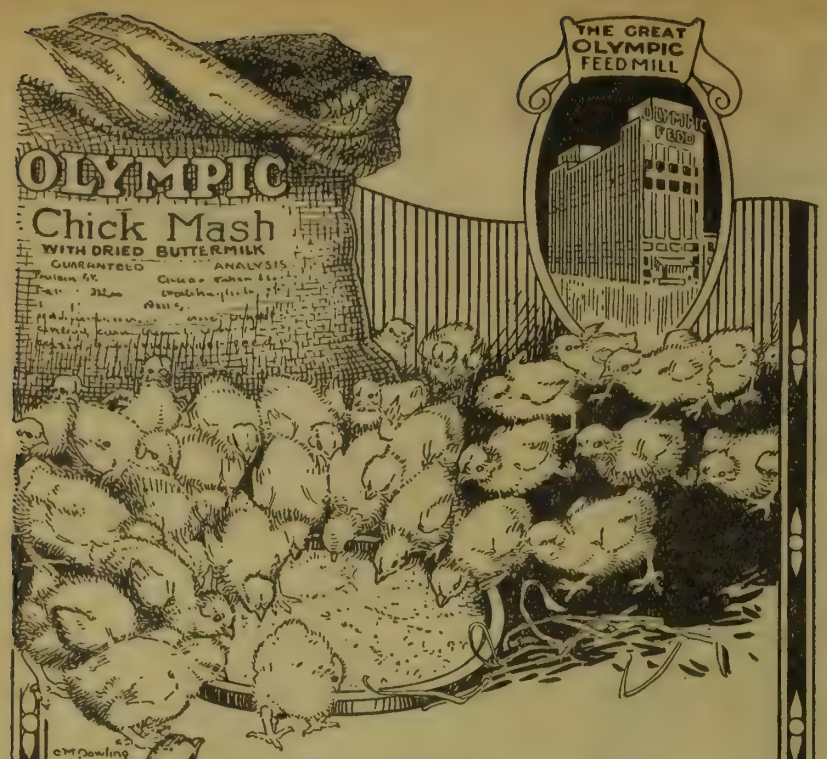


Raise Every Chick

MILLED especially for the critical first few weeks' feeding, OLYMPIC Chick Mash with *Dried Buttermilk* is proper baby feed for your chicks.

Blended by successful poultry feeders to develop money-making fowls—OLYMPIC Chick Mash with *Dried Buttermilk* directly builds muscle, bone, flesh and vitality.

OLYMPIC Chick Mash with *Dried Buttermilk* contains the following wholesome ingredients: Corn Feed Meal, Linseed Oil Meal, Meat Meal, Oat and Barley Flour, Alfalfa Meal, Flour Middlings and *Dried Buttermilk.*

Dried Buttermilk, a most important ingredient, supplies sufficient lactic acid to practically eliminate the danger of White Diarrhœa or bowel trouble. It disinfects the alimentary canal and removes poisonous irritants.

You can count your chicks as soon as hatched by feeding OLYMPIC Chick Mash with *Dried Buttermilk.*

Write for booklet, *Instructions on Poultry Raising and Feeding*

The Portland Flouring Mills Co.
Merchants Exchange Building.
San Francisco, California
C. B. Sharp, Agent.

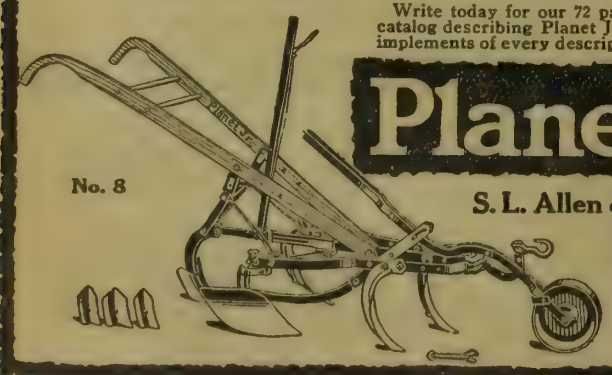
OLYMPIC Baby Chick Scratch is first assistant to OLYMPIC Chick Mash with Dried Buttermilk, insuring the health and future productiveness of your chicks.

Get a Planet Jr. for long service

Of all the fine qualities for which Planet Jr. Cultivators are famous—thoroughness, adjustability, ease of handling, strength, and durability—the one that gains the most enthusiastic endorsement from our customers is long, dependable service. Planet Jr. Horse Hoes and Cultivators are built of the best materials, well braced to resist every strain. The steels are beveled and specially hardened.

No. 8 Planet Jr. Horse Hoe is used all over the world. Works any useful width, throws the earth towards or away from the row.

Write today for our 72 page free, illustrated catalog describing Planet Jr. farm and garden implements of every description.



Planet Jr.

S. L. Allen & Co., Inc.
Box 1106P
Philadelphia

We carry stock in Los Angeles. Agencies in all principal Pacific Coast cities.

B. HAYMAN CO., Inc. SINCE 1876
DISTRIBUTORS PLANET JR. TOOLS
118-120 No. Los Angeles St. Los Angeles

When Writing Advertisers Mention California Cultivator.

Adventuring With Chickens

By Jean A. Koethen

DEAR DAD: We have been in such a rush the past two weeks that I could hardly remember my own name, much less sit down and think connectedly. When things happen with us they happen all of a sudden, it seems, and we must get used to getting our bearings by each new star that appears above our horizon.

This time it is pullets. We had planned, as I wrote you, to begin at the beginning and raise our pullets for next year, building our houses as they were needed, brooder house first, then colony houses for the growing pullets, and finally laying houses. It was a lovely plan, and would have worked beautifully if we had not heard of a bargain lot of pullets a Mr. Jones was offering for sale. Of course, if they had not been good stock we would not have thought of looking at them. As it was, we looked and fell. There are 200 of them, as perfect in type and color as anything you ever saw—big, red combs and all—just beginning to "bloom," as the chicken folks say when pullets are about ready to lay. They are from trapnested hens, too, and the price, $2 each, was wonderfully cheap, we thought, for these times. That $400 made quite a hole in the little fund we had put aside for equipment and stock, but we feel sure we did the wise thing. By trapnesting these pullets we can have at least a few breeders ready for next fall, and thus save a year's time.

The next thing was a place to put them. Mr. Jones was selling them to make more room for his flock. He says, and we have heard it from so many others we know it must be true, that hens never lay as well if they are crowded. They ought to have at least three square feet of floor space for each pullet, and four square feet is better. If as little as two square feet per hen is allowed, as happens on some ranches, there must be the most constant and careful cleaning. The slightest lapse in sanitation under such conditions is apt to precipitate an epidemic.

The owner was willing to hold the pullets a week for us, but not longer. As soon as we got home from looking at them Bob took off his coat and began staking out the foundation for the laying house, while I rushed off in the car to look for carpenters. They got to work the next day, and now the house is up and the pullets in it.

We had already decided, after talking with a good many men, and looking at a good many houses, to try the no-yard house—not the extreme type of no-yard house which keeps the birds in flocks of 25, but a house of a little more liberal construction which allows 50 birds to a flock. Our long house is 12 feet wide and at present only 48 feet long. That will divide into four houses or sections, each 12 feet square, which allows 144 square feet of floor space for each 50 pullets, or practically three square feet to a bird. The house faces south and the shed roof is high enough to admit the sun to the whole house. The front is entirely open, except for wire, and the rear is entirely closed, or apparently closed. It looks perfectly tight, and is, as far as drafts are concerned, but instead of being boarded up solid, the lower three feet is built into a separate frame which is hinged at the top, so that in hot weather it may be raised. We had seen a house built on such a plan, only the adjustable frames were covered with tarred paper. Paper did not appeal to us as substantial enough protection, though it is used on many ranches, so we preferred to work out the idea in wood.

Our neighbors have quite overwhelmed us with praise for having designed so convenient a house, and have even brought their friends to look at it. It makes me feel pretty proud to think we Missouri tenderfeet should have achieved something that makes these conceited Californians sit up and take notice, but Bob says, "Be careful, little girl; you know where pride ends," and so I try to be humble. I forgot to say that the floor is concrete, covered first with clean sand, with straw on top of the sand. I'd hate to say what that sand cost us. It looks very nice and clean, and I only hope I shall prove a good enough housekeeper to keep it looking so.

Mr. Jones gave me a nice little lecture the day we went for the pullets. I think his subject might be called "Cleanliness First," though he did not label it. "You see those pullets, Mrs. Brown," he said, "with their red combs and their bright eyes. Now I want to tell you there ain't never been a louse on one of them, and as for mites, why, they don't know what a mite looks like. If they did, their combs wouldn't stay red nor their feathers shiny. Both mites and lice breed in filth and the cleaner you can keep your houses and droppings boards and nests and the bodies of the pullets, the healthier and happier they will be. You wouldn't like to live in a house where bedbugs and cockroaches walked over you at night, would you? Well, you take it from me, the hens don't like that kind of company any better than you do. A few lice you are bound to have unless you dust the hens once or twice a year, but mites have no business in any henhouse. When they get in it is always because somebody hasn't been a good housekeeper. Men don't always know, Mrs. Brown, just what good housekeeping is. They have to learn if they stay in the chicken business, but their ideas aren't very clear at first. Women always know, and so I'm telling you to look after those pullets. Keep their house so clean and sweet you wouldn't mind spending a night in it yourself, and the pullets will be all right." I promised him solemnly that I'd keep them clean, or die in the attempt, and so I have worked out a program, typed it and tacked it on the wall of the feed room. It reads like this, and is for every day:

Scrape droppings boards.
Cover with clean sand or dry dirt.
Put clean litter in nests.
Rinse out water fountains.

Saturday morning: In addition to above, spray roosts, wall, droppings boards and nests with mixture of one part crude carbolic acid and five parts kerosene.

Bob will attend to this routine work unless something more pressing requires his attention, but I can do it on a pinch. Cleaning isn't such a

POULTRYMAN'S CALENDAR—FEBRUARY, THE HATCHING MONTH

Just as December is the best month in the year to the children, so, to the poultryman who loves his work and his birds, there is no month like February. This is the time when eggs are going into the incubators and chicks are coming out, when mails and trucks are loaded with boxes with holes in their tops and an alluring "peep" inside, when folks build air castles and dream dreams, castles which sometimes melt in thin air and dreams which never come true, but at least they are built and dreamed. This is the month when the hurrying crowd on the city street stops to cast longing eyes in at a window where a hundred "fluffy ruffles" are playing around a black stove mother, then looks again, and rushes in and rushes out carrying that mysterious box; when every broody biddy is given her way and a clutch of eggs; when the incubator men are happy and the hatchery men count their chicks and their profits with scientific certainty. Welcome February, and hatching time!

job if you only do it regularly.

Next time I will tell you how we worked out our feeding program. With love to everybody, Bessie.

Poultry Queries

Conducted by J. A. Koethen

Feeding Milk

What is the best way to feed milk to chickens, and in what proportion should it be fed?—Beginner, Orland.

If you have sufficient milk to keep it before your hens and chicks all the time in drinking pans it takes the place of other animal food. If you have not, and most poultry people have not, the best way to feed it is to use it to moisten the mash once a day. Keep a dry mash before them at all times in the hopper and, in addition to this, some time during the afternoon (early is best) wet up some of the mash with sour milk so that it is crumbly wet, not sloppy, and feed in trough just what the birds will clean up in 20 minutes. For chicks the milk may be used to moisten the mash once or twice a day or may be kept before them in pans. Sour milk or buttermilk is preferred to sweet milk because of its therapeutic value, but dry bread moistened with sweet milk is a very good nursery feed for baby chicks.

Blue Andalusians

What are the standard markings of Blue Andalusians? Please give me any other information you can concerning this breed. —Beginner, Orland.

"The typical Andalusian," says the 1910 standard of Perfection, "must be preeminently a symmetrical, graceful, compact fowl, of medium size, without coarseness of structure or clumsiness of carriage. The dark lacing of the plumage should stand out clearly and sharply. It should not merge into nor blend with the ground color of the feather. The desired contrast is pronounced and well defined. If the ground color is quite dark the contrast cannot be as sharp as when the ground color of the feather is of the 'clear, even, medium' shade required by the Standard." The male Andalusian should have reddish bay eyes, horn beak, bright red comb, face and wattles, white earlobes, lustrous bluish black neck, back and tail and wing bows. The primaries are a clear, even, medium shade of slaty blue; secondaries, inner web a clear, even shade of slaty blue, outer web, slaty blue, each feather having a well defined lacing of a darker shade; wing coverts, a clear, even, medium shade of slaty blue, having a well defined lacing of a darker shade. Tail coverts are a lustrous bluish black; main tail feathers a clear, even, slaty blue with well defined lacing of bluish black. The breast is a clear, even, medium shade of slaty blue, each feather having a well defined lacing of a darker shade. Fluff, slaty blue. Thigh a clear, even shade of slaty blue; shanks and toes, leaden blue. The plumage of the female is slaty blue, not "dark slaty blue" like that of the male. The wing primaries are like those of the male, but the remainder of the wing is "an even shade of slaty blue, darker than that of the primaries; feathers in all sections except primaries laced with a darker shade." Her back is slaty blue, each feather having a well defined lacing of a darker shade; tail, slaty blue, laced with a darker shade; body, slaty blue, each feather having a well defined lacing of a darker shade; fluff, slaty blue; neck, slaty blue laced with a darker shade. In other respects her markings are the same as those of the male. I understand there is some difference of opinion among judges as to which is to be preferred, the lighter or the darker color in Andalusian. If you think of exhibiting you should consult a judge or other expert.

To Hatch Pullets

Can you tell me what mating to use to secure the largest number of pullets?—Subscriber, Oakdale.

There is no sure rule for securing pullets, but poultrymen generally believe that mating an old cock to the largest possible number of pullets is most likely to bring results. By the largest possible number of pullets I mean the largest number he can be mated to with a fair percentage of fertility. An experienced breeder told me that when he wanted the maximum number of pullets he mated early in the spring his most vigorous cock to about 20 pullets. As soon as fertility could reasonably be expected he put a setting under a hen and then tested eggs on the eighth day. If they tested under 75 per cent fertile he reduced the number of pullets and continued to test out and reduce till he found the eggs showed the required fertility.

Best Incubator

What kind of incubator is best? Is the electric better than others?—Subscriber, Oakdale.

There is no "best" incubator. Some are better adapted to certain localities and some makes are better than others, but there is an argument for every kind. Some big hatcheries now use electricity, but I don't know that it is either better or cheaper than hot water or hot air. Much depends on the man who runs it and the climate in which it is used. The best way to find out what incubator does the best work in your neighborhood is to ask other poultrymen what they are using.

Hoganizing

I am thinking of culling my hens by Hoganizing. Can they be Hoganized at any time of the year? Is it possible to Hoganize pullets ten months of age and not discard good layers?—Subscriber, Manteca.

I hardly think you are using the words in their exact significance when you speak of "culling by Hoganizing," because culling is one thing and Hoganizing is another. The Hogan system, as I understand it, grades the layers before they have begun to lay, according to certain abdominal and pelvic measurements. If you grade your ten months old pullets now, you ought to be able to pick out those that are not laying and have not laid. Whether you can absolutely pick out every pullet that is not worth keeping is a question I do not care to discuss here, but I know that the men of the poultry division and other experts do not depend on Hoganizing alone. After the pullets have begun to lay they are constantly culled by several tests. Pullets that go broody too soon or too often, pullets that stop laying without good reason, or that show signs of weakness, are removed. Then, along in the spring, say May or June, they are culled by color, those whose bright yellow shanks and earlobes show that they have not been working hard being removed. From July on the early molters are removed. If the pullets have been Hoganized at the beginning these other tests should remove the unfit. As for the older hens, I suppose they can be Hoganized at any time, but you should find someone who understands the system thoroughly to do it for you.

Chicken Ticks

I have an old shed badly infested with chicken ticks which I wish to rebuild. Is there any method of treating the boards to kill these ticks?—Subscriber, Richfield.

There are plenty of things that will kill the ticks if you can only reach every tick and every nit. Crude carbolic acid, undiluted or diluted with kerosene, or any of the cresol preparations will do it. Probably whitewash containing crude carbolic acid will do it. The problem is to hit every tick. If you paint on the insecticide with a brush, and there are no cracks or holes where the pests can hide, perhaps you can kill every one, but you will have to paint every inch of the board, and go over it two or three times.

Cleaning Out Windpipe

Mrs. L. S. Bassett of Escondido, who says that with the help of a 15 year old schoolboy she is caring for 500 chickens, sends us the following interesting account of her method of treating choking chickens, which will no doubt be helpful to many readers:

"Having been told that when a hen

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Make sure that the parent stock, your hens and roosters, are in the pink of condition at mating time. Then they will impart health and vigor to the offspring. See to it that your breeders receive in their daily ration

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After your chicks are about 6 weeks old change the ration to Globe "A-1" Growing Chick Mash (containing dry buttermilk) and when the pullets are 5 months old begin to feed Globe "A-1 Laying Mash (containing dry buttermilk) and get ready for the full egg basket.

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began to cough or choke she was doomed, I began to experiment for myself after dissecting one whose windpipe was filled with cheesy matter. Being doubtful whether spores had collected from moldy feed or the condition was a bad case of roup, I watched the flock closely and from time to time, when I found one gasping, I immediately cleaned out the windpipe by this method: Grasp neck so as to push tongue and windpipe to front of mouth, and with a toothpick wrapped with cotton dipped in a weak solution of iodine, clear the cheesy matter out with one motion of the hand, if possible. If it cannot be done with one motion, allow the hen to breathe and try again, swabbing well afterward with iodine, but being careful not to allow any to go down the windpipe. This may sound complicated and like a waste of time, but I considered a dozen hens worth saving. I treated them once or twice in this way and had them laying again in three weeks. If I had vaccinated them after the treatment they would have been laying even sooner. I have tried it with other birds. Boys and girls on a ranch can be taught to treat fowls and animals with great benefit to themselves and saving of time for their parents."

Red Caps

Can you tell me where I can get French Red Caps?—Subscriber, Oakdale.

Speak up, Cultivator readers. Who has Red Cap chickens? I have never seen them at the shows.

Book Review

RABBIT BOOK

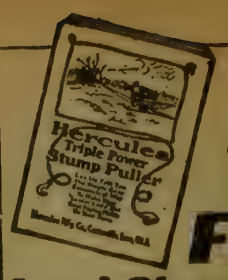
"The Rabbit Book," a practical manual on the care of Belgian hares and other meat and fur producing rabbits, by F. L. Washburn, University of Minnesota, published by J. B. Lippincott Co., Philadelphia, at $2.00 net.

"In view of the need of cheaper meats which are not only cheap but nutritious, and because the rabbit raising industry is now for the most part on a proper basis, namely, that of supplying meat and fur, it seems fitting that some comprehensive work should be placed before those interested which may serve as a guide to the uninitiated and as a work of reference to the professional."

The above is from the preface of the book which consists of 200 pages of excellent text fully illustrated. Illustrations of various types of animals—with a colored plate showing practically all of the domestic rabbits—rabbit hutches, hutch cleaners and various other appliances, are followed by a glossary and index making it possible to turn to description of any phase of rabbit keeping. There are 12 chapters touching upon strains of domestic rabbits and standards, stock, management of rabbitry, feeding, breeding, killing and dressing, recipes, diseases and remedies, rabbit fur, preparing skins, tanning, etc., selling, shipping and exhibiting. The present interest in cheap meat and the high prices of fur combine to make a long demand for this book.

MARIOUT BARLEY BEST FOR FEBRUARY PLANTING

Exhaustive experiments at Davis, supplemented by experience of practical farmers, have shown that Mariout barley possesses the greatest advantage over common barley when planted during February and March, says Professor G. W. Hendry of the university farm. Mariout is an early ripening dwarf variety which consumes less soil moisture than the common barley and completes its growth earlier in the spring before the ground has lost its moisture. It possesses about the same advantage over common barley for spring planting as common barley does over Club wheat, and the reason is assignable chiefly to the same cause, namely, its earlier maturity. Many Sacramento Valley grain growers have learned the special fitness of Mariout for spring planting and are substituting it for Tennessee Winter and common barley in all plantings subsequent to January 15, even on the heavier soil types.



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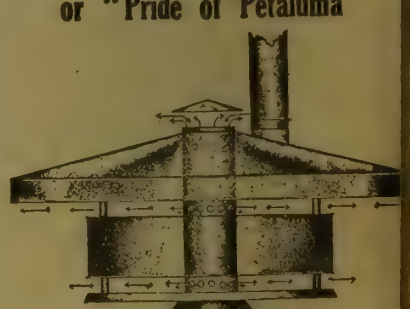

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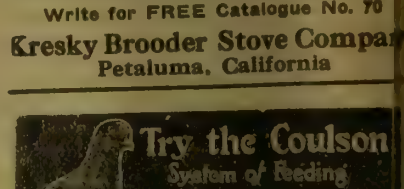
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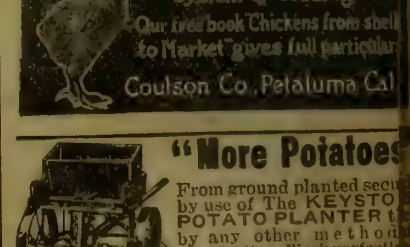
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BUYING SECOND HAND CARS

By B. H. Wike

Some folks are very much prejudiced against buying anything second hand, probably for the reason that they have either been deceived themselves or have seen a few cases where others have been. Now buying second hand cars presents a rather queer angle to the situation, for the main reasons that one never knows whether such a car is worth the price asked or whether it will run at all after it gets out of the owner's hands. Sometimes one strikes very rare bargains in second hand cars, and if one is careful there is little danger in being "skinned" any more than in other buying.

Making Mechanical Inspection

Unless you are skillful enough to make thorough inspections of a second hand car's condition, it will be better for you to take along some friend who is a mechanic and who can be trusted. The main thing you will want to know is what the mechanical condition is, whether any parts are on the verge of a breakdown or even badly worn. There is no way sometimes of knowing this except to get the car on the road for a trial. Of course you will have to make deductions and comparisons between this and a brand new one, for if the price is any indication at all to judge by, the car's action in running will doubtless tell the truth. Notice how the car accelerates. If there is any trouble in this respect it will likely show either leaking piston rings or a carburetor in poor shape. Even if it accelerates well enough, advance the spark suddenly on a slight pull and notice whether the connecting rod bearings show wear and looseness which will then indicate by a hammering sound confined to such cases. Also notice whether the gear shifts smoothly, as this will, if you are careful in shifting, indicate whether the gear teeth are nicked. A nicked condition of the teeth will cause some trouble in shifting. If the gears are worn there will be back lash which is found by stopping the engine, setting the gear lever to some position, say low, and trying to roll the car back and forth. It may be found, too, by driving on the road, accelerating somewhat and then checking by quickly throttling down, again repeating the process and noting the jerky and uneven movement.

Catch hold of the rear wheels and shake them in, and out to determine looseness of the rear axle shaft. This condition may be noticeable in running on the road by a chuckling sound on uneven tracks. Look the springs over for indications of broken leaves. See whether oil leaks too much from the motor cavities and grease from the transmission and differential housings. Jack up the front wheels and test for worn bearings and bushings both in the hub and the steering knuckle. See how much play is indicated in a movement of the steering wheel while the front road wheels stand on the floor or ground.

Electric Equipment Important

If there is a battery in the car, see what its condition is, whether the generator gives it charge and whether its condition tests well enough to warrant going a time longer. Don't, however, pin your faith in the whole car's condition to just what the battery's shape is, because a storage battery is no indication of good mechanical parts and actions. The general electrical condition should not be passed by, for a car is no better many times than its electrical equipment, for upon the spark depends the regular firing of the cylinders, and there is also likely provision for lights and starting. The various units like the generator and starter should be inspected and of course you will have to make allowances if either of these are found in need of overhauling.

By careful attention to all points outlined it should not be difficult to decide to the best advantage about second hand cars. If you make a thoughtful examination before you buy, it does not seem reasonable to complain after you do buy one.

The state farm settlement at Durham recently received a delegation of stock breeders of the Delhi land settlement in Merced County.

JOIN THE NEIGHBORS AND GET WOODCUTTING OUTFIT

A drag saw or buzz saw will enable a farmer to cut as much firewood in a few hours as he can cut in a week's hard work by hand. Many farmers already have gasoline engines and small tractors suitable for furnishing the power for wood sawing machines, and a power wood saw is not an expensive piece of machinery.

There should really be a portable drag saw outfit in every neighborhood to enable farmers to cut logs which are too heavy for them to roll and skid and also a buzz saw for cutting cordwood and long poles into firewood. The portable drag saw outfit is most efficient in cutting larger logs, but it cannot compete with the circular saw on wood less than ten or 12 inches in diameter. The logs to be cut with the drag saw do not have to be lifted off the ground and handled as much as if they were to be cut with a circular saw. A drag saw for the larger logs and a circular saw for the tops and smaller poles makes a very efficient combination.

It will not, as a rule, be profitable for a farmer to purchase an outfit for use in cutting only his own wood. Several farmers should combine in the purchase and use of a complete wood sawing outfit, and the outfit will pay for itself in a few years. The owners will usually find it possible to cooperate in the actual work of cutting the wood and there will be no cash outlay for hired help.

Washington is now the greatest apple producing section of the world. Though in 1920 New York produced slightly greater amount of fruit, young trees coming into bearing guarantee to Washington a long lead in the 1921 crop.

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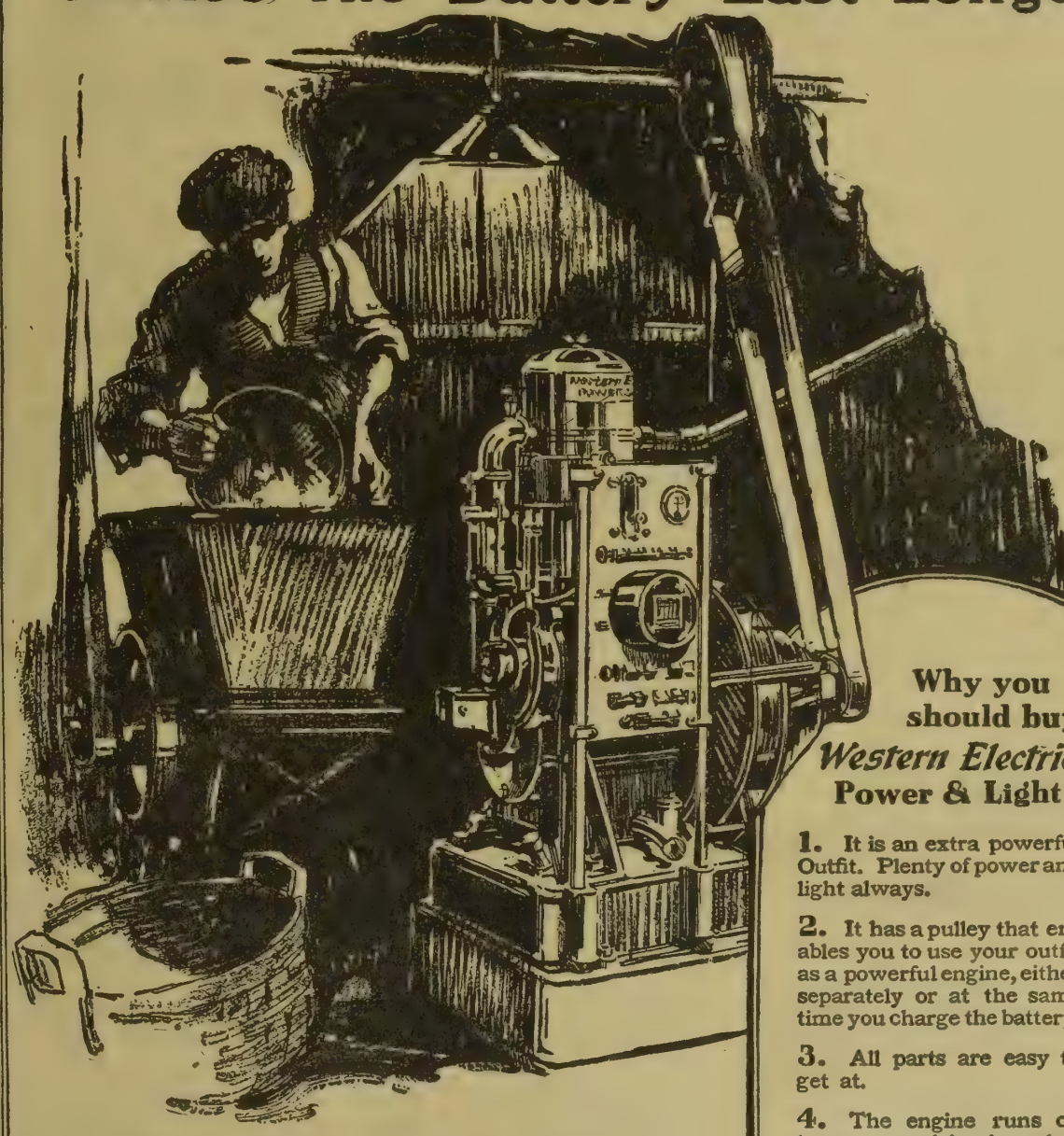

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It will pay you to look into these and other important features of this dependable Power and Light Outfit. There is a Western Electric dealer near you. Ask him.

THE BIGGEST LITTLE THING

you can do for baby chicks

Sperry Baby Chick Mash

This is a new Sperry Product to meet a growing demand—a product that is up to Sperry Standards of Quality. We are packing this feed in 50-lb. and 100-lb. yellow-striped bags. Your dealer can supply you.

—is to give them clean, prime feed. The poultryman who recognizes the importance of this rule is sure to save a big percentage of his hatch. The poultryman who ignores it is bound to lose.

Prime grains mean *clean* grains, free from smut, mould and other damage. Cleanliness is of prime importance in feeding baby chicks. In making SPERRY BABY CHICK FEED we keep this constantly in mind. During its entire process of manufacture the same absolute cleanliness is observed as in manufacturing Sperry Red Package Cereals for your table.

The formula for SPERRY BABY CHICK FEED is based on this full-grown idea: nothing is good enough for a baby chick that, under other conditions, would not be good enough for a human baby. These little bits of chick life require a feed that is granulated and proportioned for their delicate digestive organs. Their fast-growing bodies demand a uniform, balanced ration that supplies *all* the food values Nature intended a growing chick to have.

And SPERRY BABY CHICK FEED gives it to them! That's why they thrive on it. In the first few weeks of their lives this clean, prime feed comes to these chicks and gives them a firm foundation: a foundation on which to build their future egg-production—and your very profits. In short—it gives them the *right start*. And that means everything—to the chicks and to you!

Seasoned poultrymen will tell you that the slight difference in cost between poor feed and SPERRY BABY CHICK FEED means nothing—especially when you appreciate that the saving of a very few chicks more than makes up for it. And—here's another typical Sperry economy:

New improved machinery makes absolutely certain the *proper granulation* of SPERRY BABY CHICK FEED. This avoids the waste in actual feeding that is bound to happen with feed too finely ground.

Our booklet, "Makes Hens Happy," devotes quite a bit of space to this all-important subject of baby chicks. Thousands of successful poultrymen have found it a big little help. We'll send it gladly on request. Don't bother to write a letter—simply clip the coupon and mail today!

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SPERRY Baby Chick Feed

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SPERRY FLOUR CO.
208 WEBER AVENUE, STOCKTON, CALIFORNIA
Please send me, without obligation, your booklet "Makes Hens ... Happy."
Name _____
Address _____

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"There's a Sperry Feed for every stock and poultry need. And remember—every sack is guaranteed."

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — February 19, 1921 — No. 8

The Commercial Avocado Orchard Has Become a Fact

This orchard scene is in the foothills above Duarte and shows vigorous uniform trees now making liberal financial returns to the owner. The cover crop is of barley. Presumably a much heavier covering would have been secured with rye. See article by A. D. Shamel on third page of this issue.

Soil Acidity Is Detrimental to Crops

You Can Correct It and Establish a Desirable Soil Condition by Using

Note the High Analysis of D.M.S. Lime
Odorless—Soluble—96-39% Pure
NATURE'S OWN SOIL TONIC
ANALYSIS

Moisture	0.32
Combined Water	0.00
Acid Insoluble Matter	1.80
Iron Oxide	0.14
Alumina	0.20
Calcium Oxide	53.34
Magnesium Oxide	1.10
Alkalies	0.00
Carbon Dioxide	43.05
Sulphuric Anhydride	0.00
Phosphoric Anhydride	0.05
Percentage	100.00

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Exchange Members may be supplied through the Fruit Growers' Supply Co., Los Angeles.

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Attend the National Orange Show, San Bernardino, Calif., February 18th to 28th. If you will mention this Announcement when visiting our booth, you will receive a generous free sample of D. M. S. LIME for experimental purposes.

Order from Your Nearest Dealer

SOIL experts everywhere agree that an acid soil condition is detrimental to crop growth. The acid prevents the proper action of other beneficial elements necessary to the growth and development of vegetation. Soil acidity retards plant growth, stunts it in the proportion that it is acid, causing unprofitable crops. Many California soils are acid, some entirely and some in spots, but scientific investigation and repeated experiments have proven that the proper corrective is the use of lime.

Among the agricultural authorities who recommend the use of lime for soil acidity, include the University of California, College of Agriculture, which in Bulletin No. 111 says:

"Lime materials make 'sour' soils 'sweet.' Speaking correctly, they change an acid soil condition to a slightly alkaline one. Acidity of soils is very detrimental to the growth of many agricultural crops. A slightly alkaline condition is ideal for them."

D. M. S. Lime will correct the acidity of your soil and increase crop production. It is economical to apply, will greatly improve the condition of the soil and pay for the investment in better returns and lasting soil improvement.

Another beneficial use of D. M. S. LIME is found in the development of beneficial bacteria. Bulletin No. 111 on the use of lime says: "Lime materials are necessary for the useful and beneficial bacteria and other microorganisms of the soil. It furnishes these elements, calcium which is as essential to them as to the higher plants. . . . By its physical effects lime produces good air and moisture conditions for bacteria."

One of the most general uses of lime on California soils is to make clay and clay adobe soils looser, to prevent their packing, baking and cracking. Lime on such soils makes plowing and cultivating easier and makes them more pervious to water.

On Account of Its Accessibility and High Analysis D.M.S. Lime Is the Most Economical Lime Available in Southern California

Nature has richly endowed California with this much needed fertilizer and soil tonic. Ages ago, a few miles south of what is now Los Angeles, there was deposited a calcareous ooze which time and the elements have converted into DECOMPOSD MARINE SHELL LIME (Calcium) 96.39% pure, in a most soluble and otherwise perfect condition for agricultural and comercial purposes. A paved highway extends to the Plant, equipped there to yield the rich treasure AT A PRICE THAT EVERYONE CAN AFFORD.

D. M. S. LIME is available by truck at the Plant or through your local dealer. It is an economical and expedient soil tonic and fertilizer. Your crops cannot fail to show improvement by its application. Soils inclined to bake or behave as clay soils do, will become mellow and more pervious to the application of water when treated with D. M. S. LIME. Water will permeate deeper into the soil and render greater service where lime is present and the calcium is one of ten necessary elements for crop production. It is easily applied by sowing broadcast or with a drill, from 500 pounds to two tons per acre, according to the condition of the land.

Order today and take advantage of this highly beneficial, low priced material as many others are. If your local dealer cannot supply you, write us direct.

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California Cultivator

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Avocado Tree Records

By A. D. Shamel

THE California Avocado Association has recently established a bud department. The purpose of this department is to assist propagators and growers in securing reliable budwood from superior parent trees carefully selected on the basis of their performance records. The manager of the bud department is Miss R. Agnes McNally, secretary of the Avocado Association, whose address is Altadena.

Owing to the fact that the avocado industry is as yet in its infant stage of development, the commercial value of the crop is comparatively small. For this reason it has been difficult to secure adequate funds to finance work such as has been planned by the bud department of the association. With little funds available for carrying on the bud selection work, it is absolutely necessary that the avocado growers cooperate fully in the way of securing individual tree performance record data which can be used as a basis for the intelligent selection of parent trees for propagation. There are no funds available for carrying on independent tree record work, so that all the bud department can do until such time as more funds are available is to assist growers in laying plans for obtaining individual tree records of fruit production, to advise with them as to the adaptation of methods to particular local conditions, and to aid in tabulating, analyzing and interpreting the data after it has been secured, in order to locate undesirable trees for top working or replanting, and wherever possible to select superior parent trees for propagation.

Some of the leading avocado growers with whom the writer is acquainted are keeping individual tree records for their own information and for the benefit of the industry. These men are devoting a considerable share of their personal time to this work, which is, as a matter of fact, a public service in that it is likely to benefit the industry as a whole as much or more than their own interests. Such men who give their time and bear the expense of securing reliable and definite information as to the avocado variety, strain and individual tree behavior will sooner or later come to be looked upon as the real founders of this industry, which in time seems destined to be an important one.

There are continual accessions to the list of leading avocado growers by reason of new plantings or the extensions of old ones. It is to these men in particular, as well as any others who have not become interested in helping establish this industry upon a sound foundation, for one reason or another, that the writer wishes to appeal in behalf of cooperation with the bud department of the avocado association in the work of securing systematic tree records.

The list of avocado varieties recommended for propagation in California by the avocado association and a brief description of their more important characteristics are as follows:

These varieties stand out as the most valuable ones to date in the experience of the avocado association. There have been some individual tree records kept in plantings of each of these varieties as well as in others of varieties not represented in this list. These data have furnished invaluable aid in deciding upon the relative merits and value of the varieties studied and in making possible recommendations of certain varieties for propagation with some confidence. The writer is of the opinion that before any variety is officially recommended by the association for propagation an adequate number of tree records should be secured which will demonstrate definitely the tree and fruit characteristics of the variety. In order to make these records of the most value to everyone concerned the cooperation of the bud department in this work should be requested. It seems probable that with further experience the present list of recommended varieties may be enlarged and changed as warranted by more complete knowledge of the behavior of the numerous varieties now being tried out both experimentally and commercially. Further information concerning the varieties now recommended by the association can be secured by reading Circular No. 2 of the California Avocado Association, which was issued August 1, 1920.

The object of individual avocado tree performance records is to secure definite information as to tree behavior and fruit characteristics. These data will furnish reliable information to the growers as to the value of the trees which they are growing and to the industry as a whole as to the relative merit of varieties for propagation in order that a few standard varieties can be intelligently selected for commercial planting. Such records will also enable propagators to locate the best performing individual trees of the standard varieties so that wherever desirable reliable budwood can be secured for propagation. If these records are kept in cooperation with the bud department of the association they will be accepted as unprejudiced information for the guidance of growers, planters, propagators and everyone concerned.

The avocado individual tree performance records should provide for a record of the number, weight and commercial quality of the fruits borne by each individual tree; the dates of each pick which will show definitely the season of fruit production under the conditions of culture; the weight of seed; the shape of the fruit; the color of the mature fruits; and descriptions of any striking variations in the tree or fruit characteristics.

The fruits can be weighed individually as they are picked or, as is usually more practicable, the fruits of each pick from each tree may be weighed as a whole. This weight divided by the number of fruits will give the average weight of the fruit from each tree at each pick.

Sample fruits from each tree should be examined occasionally in order to determine the size and weight of the seeds. These data can frequently be secured from fruits consumed locally in order to avoid too great loss or expense. The size and weight of avocado seeds are particularly important fruit characteristics and enough definite data should be secured from a reasonable number of sample fruits to give reliable information on this point.

The shape of the fruits is important from the marketing standpoint as well as from other considerations. In describing the characteristic shape, uniform terms should be used in order to avoid confusion. Uniformity of shape in the crops of fruit borne by a tree is a very important factor in that it may be interpreted as indicating a stability of type in the trees producing uniform fruits, and particularly in that it enables the growers or packers of the fruits to pack them to the best advantage and offer for sale attractive and uniform appearing packages. As the industry develops, the packing of uniform standard grades will likely have a more and more important influence upon the distribution of the fruits and the prices received for them.

The color of the fruits and the texture of the rind are characteristics which should be recorded in the individual tree performance record data. As the decision to buy fruits is often strongly influenced by their appearance, it is but natural that their color and texture should become a matter of commercial importance. This is particularly true when the color or texture of the fruits are such as to command the favorable attention of the buyers and when striking enough to identify the variety of the crop.

In any attempt to secure commercial

(Continued on Page 243.)

One of the Five Approved Varieties

An eight year old Dickinson showing typical growth and vigor of tree. By observing closely it may be noted that the tree is heavily loaded with fruit. Its fruit is of the very best quality.

Varieties	Season Dates Inclusive	Wt. of Fruit in Ounces	Wt. of Seed in Ounces	Shape of Fruit	Color of Mature Fruits
Fuerte	Jan. to April	10 to 16	1½ to 3	Pyriform	Dull Green
Spinks	Mar. to Oct.	16 to 20	2 to 3½	Obovate to Pyriform	Purplish Black
Dickinson	May to Sept.	14 to 20	1½ to 2½	Obovate to Pyriform	Dark Purple
Sharpless	Sept. to Jan.	16 to 20	2 to 3	Pyriform	Dark Purple
Puebla	Nov. to Jan.	6 to 14	1½ to 2½	Pyriform	Dark Purple

A Good Beginning

Many have the impression that the avocado is most deliberate in coming into bearing. Variety and a well budded tree on vigorous root, however, make for earlier return. Here is a small tree still in the nursery row with five big fine fruits.

Agricultural News Notes of the Pacific Coast

Northern California

A fish hatchery is to be constructed at Johnsville, Plumas County.

Pleasanton, Alameda County, is planning for large extension of sugar beet planting.

Hayward prune and apricot growers are in the midst of their sign the contract campaign.

Esparto, Yolo County, reports largest acreage of almonds in the state and large planting this season.

Modoc national forest will have pasturage for 42,000 horses and cattle and 87,000 sheep and goats.

The Nevada County farm bureau is planning for an agricultural fair to be held sometime next autumn.

Farm Adviser Amundsen of Placer County is sending out spray calendars to members as a timely warning.

Greenville Valley in Plumas County reports 35 inches precipitation and the valley still packed with snow.

One of the largest sugar refineries in the world is to be located at Crockett by the California-Hawaiian Sugar Corp.

Grass Valley, Nevada County, reports over 50 inches of rainfall up to February 1. This is the largest in many years.

The farm bureau at Durham, Butte County, has appointed a committee to investigate advantages of bulk handling of grain.

Sportsmen are opposing possible action of the state legislature in changing opening date for trout fishing from April 1 to May 1.

Horticultural Commissioner Gould of Yolo County reports that 500 additional acres will be planted to grapes the coming season.

Sutter County's planting of peaches has been the largest in many years, this because of the exceptional profit of the past two years.

Cloverdale, Sonoma County, alfalfa planters complain because of much alfalfa seed sent to that county seriously infested with dodder.

A public auction sale of state scrip will be held by Surveyor General W. S. Kingsbury at the state capitol, Sacramento, Monday, March 7, 1921, at ten a. m.

Yolo County hop growers are discussing advisability of extending hop planting. They have learned that European countries are extending their plantings.

Farmers and stockmen of Shasta County have had several conferences on what should constitute a lawful fence. So far no general agreement has been reported.

The Sutter peach growers have decided to build a cooperative cannery in Marysville. It will cost in the neighborhood of $250,000 and will have a capacity of 4,000 tons.

Humboldt County is appealing for saving the redwoods along the state highway through that county. Small groves totaling over $100,000 in value already have been purchased to be preserved for their beauty.

In a recent address at the Durham land settlement Dr. Elwood Mead, who has just returned from an Eastern trip, said that 30 state legislatures are now considering state land settlement according to the California plan

Central California

A poultry show was recently held at Dos Palos.

Stanislaus County grain farmers are discussing elevators.

Turlock's first full car of cotton was shipped Thursday, January 27.

California Peach and Fig Growers have installed vacuum fumigators.

Fresno chamber of commerce is boosting the olive eating campaign.

Newman, Stanislaus County, is organizing a new dairymen's association.

At the raisin growers rally held at Dinuba recently over 500 people were in attendance.

Castroville, Monterey County, has been fining owners of cows pasturing on the highways.

Fresno County American Legion has endorsed the work of the Japanese Exclusion League.

The new contract between the California Peach Growers, Inc., and members is being liberally signed.

Stanislaus County Holstein breeders are to entertain President Aitkens of the national association this week.

Kern County farm center meetings: Mountain View, Monday, February 21; Pond, 23; Inyo-Kern, 24; Rosedale, 25.

Stanislaus cow testing association reported 1,138 cows in the January test; 83 were admitted to the roll of honor.

Dos Palos, Merced County, has just closed its first annual poultry show and claims to be the Petaluma of the West Side.

Certain Kern County farmers are opposing the petition of the Miller & Lux people for a reclamation district in the vicinity of Buena Vista.

Hickman-Waterford farm bureau center is securing a large number of new members for the county bureau.

Delhi, Merced County, is expecting an appropriation of at least $250,000 for the completion of the development of the land settlement.

The average runoff of the Kern River for February is 45,000 acre feet. This increases until May, when it will reach 163,000 acre feet.

San Joaquin Valley wool growers have organized. John Bidegary is president. The valley has an output of about $1,250,000 in value.

This is Stanislaus County farm bureau membership drive week. There are five teams at work with some 20 to 50 members on each team.

The Pine Flat irrigation scheme is being gradually made more certain. During the past few weeks the canal company's holdings have been purchased.

The secretary of agriculture has authorized the grazing of 29,750 head of horses and cattle, 6,000 sheep and 600 swine in the Sequoia national forest. The annual fee is $1.40 for cattle, $1.75 for horses, $1.05 for swine, and 35 cents for sheep.

The newly elected directors of the Central California Milk Producers Association are: W. J. Hackett, Ceres; W. H. Fowle, Denair; H. A. Stammerjohan, Turlock; J. H. Minto, Patterson; Mrs. S. G. Reynor, Lathrop; C. B. Hageman, Ripon; O. J. Muscio, Lockeford, and R. L. Holmes, Modesto.

Southern California

Total count of Orientals in California, 100,963.

"Double the membership" is Ventura County's slogan.

Every rancher in the Ocean View district of Ventura County has joined the farm bureau.

A recent orchard census shows Riverside County to have 1,417 acres of bearing olive trees.

At Coachella on January 9 there was organized the California Cooperative Date Growers Association.

Dairymen of Los Angeles County have reduced price of milk delivered from 18 to 16 cents a quart.

Bee Inspector Pleasants of Orange County reports all bee colonies in the county in healthy condition.

One of the smaller coasting boats recently took on a load of 250 tons of Lima beans at Hueneme, Ventura County.

Chamber of commerce of Santa Ana is making protest against children under 16 driving automobiles on the highways.

Riverside County has adopted an ordinance requiring all bee colonies to be registered with the county assessor within 60 days.

Hemet-San Jacinto cooperative poultry associations met recently and planned purchase of grain and other feeds in carlots.

Visitors from all parts of the South visited the Banning-Beaumont section last week to see the extensive almond orchards in bloom.

The annual meeting of the California Citrus Institute will be held in the Elks club rooms, San Bernardino, February 25 and 26.

Cotton growers at Blythe, Riverside County, who are able to secure only $5 per ton for their seed, are using it for fuel. It burns much like coal and is superior to wood.

E. D. Palmer, manager of the Orange County Fruit Exchange, announces such large increase in membership that another association must be organized at once, with headquarters probably at Orange.

The Riverside Beekeepers Association has withdrawn the reward of $25 for arrest and conviction of anyone setting fires on the ranges because the public is now impressed with the importance of fire prevention.

At the annual meeting of the Poultry Producers of Southern California in Los Angeles, January 28, the officers elected were: President, J. M. Davison; vice-president, C. G. Ross, Pomona; second vice-president, Thos. Hurley, San Diego; secretary-treasurer, L. H. Brooks, Los Angeles. 4,103,444 dozen eggs were marketed last year by the association.

The reported dumping of enormous quantities of good lemons in the San Dimas wash has been proven to have a yellow newspaper tinge. In other words, the case was vastly overstated. Naturally, there are some waste fruits which are dumped. The case seems to be, according to the statement of the manager, 450 cars high grade fruit were shipped East and because of disastrous market conditions nearly 400 were sent to citric acid factory and a total of four cars were dumped in the wash.

The Coast and General

New York is receiving large shipments of tomatoes from the Bahama Islands.

The Eleventh Annual Good Roads Congress was held at the Coliseum in Chicago last week.

Fruit shippers at Orlando, Florida, are joining energetically in the fight for lower freight rates.

The East is complaining because of an "open" winter. There has been but little zero weather and a minimum of snow.

The first steamship cargo of prunes from Clarke County, Washington, was sent from Vancouver to Baltimore in 30 days.

Oregon's broccoli crop is ready for shipment. It is estimated that 50 carloads will be shipped from the Umpqua Valley alone.

California, Oregon and Washington show a total of 15,462 pure bred Holsteins, according to figures given out by the national association.

Fruit and vegetable growers of Texas are petitioning the interstate commerce commission to give relief from the excessive freight charges.

It is reported that a recent effort to form an association of independent shippers of citrus fruit from Florida has been abandoned by the promoters.

It is proposed to require nurserymen and plant dealers in Oregon to pay a license of $5 a year. This is now being considered by the legislature.

The Oregon legislature is surely unique among such bodies for it is reported that a surprisingly small number of bills have been introduced in both houses.

Arizona cattle are wintering well, and range, especially in the vicinity of Prescott, is reported in fair condition. New Mexico, on the other hand, is calling for rain.

A bill has been introduced into the Oregon legislature asking for creation of the office of county meat and herd inspector to direct his attention largely to control of tuberculosis.

The British Columbia Fruit Growers Association held its 31st annual meeting at Nelson the latter part of January. Methods of combating the codling moth were given much attention.

London reports the building of 1,000 horsepower aero engine, the most powerful known, and the suggestion is made that it will be used in regular mail service between London and New York.

Farmers of the Willamette Valley of Oregon are asking the legislature to change the present statute so that eradication of Canada thistle will be made possible with less work and expense.

National conference on highway traffic regulation recently held in Washington adopted a set of principles for guidance of state legislatures. The idea is to have more uniform traffic regulation in all states.

Oregon wheat growers met at The Dalles, January 22, to consider the marketing contract prepared by a joint committee from the Farm Bureau Federation, the Farmers Union and the State Grange. The plan is to divide the grain growing sections of the state into ten districts. Contracts will soon be ready for signing.

Foreign Competition in Dates

By Paul Popenoe

PRACTICALLY all of the dates grown commercially in the United States are grown in Riverside and Imperial Counties where they ripen from August to December. A large part of the imported palms now growing there are of varieties that mature late in the season, the Deglet Nur being generally considered the best of these late dates in point of quality.

As the crop becomes larger each year (for the past season estimates run from 75,000 to 125,000 pounds only), marketing will become more and more a nation wide problem and the question of foreign competition will have to be faced more squarely. It seems worth while, then, to consider some of the facts available at the present time, which throw light on the nature and extent of this competition.

In the first place it must be realized that consumption can probably be greatly increased, for the total import of dates into the United States has never been large—only a few ounces per person per year. If the inhabitants of this country ate 365 times as many dates as they do now they would not be surfeited, by Arab standards. The figures as furnished by the department of commerce are:

Year	Pounds	Value
1914	34,078,608	$ 678,527
1915	24,949,374	420,203
1916	31,075,424	547,433
1917	25,485,361	622,934
1918	10,720,852	480,589
1919	36,920,921	1,890,688

It must be remembered that during these years the war and high freight rates made importation difficult and expensive. On the other hand, of these small imports a part were re-exported.

Taking up the foreign competitors in detail, it is evident that, other things being equal, the most formidable is the one nearest at hand for it can put its dates on our markets with the least cost for freight and the least loss of time. The import duty on dates in the United States is only one cent a pound and is therefore not protective.

While northwestern Mexico may eventually become our real competitor, the nearest of the present date exporting countries is North Africa, where the industry has been taken up by large corporations with abundant capital, who are pushing it steadily. The total production of dates in this region must be several hundred million pounds per year. Of this quantity only a small part is suitable for export because among the important date growing regions of the world North Africa is conspicuously poor in choice varieties. Its best advertised export variety is the Deglet Nur which probably owes part of its prominence in the minds of the Algerians to the fact that it has so few competitors in its own country. In competition with the best dates of Arabia it is doubtful if it would create any sensation.

The French growers are specializing on culture of the Deglet Nur. They have the intelligence and taste to handle it well and pack it attractively, and they have cheaper labor than we Californians. Thus, according to a recent statement from the American consul they have been able to put well packed cartons (which contain something less than a pound of dates that by our standards are second grade) on the London market so cheaply that even during the past season the range of the retail price was only from 8½d to 1s 6d, or allowing for current rates of exchange, say, from 13 to 30 cents per box in American currency.

These Deglet Nurs can of course be shipped from Algiers to New York just about as cheaply and quickly as from Algiers to London, and more cheaply than from California to New York, with very little more time, if any, in transit.

It is evident that the growers of the same variety in California cannot compete on this basis. Their costs are vastly higher. The Deglet Nur Date Growers Association of the Coachella Valley has been wholesaling its best pack at $1 and $1.50 per box of 15 ounces, and states that the cost of packing and marketing alone was about 30 cents on each box. This takes no account of the grower's cost of production, which with this variety is relatively high. It is thus evident that with the present methods of handling this particular variety in California, especially in an unfavorable year, it would be difficult to meet successfully any real competition from Algeria.

It may be, of course, that better methods of handling this variety will be adopted. W. T. Swingle of the federal bureau of plant industry states that "about 125 people are growing Deglet Nur dates, but probably not more than 25 of them have had experience in curing the fruit, and I doubt whether more than ten of them have had enough experience to become expert." Something of the difficulties involved with this variety may be understood from a statement by the same writer that "the Deglet Nur, introduced in 1900, fruited in 1903, did not properly mature any fruit until the winter of 1910 and 1911, and the first fruit of high quality was ripened artificially by the slow maturation process in the winter of 1912-1913."

Even under the most favorable circumstances the prospect of French competition from North Africa is serious. The export business there has been getting more and more into the hands of powerful corporations who will not likely long overlook the tempting profits which the American market offers, and will begin to invade more largely the American import field, which has been heretofore in the hands of companies whose principal connections were in the extreme Orient.

While imports from Algeria and Tunisia to the United States are at present small they are steadily growing. Thus in 1913 only ten pounds of the American importation were credited to North Africa, while in 1919 the imports were 3,921 pounds, or about the same amount as the total pack of the Deglet Nur Date Growers Association of the Coachella Valley in 1920. Additional imports credited to France probably represent in large part North African Deglet Nur reshipped at Marseilles—in 1918 there were 9,915 pounds so entered. In the same year more than 6,000,000 pounds of the British imports were credited to France.

The specialization of the North African growers on one export variety, and that a late ripening one, is to the advantage of California growers, for the latter by producing dates of early maturity can get their product on the Eastern market before the first of the neat and inexpensive French cartons can reach New York.

The next great date growing country is Egypt which, however, does not produce enough for its own needs. While it exports some dates, mostly of the large soft variety Amri, it imports a still larger quantity. It sent 2,100,000 pounds to Great Britain in 1919, according to the records of the American consulate. Apparently, however, it need not be feared as a rival in American markets in the near future.

While Arabia as a whole produces many dates, and choice ones, they are consumed at home. The only great exporting country is the region around the Persian Gulf. The headquarters of the trade here are at Basrah where many choice varieties are to be found. The best of these, such as Khadrawi, Awaydi and Barhi, do not play a large part in the export trade. The export to America is largely made up of the variety Halawi, which is a good one; while India, Egypt, and other Oriental countries get such inferior varieties as Sayir.

According to figures furnished by W. A. Taylor, chief of the federal bureau of plant industry, the opening wholesale quotations on bulk Halawis in New York during recent years have been from 10 to 18 cents per pound. It is thus evident that a packed carton of Deglet Nurs costs no more at retail in London than does a pound of wholesale Halawis badly packed in bulk, in New York.

The Persian Gulf is almost directly opposite California, straight through the globe. The growers of that region therefore have to ship their dates nearly half way around the world in order to reach the American market. This long water haul, while not expensive, is time consuming, and is one of the factors which makes it difficult for the Persian Gulf dates to compete with any except the latest ripening varieties in California. Early ripening varieties here, such as Khadhrawi, Tazizaut, Ghars, Khustawi, and the Halawi itself, can be put on the American market a month before the first dates from the Persian Gulf reach New York. The later ripening varieties grown in California, of which Thuri, Deglet Nur and Saidi are the best known, will have to face the direct competition of the dates from Basrah.

Hitherto these dates have been handled in such an unskillful way that they have not really been competitors of any of the good California dates. It has been sometimes imagined that the English who now control Mesopotamia would revolutionize date growing there and become real competitors of California growers in the American market. So far there is apparently no indication of such a change. One of my correspondents in the Persian Gulf, writing on August 26, 1920, says:

"The fears about the British are totally unfounded, according to my idea. I did not see any signs of increase in the date line. Indian workmen are strictly forbidden to come to Mesopotamia. The local workmen have been employed to a great extent by work for the army and in civic improvements, so whence will there be any labor to lay out and develop the supposed new gardens? But the presence of the army here has doubtless developed a taste for dates in England so that the demands from there for dates will be greater than before." To this it may be added that in 1919 Great Britain, with less than half our population, received more than twice as many dates from the Persian Gulf as did the United States.

From this brief review of the foreign situation certain conclusions seem to me to be indicated.

Other things being equal early maturing dates will be less subject to foreign competition than will those which mature late in the season.

Those varieties which are most profitable commercially, in such respects as ease of handling, heavy yield, regularity of crop, as well as good quality, should be preferred by California growers.

Effective steps must be taken to reduce the cost of handling the California product. This means a thorough study of the situation by every grower. It will probably require many small changes, but the principal economies will perhaps be effected in production of a smaller percentage of culls, better utilization of culls, and in cooperative packing and marketing.

No one can predict future developments with certainty, but my own belief is that Californians can outdistance their competitors by putting out better dates, and that if they follow out such precautions as those men tioned above they need have little fear of foreign competition.

DEPARTMENT ANNUAL REPORT

The annual report of the California state department of agriculture for the year ended June 30 is made a part of the monthly bulletin of the department, being in Numbers 10 and 11, Volume 9. It contains illustrations of the buildings occupied by the department, and of various insects, some beneficial and some of our more common pests; likewise illustrations of dairy appliances and a fund of information as to the work of this large department. We believe this number of the bulletin will be sent to everyone writing the department at Sacramento and requesting it.

ARSENICAL SPRAY ON PEARS

Extensive investigation of arsenical spray residue as it affects the marketing of pears is planned by the federal bureau of entomology in cooperation with the pest control service of the state department of agriculture. A. J. Ackerman has been assigned to this work by Dr. A. L. Quaintance of the bureau and is now on his way to California. On his arrival a meeting of pear men will be held in Sacramento and plans for the work laid before them. Headquarters for the project will be at Sacramento.

FRUIT GROWERS' CONFERENCE CALLED

The fruit growers of America have requested the American Farm Bureau Federation to call a conference of their representatives to discuss ways and means of advancing their interests. President J. R. Howard has issued a call for such a meeting to be held in the Congress hotel, Chicago, on April 5. The department of cooperative marketing will have the meeting in charge. Each state farm bureau federation has been requested to send at least one official representative of the fruit growers of its state.

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
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Saturday, Feb. 19, 1921

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EDITORIALETTES

An avocado orchard does not have the wonderful attractiveness which the orange has in that there is no such striking contrast in coloring of leaf and fruit. The fruit of many of the varieties, even when fully ripe, is as green as the leaves. A few show wonderfully rich purple, and the large dark leaf adds to the beauty, but the fruit has an attraction for many which the orange does not, and the taste once formed insists on more, and enthusiastic members of the avocado club maintain that it is going to be one of our most important products. Only a few hundred acres have been planted, mostly south of Tehachapi. This season will see this acreage greatly extended.

* * *

Another subtropical fruit touched upon in this issue is the date. This industry may be said to be established in the Coachella Valley, but excepting in that little section America is not growing dates in a really commercial way. The Imperial Valley has a small planting, as has the Yuma Valley in southwestern Arizona; also Arizona's Salt River Valley. The time is yet to come when we will make carload shipments.

Now does the winter of our discontent give promise of a glorious summer because of the shower early this week.

* * *

Last Monday was Invitation Day. As a Valentine we were all expected to write and ask our Eastern friends to come to California. California has wonderful highways and many other advantages. It has more wonderful scenery and most wonderful climate, and we wish all the world could come and experience it, but there are some things which need correction before all the world gets here if the visitors are to be pleased and like us well enough to remain. To one of these only we will refer. It is the "free ride" offered by real estate promoters in the monster rubberneck wagons. "Free ride to the harbor"—with the ticket shoved into one's face—one hears again and again as he passes along the principal streets of one of California's loveliest cities. Acceptance of the invitation soon brings the assurance that having accepted the free ride and the free lunch and free information the accepter is expected, and most urgently, to come across with his signature to a contract to pay, say, $1200 or $1300 for a "business" lot on mud flats perhaps miles from any real business location. Some of these lots are declared to have no commercial value whatever and those who really wish for the best interests of California should start a movement to stop this practice.

* * *

The ninth congressional district held a special election last Tuesday, made necessary by the death of Congressman-elect Van de Water in an accident. Walter F. Lineberger of Long Beach, a thorough protectionist, was elected.

* * *

Freight rates, at least on fruits and vegetables, must come down—or the grower will. Charles C. Teague says: "It is becoming more apparent each day that the advances of, first, 25 per cent, and then 33 1/3 per cent in the freight rates have put a burden on the heavy tonnage producing fresh fruit and vegetable business of the Pacific Coast that is more than the traffic can bear."

THE AGRICULTURAL COLLEGE

This seems to be a critical time in the history of our state agricultural college. The board of regents of the state university is investigating as to its needs and has a committee report before it. State legislators we believe are generally willing to do what is best for the state agricultural college, so they are asking "What is best?" The committee consisting of members of the faculty, which is appointed by the board of regents has reported in effect recommending the continuance of the college of agriculture headquarters at Berkeley, but in order to give opportunity for its proper activities that there shall be purchased 200 acres of land at a cost of $750,000—other sums to be appropriated to construct buildings—and that this near-Berkeley institution shall be equipped and used as general headquarters for the college and for instruction and investigational work for the junior and senior years of college work; then in connection with this, or rather a part of this plant, the "northern branch" at which the freshmen and sophomore instruction is given shall be located at Berkeley.

We do not know as to whether the committee recommends any other branches, but it is implied at least that either a southern or a central college branch for the first two years' work may ultimately be installed. There is, however, serious objection raised on the part of some that this division means lessened power, and these are urging one great central college which shall be located on farming land of sufficient acreage to make it a truly working institution. So far as we have heard suggestions the hope of those who believe in this centralized college is that it shall take the place of the university farm school now maintained at Davis.

Again, it is urged that Davis is some 700 miles from one of the state's largest agricultural sections, and the question is asked: "Why place it so far to the north and why dismantle the farm school which has proven invaluable in California practical farming operations?" The state university now owns a tract of valuable agricultural land consisting of something over 5,000 acres in Fresno, almost in the exact center of the state. There are north of Fresno County, according to the census recently completed, 58,108 farms. Including Fresno County, and from there to the southern boundary there are 58,054 farms. But of the farms north of Fresno there are many in Madera, Merced and Stanislaus which would find access to an institution in Fresno much easier than to one located farther north.

The Cultivator has no suggestions to offer, other than that if one great centralized institution is deemed wiser than smaller ones nearer to those who would seek educational advantages, why not centralize as to geographical location?

These are times when taxes are mounting beyond possibility of bearing the burden. Therefore, rather than pile the burden still higher, is it not wise to use equipment already in hand, or at least refrain from investing nearly another million in more land far from the center of the state?

LOBBY—PAYING TAXES

There was a showing of fine liberality on the part of voters of California when at the last election they voted increase of taxes which they were willing to pay during the next two years of nearly $18,000,000. That $18,000,000, plus the amounts required for regular state administration and heretofore appropriated by the state legislatures each two years, will amount to such a tidy sum that one big problem was passed up to the legislators. To meet it the "King Excess Tax bill" was prepared, sent to the committee, returned to the assembly, then failed of passage. Now the state, and especially the legislators thereof, are asking, "How will we do it?"

There are two ways possible. The first is by increasing the tax on corporations and the other is by levying an ad valorem tax on farming lands, livestock, poultry, personal property, and real estate of California. The corporations have announced that if this tax, which they term an unjust one, is put upon the corporations, the only possible recourse will be for them to appeal to the state railway commission for an increase in rates in order that the increase in taxes may be met in other words, the capital invested in public utilities of the state cannot be called upon to pay this additional tax which the people voted upon themselves.

The farmers of California have lost literally hundreds of millions of dollars during the past year. This loss is not imaginary, that is, it is not a loss over the price expected so much as it is a loss over actual cost of production, and the farmers are in no position to take this great increase in taxation upon their own shoulders. The state federation of farm bureaus declared itself to this effect most emphatically at a meeting held only last Monday.

It seems to be a fairly well established fact, at least so considered by many, that capital cannot and will not be made to pay taxes. As one has expressed it, "If it is, it becomes impaired and ultimately ceases to be." We are going to relate a circumstance of many years ago in a town of, say, 8,000 people. A bank with a capitalization of $100,000, considered the largest and most influential institution in the town, was found to be paying taxes on an assessed valuation of $150 for furniture, fixtures, etc. The state tax was at that time on an ad valorem basis and, as we recall, it, with county and municipal taxes, totaled about three per cent. Thus the total sum turned in to municipal, county and state treasury by this large institution was four dollars and fifty cents.

We hasten to say that we realize banks are today on a different basis and are bearing a more just proportion of the support of the government which protects them, and this incident is told only to illustrate the burden formerly carried by farmer and banker, and the prejudice which it is now hard for us to shake off.

Now, assume that this $100,000 had been invested in small farms, say 20 of them, which would mean an average investment in each little farm of $5,000, the assessor would have placed a valuation on these farms and the improvements thereon at "full cash value." Each cow, each horse, each cultivator, each plow, even to the last dozen hens, in fact, a complete invoice of the possessions of the farmer would have to be placed in the hands of the assessor. This might aggregate, say, a total assessed valuation for each farm of around $3,000, which at three per cent would call for $90 from each of the 20 farms, or $1,800 from all. But here the accountant and the banker remind us that the $100,000 invested in banking has become a liability and not an asset, while the farms purchased with the other $100,000 have become a taxable asset.

All of which, it seems, was entirely true, according to former day methods. Under the present corporation taxation plan this capital, together with undivided profits and reserve, is reached, but we believe not to the extent that the farmer's assets, which must be explicitly itemized, are reached.

In touching upon this question in the issue of January 29 under the title of "Who Pays Taxes?" we wish to correct one statement or, rather, to make plainer our meaning. We referred to the "lobby" in a way which might imply that a lobby is a dishonorable institution, and one of the Cultivator's best friends writes to ask if a lobby is without honor, and if so, how can we justify the committees of lemon, walnut and other California growers who recently went to Washington to make explanation before the house and senate committees of the condition in which California fruit growers will be placed if there is no protective tariff given to them.

A most pertinent question. And we hasten to say that the word lobby,

(Continued on Page 259.)

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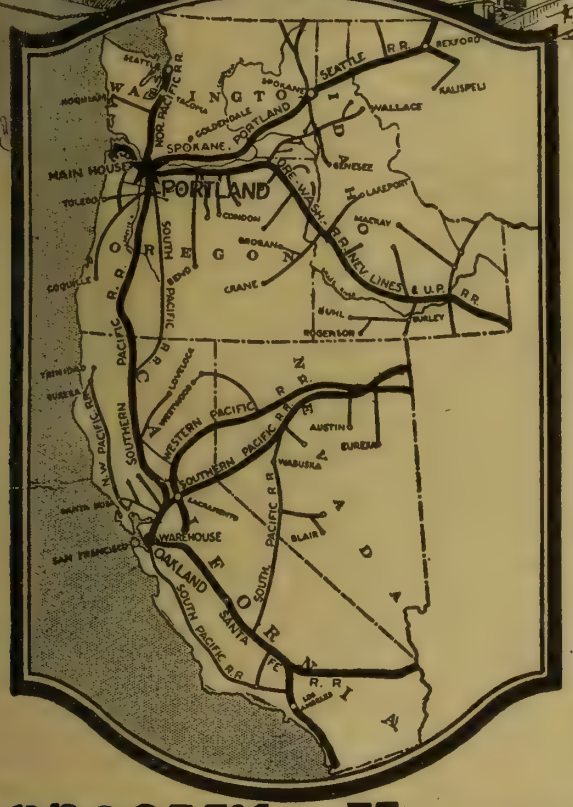

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Mottle Leaf

By R. R. Snowden

REFERRING to "The Effects of Nitrate of Soda on Soils," as reported in "Report of the College of Agriculture and the Agricultural Experiment Station of the University of California," July 1, 1918, to June 30, 1919, I beg to submit the following criticisms:

A Widespread Cause of Mottle Leaf

Sodium nitrate and soluble calcium salts obey the same law of transference in the soil. Both are carried down by rains below the zone of root action or both may rise with the soil moisture. If the sodium is concentrated in the root zone the soluble calcium salts are also present in the root zone. If the soluble calcium salts are carried down below the reach of the root action, then the sodium salts are carried at the same time below the reach of the roots. They move together.

It is a fact that with difficulty water penetrates a deflocculated soil and aeration is also retarded. As a matter of fact deflocculation surely will follow the more or less complete removal of calcium from the soil. If nitrate of soda renders the unavailable calcium available for plant growth while the sodium is fixed in insoluble combination, that certainly is to be desired. This action, however, should be limited to the current needs of growth and fruit production. When the calcium supply becomes inadequate the proper thing to do is to add more calcium and to keep up the supply by its further addition to the soil, and not to discontinue the use of any needed soil material. If excessive amounts of nitrate of soda are added it is a waste of a valuable fertilizer material and is not to be recommended. It is foolish to abuse any good thing by its excessive use. Why do this with nitrate of soda any more than with anything else? Nitrate of soda enables plants and fruit trees to use all the other plant foods in greater quantity and herein lies its power to increase growth and fruit production, but like a bank account, a soil element is depleted by its legitimate and necessary withdrawals. What else could be expected if the deposits made are not currently equal to the withdrawals?

Mottle leaf following the extreme abuse of nitrate of soda is due to more rapid use of the other plant foods, with equivalent returns in the crop, and consequently the quicker exhaustion of the one in most limited supply, called the limiting factor. When lime is the limiting factor the citrus trees under the healthy functioning encouraged by nitrate of soda soon exhaust it and the physical condition of the soil suffers unless the supply is renewed from time to time on account of lack of lime and not on account of further additions of nitrate of soda. This has been proved beyond question many times. After the calcium has become inadequate the further use of nitrate of soda accentuates the need of this element, since the trees are able to use larger amounts of all the other necessary elements. Then, since no new plant cells can be formed without calcium, the trees unavoidably show evidences of distress. But under such conditions more calcium with organic matter to correct the deflocculation of the soil will invariably bring the trees to their normal condition.

A scientist of the California experiment station staff finds the "analyses of different portions of citrus trees show that under the influence of the conditions that produce mottle leaf the tree does not secure its normal calcium supply. It appears to absorb excessive amounts of potassium instead." This observation is the direct solution of the difficulty. The trees are mottled because they are obliged to substitute potassium for calcium, which is abnormal. Why, then, blame nitrate of soda when its use may be restricted to the proper quantity to make normal growth and production possible?

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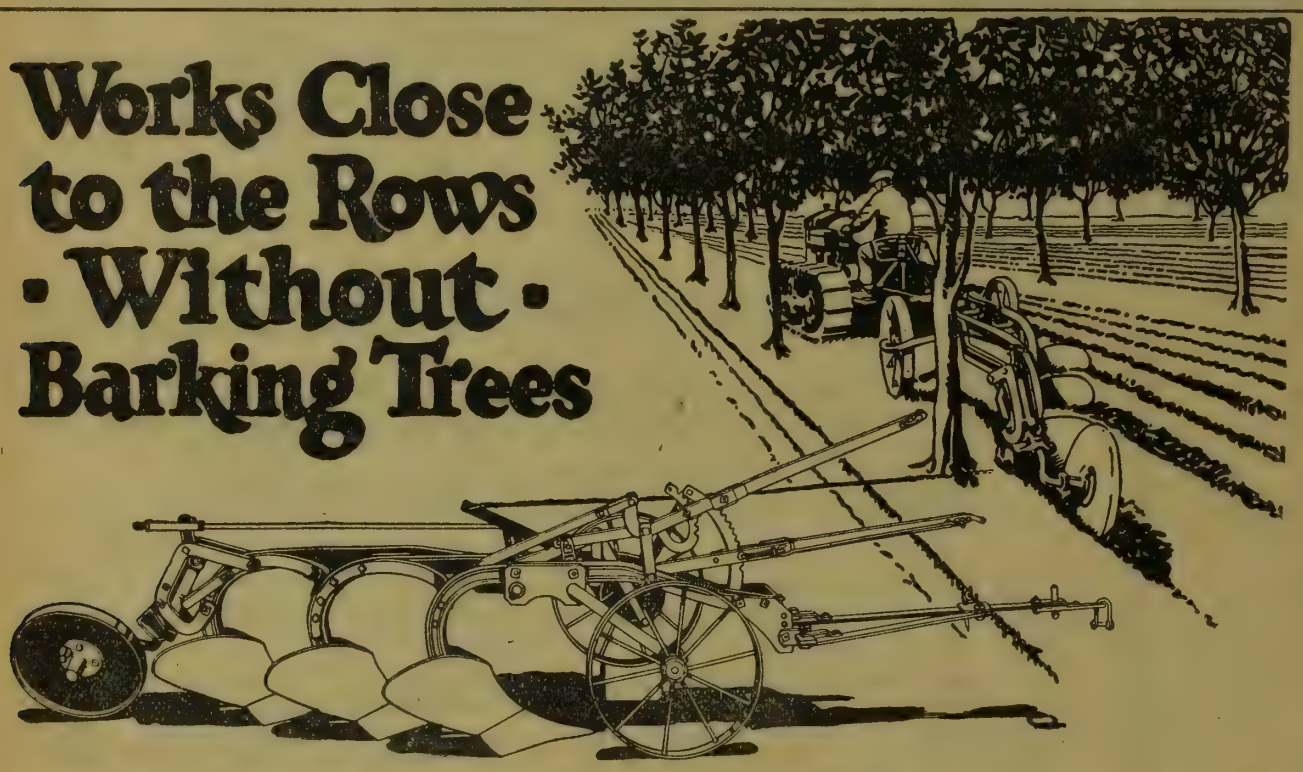

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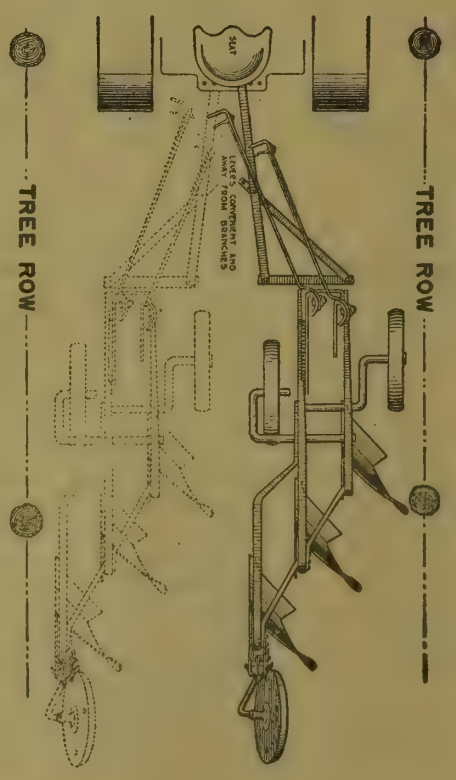

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STATE QUARANTINE SERVICE

By Robert R. McLean

COMPARATIVELY few people other than those directly interested quite realize the value of the service rendered by the quarantine division of the state department of agriculture or know what the work of the quarantine officers means to the agricultural and horticultural interests of the state.

Because of our proximity to Mexico and the Hawaiian Islands we have been threatened time and again with the introduction of the destructive fruit flies. Many times these insects in the larval or pupal form have been intercepted in shipments of fruit, in ship's stores or in fruit found in the baggage of passengers, notwithstanding the strict state and federal quarantines against all host fruits, plants and vegetables.

None the less menacing is the danger to our agricultural interests from within the borders of our own country. In Florida and other sections of the South citrus white flies are a costly burden. Melanose of citrus and citrus canker are also present in the South, many millions of dollars' loss being caused by these diseases there. Citrus canker, in particular, only recently threatened the grapefruit industry of Florida with extinction and it is still a serious menace, causing the expenditure of large sums in the effort to eradicate it. As yet the cotton boll weevil and pink boll worm of cotton, the former common in much of the South and in Mexico, have been kept from California, as has also the sweet potato weevil that destroys a large portion of the sweet potato crop in sections of Florida. The alfalfa weevil, occurring in Idaho, Utah, Wyoming and now also becom- Nevada and Oregon, causes the total loss of at least the first two cuttings of alfalfa in the districts affected and would mean the loss of millions to us annually should it become generally established here. The gypsy and brown tail moths in the Eastern states cause the defoliation and death of many fine shade and forest trees, control work being difficult and expensive.

Three recent importations from foreign countries have but recently secured a firm foothold in some of the Eastern states, the Oriental peach moth, attacking the twigs and fruit of stone fruits as well as some others; the European corn borer, spreading swiftly and attacking and destroying sweet, field and fodder corn as well as a great variety of other plants, and the Japanese beetle that destroys many kinds of farm, orchard and garden products. The last two named insects give promise of becoming unusually important economically and every means must be used to keep them out of California. The potato wart disease, of European origin, has appeared in Pennsylvania and must be guarded against as it is one of the most serious diseases the potato is heir to. The Colorado potato beetle, or "potato bug" of our Eastern experi-

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ence is not found in California, although common all through the states east of the Rocky Mountains.

Among the more serious plant diseases now in the East, but not found in California, are the white pine blister rust, atacking and killing all forms of five leaved pines; peach yellows and rosette, incurable diseases of the peach found in 22 of the Eastern and Southern states; chestnut blight, that fatal disease that has apparently doomed all the fine old chestnuts in the East, and two new diseases that have now appeared in the grain fields of Illinois and Indiana, found heretofore in Europe, Australia, Japan and India, the flag smut of wheat and the take-all disease of wheat, barley, oats, rice and rye.

This partial list of immediate dangers threatening California, agriculturally speaking, ought to convince the most casual of two things, first that California is singularly free from many of the most serious insect and disease pests known, notwithstanding the fact that we are climatically and geographically situated most favorably for their introduction, and the second that it is chiefly the splendid work of the men of the quarantine division, in cooperation of course with the federal quarantine authorities, that stands between us and the almost certain introduction of many of these pests here.

BOILING COMBATS GROWTH OF BACILLUS IN CANNED OLIVES

Boiling as a means of destroying the bacillus botulinus, the microscopic spore bearing organism responsible for botulinism poisoning, is now advised by Professor W. V. Cruess of the University of California. He says:

"It is extremely gratifying to state that canned ripe olives are now being placed on the market with absolute safety to the consumer. Most of the outbreaks of botulism have resulted from eating home canned vegetables that were not properly heated before using. Dr. Ernest C. Dickson of Stanford University recently stated that up to June 30, 1920, out of 41 outbreaks of poisoning due to botulism, 31 came from eating home canned vegetables, six from home canned fruits, and only four from eating commercially canned fruits and vegetables.

"Botulism poisoning is caused by a toxin which is developed by the growth of a microscopic spore bearing organism, bacillus botulinus. This organism grows in the absence of air and finds an air tight can or jar of fruit or vegetables an ideal place for growth. The toxin or poison is quickly destroyed by boiling. By boiling canned fruits and vegetables until all parts are thoroughly heated there is no danger of poisoning, even though the fruits and vegetables have contained the poison. It is therefore advised that canned fruit and vegetables be thoroughly boiled after removing from the cans or jars before they are served or even tasted. Do not test food from an open jar to see if the contents are spoiled. Such practice is dangerous and should be discontinued."

Suggestions by Professor Cruess concerning olives that will help prevent outbreaks of botulism are:

Standing solutions containing more salt than in the past has been customary should be employed for shipping and storing unpickled olives. At least ten pounds of salt per 50 gallon barrel of water and fruit are needed when the fruit is to be shipped long distances.

The pickling process should be as rapid as is compatible with the production of satisfactory pickled fruit. Frequent or continuous aeration of the liquids used in pickling is desirable. Long storage of the pickled fruit in dilute brines is very undesirable and is unnecessary.

A temperature of 240 degrees Fahrenheit for 40 minutes will not materially injure the quality of ripe olives of the Mission, Manzanillo and Sevillano varieties. Therefore if the fruit is of good quality at the time of canning, the use of this time and temperature as now required by the state board of health should not injure the reputation of California ripe olives.

Olives processed commercially at 212 degrees Fahrenheit are not sterile. All samples examined after processing at 240 degrees Fahrenheit for 30 minutes or at 250 degrees Fahrenheit for 15 minutes were sterile.

TEAGUE TREES

Ask the man who has planted them and he will tell you that Teague Trees are unequaled in growth and productiveness.

They are the best that can be produced.

If you intend planting CITRUS TREES it will pay you to come and see our stock and let us figure on your requirements while we still have a good assortment to select from, as the supply of good trees is limited.

Avocados, Feijoas and other Tropical fruit trees in all of the recommended varieties.

Send for our new descriptive price list and tell us what you intend to plant.

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Small Fruits, Shade Trees and a splendid assortment of Shrubbery.

We have served planters of California for many, many years; Orenco Trees are planted by the tens of thousands in your state and many planters will use none other. Shipments will be made promptly and you will, we are confident, be highly satisfied. Address

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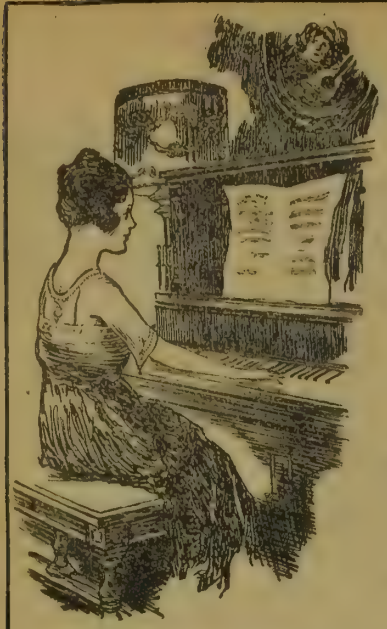
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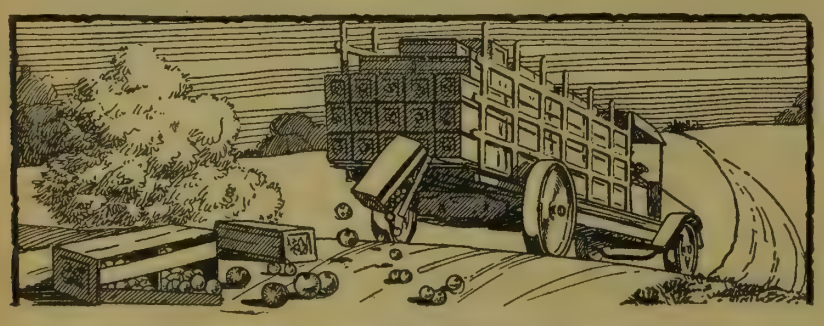

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Avocados have not left, but are the most promising agricultural product ever introduced into the country.

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Come out and let's talk it over, or write for information.

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When Writing Advertisers Mention California Cultivator.

NATURE AND FUNCTION OF LIME

IN order to give a better idea than some farmers now have as to lime and its value, we quote from Circular 111 of the experiment station of the California college of agriculture. It is written by Prof. C. B. Lipman and the portion of it touching upon the nature and functions of lime is here reprinted almost entire. This circular is, we believe, now out of print.

By Prof. Lipman

The term "lime," as we may employ it in the agricultural sense, includes the following materials: Burnt lime (oxide of calcium), hydrated or water slaked lime (hydrate of calcium), ground limestone or air slaked lime (carbonate of calcium). Speaking with the correctness of the chemist the term "lime" is applied only to burnt lime (quicklime), or calcium oxide. Just how the three materials discussed agriculturally under the name lime are to be employed and where one is to be preferred to the other, if at all, are questions which are answered below.

Before going into a detailed description of the mission or the function of lime in soils it is well to state clearly the relative values for practice of (1) the burnt, caustic, or quicklime, (2) the hydrated or water slaked lime, and (3) the carbonate or air slaked lime. These lime materials are largely valued for the amount of calcium oxide which they contain. Quicklime is nearly all calcium oxide. Hydrated lime or water slaked lime contains less calcium oxide but may be looked upon in practice as nearly equivalent ton for ton to the quicklime. Air slaked lime (like the ground limestone) or carbonate of lime contains only a little more than half the amount of calcium oxide that the quicklime does and therefore two tons of it should be employed if it is used in place of the caustic form. The relative money values can be determined at any time from the foregoing explanation of relationship between the different lime materials. It must also be remembered in that connection, however, that the cost of handling larger quantities and additional freight rates involved must always be taken into consideration in calculating the actual and relative cost of the different materials. The following is a consideration of the function of lime materials in soils:

1. Lime materials have the power of shrinking clay and making it more pervious to water and air, by making a large number of crumbs from large sticky masses. Therefore, lime makes clays and clay adobe soils looser, prevents their packing, baking and cracking, makes plowing and cultivating easier, and, in general, makes the soil physically a healthier medium for plant growth.

2. Lime materials (as above described) serve as a source of the element calcium to plants. Calcium is one of the ten essential chemical elements in plant growth.

3. Lime materials make "sour" soils "sweet." Speaking correctly, they change an acid soil condition to a slightly alkaline one. Acidity of soils is very detrimental to the growth of many agricultural crops. A slightly alkaline condition is ideal for them.

4. Lime materials are necessary for useful and beneficial bacteria and other microorganisms of the soil. It furnishes these the element calcium, which is as essential to them as to the higher plants. It promotes a slightly alkaline condition which is ideal for their development. By its physical effects lime produces good air and moisture conditions for bacteria as above described.

5. Lime materials promote the normal decay of soil organic matter through their effects on the agencies of decay above described. The normal decay of organic matter in soil prevents accumulation of poisonous materials in soils which are detrimental to plant growth.

6. Lime will not neutralize sodium carbonate or black alkali.

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NO danger of improper wiring. Binding posts large and square. Turn easily with fingers. Broad web strap for carrying can't cut hand. Double moisture-proof casing preserves batteries' strength. Connected as easily as one cell. Can be shifted as a single unit from Ford to Tractor, Farm Engines or Lighting Plant. Use it day or night. Cost reasonable.

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AVOCADO TREE RECORDS

(Continued from Page 235.)

individual tree records simplicity is the keynote of success. In view of the fact that the crops of fruit are the most important consideration from the standpoint of the commercial propagation of the avocado trees, it seems logical that individual tree records with this fruit should deal mainly with the season of production, size, color, quantity, quality and other commercial characteristics of the fruits borne by the individual trees. Certain tree characteristics, such as habit of growth, the type of foliage, hardiness, and perhaps others are interesting and oftentimes important, particularly when they can be correlated with fruit characteristics. However, the grower has usually only a limited time for making tree and fruit records, and the more simple and definite the records can be made the more likely it is that they will be carefully secured and effectively utilized. A simple and practicable record form for keeping individual avocado tree records was presented by the writer in an article entitled "Avocado Performance Records," printed on page 46 of the 1919 and 1920 annual report of the California Avocado Association. This form, a limited supply of which has been printed by the association for distribution to its members, is essentially as follows:

The number of lines required to care for the different picks from the individual trees can be extended as far as may prove to be necessary. It is desirable wherever possible to record all of the picks from a given tree dura season on the same page so that at the end of the picking period each year the complete record will appear on one page. After all of the fruits have been picked from a tree, the total number for the season can be ascertained and the average number for each pick found, together with any other computations or analyses of the data desired. At the end of a four, six or other year period, the total productions of each tree for the entire period can be determined. Such data is valuable when secured under proper conditions. It substitutes definite information for guesswork, ideas or hazy recollections.

In some cases these tree record forms have been printed in regular notebook form so that the data secured at each pick is recorded in its proper place in the book when secured. In other cases this form has been printed on index cards suitable for convenient filing. In still other instances the forms are drawn upon wooden labels, sometimes ordinary pieces of smooth box shook, and these labels attached to the trees until the season's records are complete. In securing tree records each tree should be given a number. An efficient and practical method of numbering the individual trees is to give each tree a number, consisting of the number of the block on the ranch where the trees are located, the number of the row in which the tree occurs, and the number of the tree in the row, always counting from some fixed point as, for example, the irrigation head, a house, or other more or less permanent object. It is desirable to make and keep on file a plat of the orchard showing the position of each tree and its number, which can be referred to at any time. The tree numbers can usually be painted on the tree trunks or on suitable labels which can be attached to the tree in such position that they can be easily seen and read.

All the apparatus that is absolutely necessary for commercial tree record work is a set of scales of such size that they may easily be carried about in the orchard and suitable for weighing single fruits and lots of the fruit of the maximum quantity picked for weighing at any one time, and a note form wherein the tree data can be recorded. If the owner of the orchard finds it impossible to secure these records personally, experience has shown that any careful and conscientious person can do the work satisfactorily providing the set of scales, convenient note forms, and any other equipment found to be necessary is provided by the owner of the trees. In the record form under the heading of notes, the shape of the fruits, their texture and color, the weight of seed or any other items of interest can be set down. Notes as to cultural conditions, climatic influences, habit of flowering, fruit-drop, or any circumstances affecting tree and fruit condition can be included with the individual tree data, but usually can be recorded more effectively for future reference by using one or more of the entire pages for this purpose at the time such general observations are made. If the fruits are marketed the price received for them should be included with the other data.

One point in this connection which is apparently confusing to many growers is that it is equally important to secure individual tree records during unfavorable season or when only light crops are produced as it is to obtain the tree records during seasons of heavy production. In several cases in the writer's knowledge such records might have been of the greatest possible value in that they would have determined the general fruiting habit of trees which produced crops during seasons when most of the comparative trees were barren. Without such records it has been found to be impossible to locate, during subsequent years, those trees which, from some reason or other, possibly inherent ones, bore satisfactory crops when the other trees under the same orchard conditions did not produce fruits, or only small crops. In these cases the opportunity for propagating from the apparently hardy and productive trees has been lost. With tree records each year it seems now probable that important isolations of productive strains might have been effected. The natural tendency is to put off from one year to another tree record work. The only way to begin is to begin. I would like to suggest to those who have not already done so to begin this work this year. These records to be complete and of the most value should begin with the first fruits produced, and it would be desirable from several standpoints to begin the records with the planting of the trees. After a start has been made it will be found that it is not an impossible task, but a very practical matter of interest and value to everyone concerned.

There is a greater demand by propagators than supply of budwood from select superior performance record avocado trees of the best variety. It seems likely that such will be the case for some time to come. In such cases, where the tree owners find themselves fortunate enough to possess superior trees, it is probable that they will receive considerable compensation for their tree record work through the sale of selected buds to nurserymen and others. While this is a minor consideration, to the mind of the writer, in connection with the benefits of such work, it is one that should not be overlooked. The main point is to let us secure definite information as to avocado tree behavior under all possible conditions. These data will enable propagators and planters to proceed to develop the industry intelligently and provide against much serious loss that oftentimes comes about from basing operations in a new industry upon guesswork, opinions, misinformation and a lack of reliable information.

Avocado Individual Tree Performance Record

Grower..... Address..... Plat..... Row..... Tree.....
Year..... Variety..... Age of Tree.....Type of Tree.....

Date of Pick	No. of Fruits	Weight of Fruits	Notes
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
Total			
.....	.....	.....	.....

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The Great Bastanchury Ranch Near Fullerton Protected With Dependable Water Supply

The above view shows part of the mammoth Bastanchury Ranch near Fullerton, California, one of the most extensive citrus properties in the world. A tribute is paid Layne & Bowler Pumps in the fact that twelve of these turbine centrifugals are used to irrigate the ranch. Hundreds of other ranches in Orange County are also irrigated with Layne & Bowler water.

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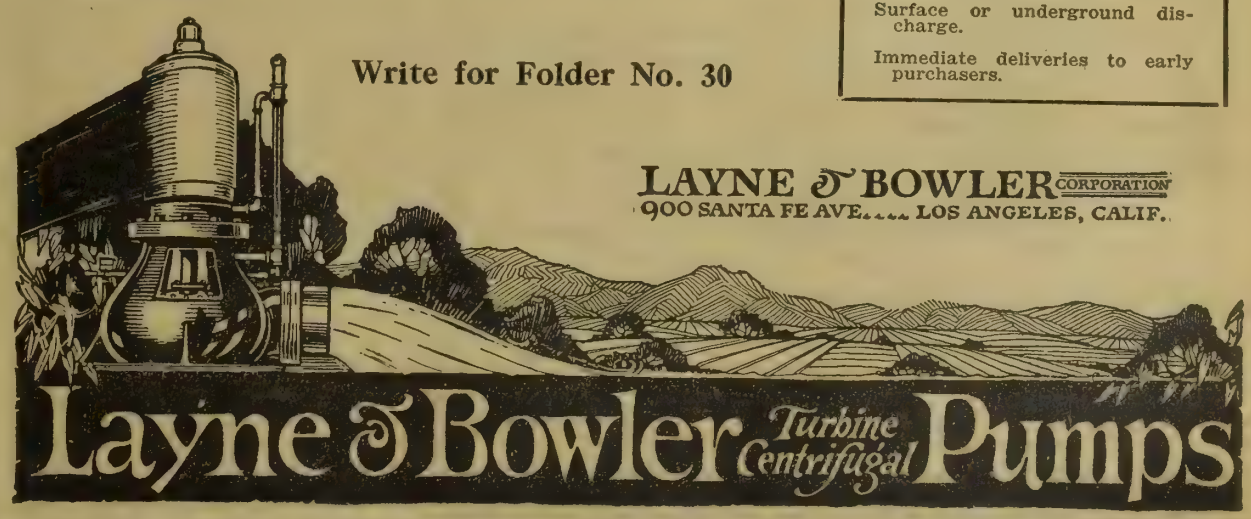
All shaft bearings are finest phosphor bronze.

Light, medium and heavy duty types with belt or direct motor connection.

Surface or underground discharge.

Immediate deliveries to early purchasers.



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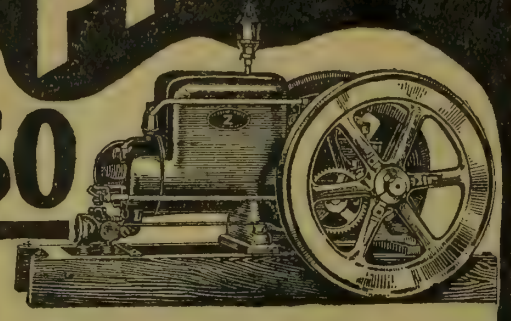
$62.50



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The farmers of America today need every possible help so that farm equipment costs will more closely meet the lowered return from products sold.

That the "Z" Engine is an essential factor for bettering farm conditions has been proven. Over 300,000 engines have been bought by farmers from over 6000 reputable dealers.

After full consideration — without regard to costs of engines now completed in warehouses of our 26 branches, we have decided upon this big price reduction. Even present costs of labor and raw materials have been ignored.

There is a "Z" dealer near you who will be glad to prove that the "Z" Engine is supreme as to materials — design — workmanship.

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Don't experiment with makeshift methods. Bolton Orchard Heaters are sure. They maintain the temperature, distribute the heat uniformly, and prevent frost damage.

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Tells you all about frost prevention. Filled with valuable information for the grower.

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When Writing Advertisers Mention California Cultivator.

How to Grow Sweet Potatoes

THERE have been many calls for reprinting an article which appeared in the Cultivator some years ago in which Q. A. Lobinger, a successful grower of the San Gabriel Valley, wrote describing his methods of propagating young sweet potato plants and growing in the field.

For growing sweet potato plants select some well sheltered spot that will get the sun most of the day. Often such a spot can be found on the south side of a building. Spade up the soil eight or ten inches deep, making it as fine and mellow as possible, and rake it level. About the first of April select medium sized sweet potatoes and place them upon this bed of soil quite close together, allowing about half an inch space between the tubers. If some of the tubers are quite large cut them in two lengthwise and lay them down with the flat side down. If the bed has been made alongside a building do not make it more than four feet wide, as it will be hard to reach the young sets later on. I have overcome this objection by setting up two boards parallel with the building, allowing the board next the building to be 18 inches or two feet away, so that one can get between it and the building. These boards need be only about eight inches wide, and no matter if the bed is eight or ten feet wide, you can lay a heavy board across the bed upon which to stand when getting your sets.

After your tubers have all been placed cover them with clean fine sand to the depth of about one and one-half to two inches and give them a thorough watering with the sprinkler. Do not water too freely after this first time until the sets begin to show up through the sand, but on the other hand examine the soil every day to see that it does not dry out. After the sets begin to grow the bed can be watered more freely. Some growers plant the sets out in the field as soon as they are large enough, while others go over the bed from time to time and break off the sets from the potato, allowing the potato to remain in the bed, and transplant the sets very close together in rows. They are set a couple of inches apart in the row and the rows can be any width from 12 inches up. If the soil is very sandy and they are freely watered and kept well watered they will throw out a mass of fibrous roots that makes it an easy matter to transplant them into permanent quarters. I think it pays well to pursue this latter method.

They are always set on ridges which can be about two and one-half to three feet apart. These ridges can be made quickly by putting a large single shovel on a one horse cultivator. If you would mark out your ground first, making the lines the distance apart you want the ridges to be, you would find it easy to make them straight by walking the horse on the line, provided, of course, you have made four lines straight. As the tops of the ridges made in this rapid way will be somewhat uneven, it is well to go over them with a rake. Then set your plants along the top of the ridge about every 15 inches. Set them pretty well down in the soil and leave a basin around each plant that will hold from one to two pints of water. Have someone follow the planter and water each plant. Go over the next day or soon as dry enough and level in the soil around the plant. The after care will be to keep the field clean and give water as needed. As to the quantity of seed per acre it will depend upon so many things that it is difficult to name any exact quantity. The skill and experience of the grower counts for much. It will range from 200 to 400 pounds.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Maintenance of Bridges

An unincorporated ditch association several years ago constructed a ditch across which are a number of bridges necessary for the use of the roads, which were reserved in the deeds as public right of ways. Who is required to maintain these bridges? In case of accident, who would be liable for damages?—Subscriber, Hughson.

The laws in respect to the dedication and formation of roads have been from time to time changed so that in any particular occasion it would probably be necessary to look up the exact date and exact manner of the dedication of the road, but, generally speaking, it is provided that in all counties of the state public highways are all such roads, streets, alleys, lanes courts, and places, trails and bridges which have been laid out or erected as such by the public or if laid out or erected by others have been dedicaed or abandoned to the public or made such public highways in actions for the partition of real property. By another section it is provided if the overseer in any road district fails to make needed repairs to a bridge and after being informed that the bridge is impassable or unsafe, is requested to make such repairs by two or more freeholders of the district and he fails so to do, such freeholders may present the facts to the board of supervisors, which, upon being satisfied that the bridge is unsafe, will cause the bridge to be repaired and must pay therefor from the district chargeable therewith or, if necessary, from the general road funds. It is probable, therefore, that in the case cited the county would be liable for damage caused.

Unknown Apple

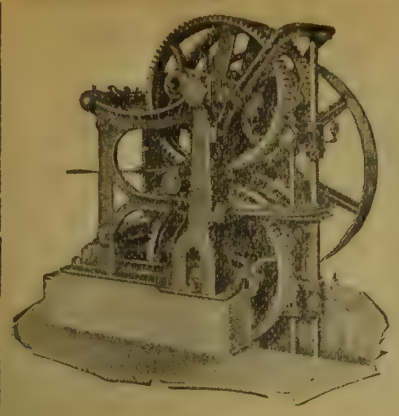
Could you tell me where to find a Red Hall apple and a Bailey persimmon? I would be very glad to get some of these trees, but find no dealer who has them.—Subscriber, San Gabriel.

A close search of all available lists fails to find a name closer to Red Hall than "Red House" and "Red Horse," which originated in Kentucky and are of local circulation only. The "Nomenclature of Apples from 1804 to 1894," published by the United States department of agriculture, the most complete list issued, does not give Red Hall. We know of no Bailey persimmon and suggest the name may be Gailey, which is listed by some California dealers and is the most valued of all for pollinating other varieties.

A New Grass

I read in the April 17, 1920, Cultivator information about grasses, one especially, Phalaris bulbosa. Could you inform me where I might find out about this grass?—Subscriber, Lemoore.

This grass is now under observation locally for the second year and results are not yet conclusive. It promises well. In the Manning River section of New South Wales, Australia, it is reported: "Phalaris bulbosa has proved the best winter grass that has ever been grown in these parts, producing excellent succulent feed right throughout the cold months of the year." The "Agricultural Gazette" of New South Wales, issue of November 2, 1920, gives the following description of this grass: "Phalaris bulbosa (Toowoomba Canary Grass), an introduced perennial, which has had continuous trial at this farm, under both plot and field conditions. It withstands frost very well, and even during severe winter weather it makes fair headway. Its growth during a dry spell is very marked in comparison with other grasses. In a normal season it grows three to four feet in height, being at its best toward the end of the summer. Patches under the best of conditions on this farm have reached a height of seven feet without becoming harsh or woody, the leaves reaching to more than half this height.



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in operation was one of the leading exhibits at the National Tractor Show and the Riverside Fair. Look for it at the Orange Show at San Bernardino February 18th to 28th. The most Reliable, Durable and Economical system for deep wells and lifts above ground. Ask for descriptive circulars.

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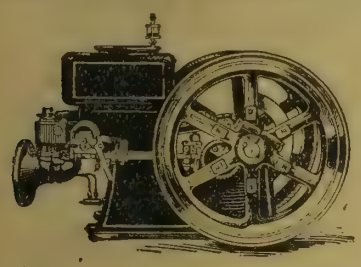

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Farmers, Miners, Builders — people in every kind of business are saving money buying used or renewed pipe from us. We sell every kind of pipe. Send in a list of your requirements today and get our prices. We have saved hundreds of people 33 1-3 to 50 per cent on their pipe bills. Here's a partial list of some of the miles of pipe we have in stock for immediate delivery.

8,000 ft. 6 inch Riveted 16 Gauge
700 ft. 8 inch Riveted 16 Gauge
5,000 ft. 12 inch Riveted 12 Gauge
1,000 ft. 18 inch Riveted 12 Gauge
800 ft. 22 inch Riveted 14 Gauge
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10,000 ft. light wrought iron 8 inch pipe with cast iron collars.

All above pipe thoroughly overhauled and inspected and ready for immediate use.

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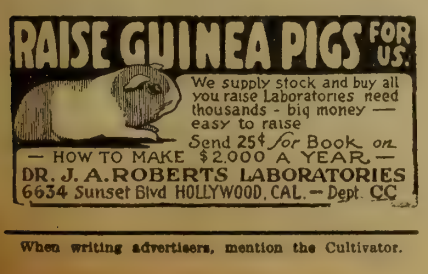
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Crane Flies

I am inclosing a worm that is getting to be a pest in this neighborhood. At places they are quite plentiful and wherever they are the ground is almost grassless. They are getting into a barley field and starting to clean it. —Subscriber, Cordelia.

This is the larva of the ordinary crane fly, reports of damage from which are coming from all portions of the state. The destruction is largely in the stage of the life of the insect in which it is shown in the box of soil sent with the "worms." They prefer a wet soil and almost completely destroy plants, being especially destructive to alfalfa and the grasses. After a few weeks of this destructive work in the soil they escape in the form of extremely long-legged "flies," though the female is wingless. There is no method of control for the pests in the soil. Plowing and thorough cultivation does, however, destroy millions of them, especially if soil is thrown up so as to dry out, and the pest is destroyed.

Tulips Don't Grow

I am sending bulb of a tulip which started to grow and then rotted. Last year the same thing happened, not to one but a dozen, and none bloomed. I changed the soil for this year's planting using plenty of leaf mold and prepared fertilizer. Can you tell me what the trouble is?—Subscriber, Crockett.

We are unable to determine any disease affecting this bulb. It does look as if it had been started during a period of dormancy and later dried off. If those which are living at the end of this season's growth are lifted soon after blooming and thoroughly dried off during the summer and planted in late fall it is possible they may escape the trouble another year.

Sheep in Orange Grove

I have five acres in oranges. Would it pay to keep 20 or 25 sheep? I figure to keep them corralled on cement floor. Would have to buy feed. Would the returns on fertilizer, wool and meat pay? Are the French Merino sheep the best? Where will I get the best? Will a cement floor be injurious?—Subscriber Anaheim.

Here is a question we will pass on to our subscribers and ask for a few notes from those who have had experience. As a matter of judgment only, and not because of any experience in the matter, we would say that under the conditions mentioned the keeping of sheep would not pay. Notwithstanding that we are thoroughgoing believers in diversifying so far as possible. If an orchard is supplied with water through open head ditches in which weeds are becoming a pest and distributing seeds to the rest of the ranch and the ditch line could be double fenced without too great expense, then if a few sheep would clear the line of weeds and secure a liberal part of their living in doing it we could see wherein fresh meat for the home and the ranch hands could be secured, and with the fertilizer a little profit possibly be made. Unfortunately, an orange orchard offers wastes of no particular value as a cheap sheep feed.

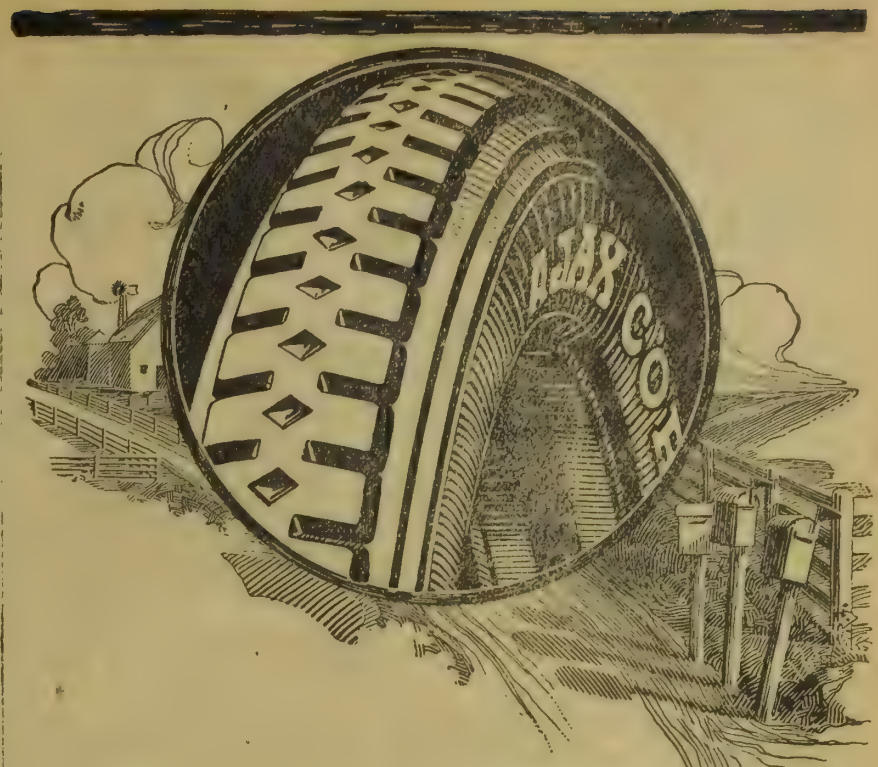
Salt for Rabbits

Will you kindly tell me if salt is necessary in the rabbit's diet?—Subscriber, Lucia.

Yes. All animals need some salt. When wild they obtain this naturally from salty water or salt licks. Many keep a small piece of rock salt, the size of a large walnut, in their barley dish all the time; others take a salt brick such as is used for cattle and with a saw cut them in two inch cubes and by string or wire attach to side of cage; others use small spools of salt made for this purpose. The writer has used them all and would say let them have salt to use just as we do, naturally.—W. D. W.

Rebudding Citrus Trees

We bought place set to Valencia oranges, Eureka lemons and grapefruit. The trees are two years old. A lot of them are seedlings. Could we bud Navels, grapefruit and tangerines on those trees? Could you tell me what



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Note that cleated tread—it holds on dirt or paved roads.

Your Ajax dealer will take pains to sell you an Ajax Cord which will meet *your* road requirements to a "t."

Buy the tire he recommends.

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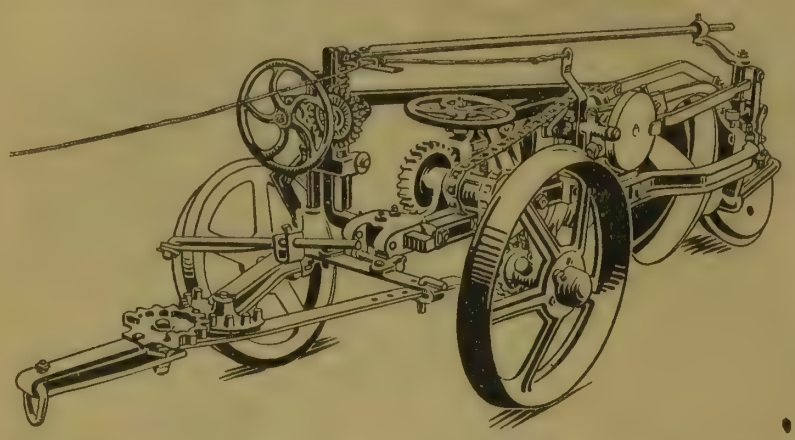
trees can be budded to them? I have a seedling avocado. Could I bud it over? Could I bud a kumquat on the citrus trees?—Subscriber, Bell.

Presume these trees could be readily budded or worked over. Probably any citrus varieties could be budded on them. If they are seedlings the inquirer would probably be able to tell by examination. The form of the leaf and the presence of long, savage looking thorns are marks of the seedling. If they are not the "sour" root but are the Tahiti or the sweet strain then we would not use, but would suggest replanting. In fact, so long as the trees are only two years old and the owner probably has little experience in rebudding, we would question any effort to save the trees. The budding of a seedling avocado is performed in practically the same manner as the budding of the citrus tree. There is, however, greater difference in the buds; it is very difficult to get some of the varieties to "stick."

Clean Up Your Orchard



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40 ACRES—Cream of the Valley

Located 3½ Miles Northeast of SAN BERNARDINO

WILL BE SOLD AT Tuesday, Feb. 22nd at 2 P. M.

AUCTION

20 acres in orchard—2,375 6 year old trees. Estimated crop last year 125 tons peaches—15 to 20 tons of olives — 20 acres in heavy cover crop to be plowed under—expect 2,500 sacks if planted to potatoes.

Absolute ownership in Artesian well and 30 h. p. electric pumping plant. Capacity over 100 inches. 4,000 ft. 10 inch steel pipe line with outlets 400 ft. apart. This is very cheap water and more than can be used.

Don't Miss This Opportunity

Sale Takes Place Tuesday, Feb. 22nd, at 2 P.M.

From San Bernardino drive north on E Street to Base Line. East on Base Line 3 miles to Sterling Avenue, north one half mile to ranch.

Highland-San Bernardino Bus line, off at Sterling—North to property. P. E. car to Sterling.

ADDITIONAL INFORMATION ON REQUEST

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GROWERS ENDORSE RAISIN ASSOCIATION

Resolutions adopted at the big mass meeting of raisin growers held in Fresno, February 7:

Whereas, the unparalleled prosperity which has been enjoyed by the raisin growing territory of the state of California ever since the organization of the Californa Associated Raisin Company in the year 1912 has been due wholly to the operations of said company as an association of growers; and

Whereas, the success achieved by the company in handling and marketing the constantly increasing tonnage of raisins produced in California, so as to yield a profit in each year to all of the growers under contract to it, has been due in large part to the prudent and careful management of the affairs of said company by its president, Wylie M. Giffen, and its board of directors chosen by the trustees for the stockholders; and

Whereas, the efforts of said officers in the interest of the raisin growers of the state have been untiring and unselfish to a degree seldom secured at any price by any business enterprise;

Now, therefore, be it resolved, by this mass meeting assembled at Fresno, February 7, 1921, that we hereby ratify and endorse the acts of the president and officers of said company and of its boards of directors and trustees, and express to all of said officers the appreciation of all classes of citizens sharing in the prosperity of the raisin growing sections of our state, for their unremitting efforts to place the business of growing raisins uopn a stable and prosperous basis; and

Resolved, further, that we express our entire confidence that the policies of the company will be continued in force, and we earnestly urge upon all growers of raisins in the state of California to support their organization and insure its continuance and the continuance of the prosperity of our state by signing the crop contracts to be presented to them by the company.

SUPERIOR INTELLIGENCE

"Why don't you teach that dog to do some tricks?"

"I have tried," replied the man who lacks energy. "The dog won't learn."

"Not enough intelligence?"

"Too much. I can see by the expression on his face that dog doesn't see any more sense in the tricks than I do."

HEARD AT THE LANDING

Hopeful Immigrant—They told me that in America it simply rained money.

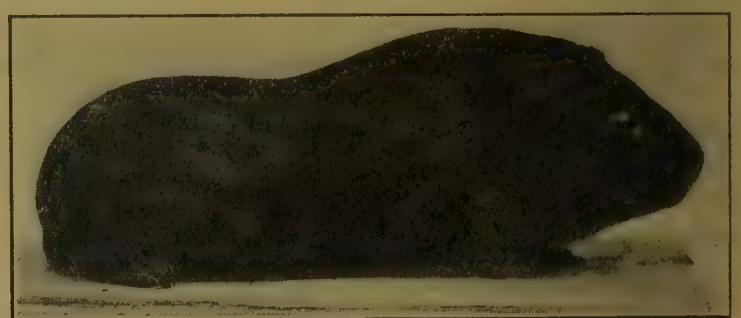
Hardened Yank—Well, if you remain here you'll get soaked like the rest of us.—Boston Transcript.

Veterinary

Splint or Spavin

Some time ago I purchased a team of mares supposed to be sound. Shortly after having them I discovered that one mare always limped in the front left leg whenever trotting on the road. When working on soft ground we do not notice it. She does not handle the leg freely when backing and seems to be sensitive and lifts up the hoof when one touches the leg. We had the blacksmith trim the hoof and examine it for corns but he claimed there were none. Can you give me an idea what is wrong and what to do for it? —Subscriber, San Fernando.

From the symptoms you give one might suspect it was due to a corn, but since the blacksmith did not find one it may be a splint or ringbone. The mare has probably been taught to lift the foot when touched on the leg, which makes her appear sensitive. A splint is a small bony growth on the inside of the leg just below the knee. A splint is not serious and soon disappears after applying a few blisters. A ringbone is a bony growth in the joint just above the hoof and is quite serious, as it causes lameness for a long time. The result of a ringbone is for the joint to become solid and the lameness does not cease until the inflammation is all gone. This also may be cured by blistering. A good blistering ointment may be made of half an ounce of cantharides, half an ounce of the biniodide of mercury and four ounces of lard. Warm the lard and mix in the other ingredients, stirring the mixture until cool. To apply a blister clip off the hair and brush the parts clean. Rub in the blister with the fingers and warm it slightly with a hot iron held near the parts. Tie the horse so she cannot rub the blister with her nose for 24 hours, then grease it with lard. This should be repeated about every two weeks until the lameness disappears. You may still find a corn deeper than the blacksmith cut and a blister above that will help. Examine the mare carefully and when you have decided what is causing the lameness, if you are not satisfied with this that we have suggested, write us again and we may be able to do better when we know more about it.



Pigs Is Pigs

Ellis Parker Butler is not the only one who has been able to turn the reproductive capacity of guinea pigs into gold. The story, "Pigs Is Pigs," while overdrawn for the sake of humor, conveys a fund of information regarding these little animals. Mr. Roberts, who furnishes the above photograph, is also issuing small booklet on guinea pigs and how to raise them.

R. F. GUERIN HERD TO BE DISPERSED

The well known herd of registered Holsteins owned by R. F. Guerin, Visalia, will be dispersed at public auction on Thursday, April 14, on his farm. This herd is one of the longest established in California. About three years ago the females of milking age in the herd were sold at public auction in one of the most successful sales yet held in the state, and at that time the heifers remaining were mostly daughters of Sir Veeman Korndyke Pontiac, whose daughters are making some splendid yearly records in the herds of Burr Farm, Los Angeles, and Earl Graham, Compton. The present herd is composed mostly of these heifers, most of which now have daughters by King Sadie Vale Idyl Segis, who is by King Korndyke Sadie Vale 27th and out of K. P. Idyl Segis, a 35 pound three year old daughter of King of the Pontiacs. California Breeders Sales and Pedigree Company will manage the sale, with Col. Ben A. Rhoades and Col. Geo. W. Bell as auctioneers.

Household Department

THE LAST SIGH OF THE MOOR

The Spaniards gave this name ("The Last Sigh of the Moor") to the eminence from which, after their expulsion, the Moorish king and his followers took their farewell view of Grenada.

Winding along, at break of day,
And armed with helm and spears,
Along the martyr's rocky way,
A king comes, with his peers;
Unto the eye a splendid sight,
Making the air all richly bright.
Seen flashing through the trees;
But, to the heart, a scene of blight
Sadder than death were these.

For brightly fall the morning rays
Upon a conquered king;
The breeze that with his banner plays,
Plays with an abject thing.
Banner and king no more will know
Their rightful place 'mid friend and foe:
Proud clarion, cease thy blast!
Or, changing to the wail of woe,
Breathe dirges for the past.

Along, along, by rock and tower,
That they have failed to keep,
By wood and vale, their fathers' dower,
The exiled warriors sweep:
The chevroned steed, no more elate,
As if he knew his rider's fate,
Steps languidly and slow,
As if he knew Grenada's gate
Now open to the foe!

Along, along, till all is past
That once they called their own,
Till bows the pride of strength at last
And knights, like women, moan!
Pausing upon the green hill side,
That soon their city's towers will hide,
They lean uopn their spears;
And hands that late with blood were dyed
Are now washed white with tears.

Another look, from brimming eyes,
Along the glorious plain;
Elsewhere may spread as lovely skies,
Elsewhere their monarch reign;
But never more in that bright land,
With all his chivalry at hand,
Now dead, or far departed!
And from the hill side moves the band,
The bravest, broken hearted.
—Miss Jewsbury.

A MESSAGE FROM GEORGE WASHINGTON

Born February 22, 1732. First President of the United States, April 30, 1789-1797

The unity of government which constitutes you one people is now dear to you. It is justly so; it is the main pillar in the edifice of your real independence, the support of your tranquility at home, your peace abroad; of your safety; of your very prosperity; of that very liberty which you so highly prize. But as it is easy to foresee that, from different causes and from different quarters, much pains will be taken, many artifices employed, to weaken in your minds the conviction of this truth; as this is the point in your political fortunes against which the batteries of internal and external enemies will be most constantly and actively (though often covertly and insidiously) directed, it is of infinite moment that you should properly estimate the immense value of your National Union to your collective and individual happiness; that you should cherish a cordial, habitual, and immovable attachment to it; accustoming yourselves to think and to speak of it as a Palladium of your political safety and prosperity; watching for its preservation with jealous anxiety; discountenancing whatever may suggest even a suspicion that it can, in any event, be abandoned; and indignantly frowning upon the first dawning of every attempt to alienate any portion of our country from the rest, or to enfeeble the sacred ties which now link together the various parts.

IMPEACHMENT OF WARREN HASTINGS

THE place in which the impeachment of Warren Hastings was conducted was worthy of such a trial. It was the great hall of William Rufus, the hall which had resounded with acclamations at the inauguration of 30 kings; the hall which had witnessed the just sentence of Bacon and the just absolution of Somers; the hall where the eloquence of Stafford had for a moment awed and melted a victorious party inflamed with just resentment; the hall where Charles had confronted the high court of justice with the placid courage which half redeemed his fame.

Neither military nor civl pomp was wanting. The avenues were lined with grenadiers. The streets were kept clear by cavalry. The peers, robed in gold and ermine, were marshaled by heralds. The judges, in their vestments of state, attended to give advice on points of law. The long galleries were crowded by such an audience as has rarely excited the fears or emulation of an orator. There were gathered together from all points of a great, free, enlightened and prosperous realm, grace and female loveliness, wit and learning, the representatives of every science and every art.

There were seated around the queen the fair haired young daughters of the house of Brunswick. There the embassadors of great kings and commonwealths gazed with admiration on a spectacle which no other country in the world could present. There Siddons, in the pride of her majestic beauty, looked with emotion on a scene surpassing all the imitations of the stage. There the historian of the Roman Empire thought of the days when Cicero pleaded the cause of Sicily against Verres; and when, before a senate which had some show of freedom, Tacitus thundered against the oppressor of Africa; and there, too, were seen, side by side, the greatest painter and the greatest scholar of the age, for the spectacle had allured Reynolds from his easel and Parr from his study.

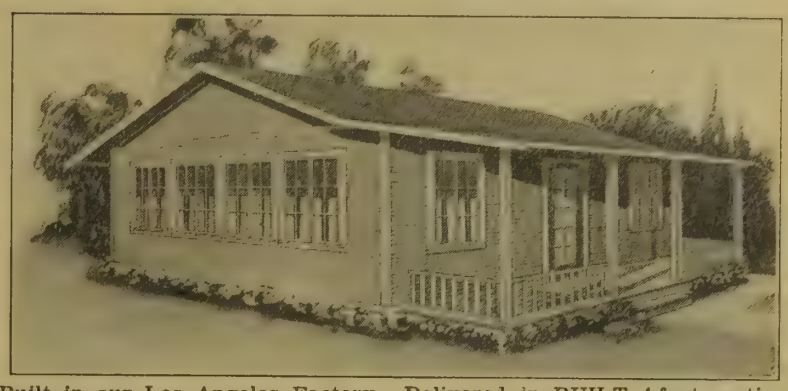
The sergeants made proclamation. Hastings advanced to the bar and bent his knee. The culprit was indeed not unworthy of that great presence. He had ruled an extensive and populous country; had made laws and treaties; had sent forth armies; had set up and pulled down princes, and in his high place he had so borne himself that all had feared him, that most had loved him, and that hatred itself could deny him no title to glory except virtue. A person, small and emaciated, yet deriving dignity from a carriage which, while it indicated deference to the court, indicated also habitual self possession and self respect; a high and intellectual forehead; a brow pensive but not gloomy, a mouth of inflexible decision, a face pale and worn but on which a great and well balanced mind was legibly written—such formed the aspect with which the great proconsul presented himself to his judges.

The charges, and the answers of Hastings, were first read. This ceremony occupied two whole days. On the third day Burke rose. Four sittings of the court were occupied by his opening speech, which was intended to be a general introduction to all the charges. With an exuberance of thought and a splendor of diction which more than satisfied the highly raised expectations of the audience he described the character and institutions of the natives of India, recounted the circumstances in which the Asiatic Empire of Britain had originated, and set forth the constitution of the company and of the English presidencies.

Having thus attempted to communicate to his hearers an idea of Eastern society, as vivid as that which existed in his own mind, he proceeded to arraign the administration of Hastings as systematically conducted in defiance of morality and public law.

REDIMADE

HOUSES and GARAGES



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We buy our lumber direct from the mills of the heart of the great Oregon timber country through our main factory at Portland, ship it direct to Los Angeles and by our modern methods and power machinery convert it into attractive permanent houses and garages at a wonderful saving over all other methods. Complete information is free for the asking.

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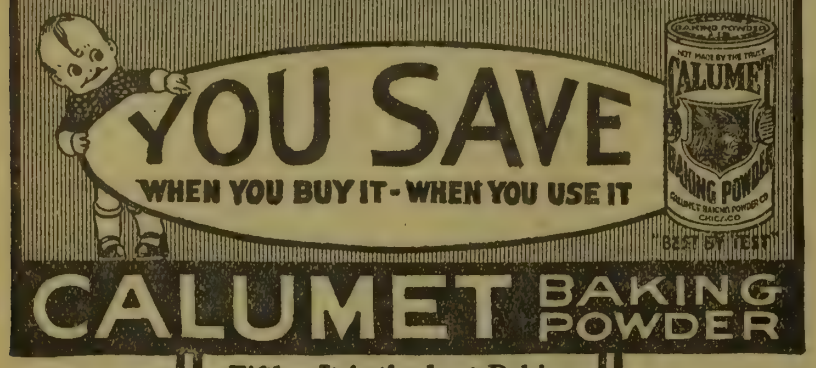
Ground Chocolate

First: It is sold at a moderate price. You save when you buy it.

Second: It has more than the ordinary leavening strength, therefore, you use less.

Third: There are no failures—it always makes the sweetest, most palatable of foods.



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Sixth: It contains only such ingredients as have been officially approved by the United States Food Authorities.

The finest quality Baking Powder—at the most economical cost. "The Biggest Bargain That Goes into the Kitchen Today."

Pound can of Calumet contains full 16 oz. Some baking powders come in 12 oz. instead of 16 oz. cans. Be sure you get a pound when you want it.

Calumet Nut Cookie Recipe

—½ cup butter, ½ cup sugar, 2 eggs, ½ cup flour, 1 level teaspoon Calumet Baking Powder, ¾ cup chopped nuts, 1 teaspoon lemon juice. Then mix in the regular way.

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Los Angeles Agent, J. B. Van Horn Co.

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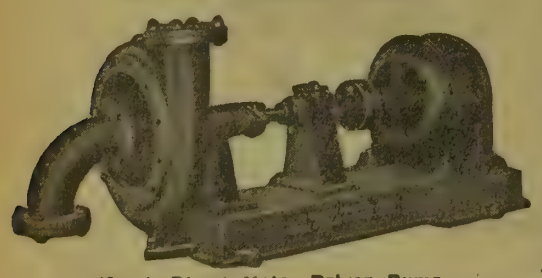
No End Thrust Possible — No Set Collars Used

The No Trouble Pump

Fitted With Ring Oiling Bearings

Renewable Babbitted Bushings

Ring Oiling Gland



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The energy and pathos of the great orator extorted expressions of unwonted admiration from all, and for a moment seemed to pierce even the resolute heart of the defendant. The ladies in the galleries, unaccustomed to such displays of eloquence, excited by the solemnity of the occasion and perhaps not unwilling to display their taste and sensibility, were in a state of incontrollable emotion. Handkerchiefs were pulled out, smelling bottles were handed round, hysterical sobs and screams were heard, and some were even carried out in fits.

At length the orator concluded. Raising his voice till the old arches of Irish oak resounded: "Therefore," said he, "hath it in all confidence been ordered by the commons of Great Britain that I impeach Warren Hastings of high crimes and misdemeanors. I impeach him in the name of the commons house of parliament, whose trust he has betrayed. I impeach him in the name of the English nation, whose ancient honor he has sullied. I impeach him in the name of the people of India, whose rights he had trodden under foot, and whose country he has turned into a desert. Lastly, in the name of human nature itself, in the name of both sexes, in the name of every age, in the name of every rank, I impeach the common enemy and oppressor of all."—Edinburgh Review.

HOUSEHOLD QUERIES

Removing Stains

My baby's cotton flannel gowns and our counterpanes have whitish ring stains on them which no soap and boiling take out and I suspect them to be either olive oil or milk which latter was inadvertently put in hot suds and set. Is that possible? I have some of the same spots on an Indian head skirt of mine. All stains on her diapers came out easily, but these remain after repeated washings and boilings. Can you suggest anything to remove them? Also can you give me a more efficient rust eradicator recipe than lemon and salt. That doesn't work easily for me.—Subscriber, Burbank.

Boiling water does coagulate the milk and set the stain. Have you used Javelle water on the whitish ring? Javelle water is probably the safest of bleaching and stain removing agents. Many housekeepers no more think of going without it than without soap. It will remove many stubborn stains but should not be used too regularly, of course, and after using rinse fabric quickly and thoroughly. To make Javelle water dissolve one pound washing soda in boiling water in enameled or agate pan (never aluminum). Dissolve half a pound of chloride of lime in two quarts cold water. Let chloride of lime solution settle thoroughly, pour off clear liquid only onto the soda solution, bottle tightly and keep in dark place. To a pailful of water add one or two cups of the Javelle. Plunge clean wet garments into this solution for three or four minutes, then wash out in hot soapy water. Repeat if necessary. This is the strength ordinarily used for bleaching. If this does not remove stain then try working directly on the stain with hydrochloric or oxalic acid, diluted one-half with water, following with undiluted Javelle and washing thoroughly with hot water and soap. The acid and Javelle should be applied directly to stain or wet fabric with medicine dropper or glass rod. For the rust stain, spread stained place over bowl of hot water and apply hydrochloric acid diluted with equal volume of water directly on the stain with medicine dropper till stain turns bright yellow; then immerse at once in hot water and rinse thoroughly. Repeat treatment if necessary. Add a little ammonia or borax to the last rinsing water to neutralize any acid that may remain in the goods.

Ink on Natural Linen

Can any reader of the Cultivator give me a sure method of removing ink from a natural linen table cover without taking the color out, the ink of course having dried in.—Subscriber, Redlands.

If the ink is the ordinary school ink it will be removed in three or four washings and we would not risk using a strong remover until this has been tried. First let ink-stained spot soak in lukewarm water, rubbing gently to start ink and changing water frequently so as not to spread the color to the rest of the fabric. A little mild soap added will help. Then put through ordinary washing process. Soaking in milk for a day or two, changing frequently as milk is discolored, will remove some stains and will not remove linen color. We know of no other treatment that will not take out color, though of course the color of "natural" linen is "faster" than any dye. Washing the entire fabric in Javelle water as suggested in answer above for removing stains will probably take out ink, also bleach slightly the entire cloth.

Commercial ink removers are generally very satisfactory if used according to directions and the whole garment washed immediately. If any of our experienced housekeepers can give help to these inquirers the Cultivator will be glad to publish answers and give subscription credit to the writer.

Washing Rubber Sheeting

Can you tell me how to preserve and wash carefully rubber sheeting in diaper covers, etc.—Subscriber, Burbank.

Wash in lukewarm suds made with mild soap, rinse in lukewarm water, handling lightly, hang to dry in airy place in shade. Where two thicknesses are likely to stick together dust lightly with talcum powder. When laying away, put in cool place, dusting folds with talcum powder.

Grated Potato Pancakes

I have found many recipes in your paper and am wondering if some reader can give me the recipe for grated potato pancakes. My grandmother made them and they were fine, but so far have not found anyone who has even heard of them.—Subscriber, Corning.

Grate about five medium sized potatoes and one onion. Add one egg and mix together, adding about one-third cup of flour, one scant teaspoon baking powder and a little salt. Egg is not always added but makes the pancakes much better.

Sausage Making

Kindly look up for me if there be anything to be had in book form giving recipes and method of making all kinds of sausage.—Subscriber, Marysville.

Farmers Bulletin 913, "Killing Hogs and Curing Pork," is published by the U. S. department of agriculture and may be secured free on request to Division of Publications, U. S. Department of Agriculture, Washington, D. C. This bulletin gives six pages to directions for making sausage; pure pork, smoked or country, Frankfort or Vienna style, Bologna style, blood, headcheese, liver and summer. This in addition to full directions for killing, dressing, smoking, keeping fresh meat, etc., with illustrations of simple smoke houses, etc., make it of great value.

More extended directions are given in "Home Pork Making" by A. W. Fulton, published by Orange Judd Co. of New York and Chicago. This was published in 1905 and may possibly be out of print and it would in any case be necessary to write the publishers for the price. This, the author says, is "A complete guide for the farmer and country butcher in all that pertains to slaughtering, curing, preserving and storing pork products from scalding vat to kitchen table and dining room." One chapter of 11 pages is given to directions for sausage making, special directions for making Bologna sausage, Westphalia, Frankfort, Suabian, Italian, tongue, Black Forest, liver, Royal Cambridge, brain, tomato, case sausage, souse, head cheese, Philadelphia scrapple, jowls and head, cracknels, brawn, blood pudding, spiced pudding, seasonings and bread admixtures. A book devoted entirely to commercial sausage making, with pure food laws, etc., is "Sausages," published in 1918 by B. Heller & Co. of Chicago.

Mildew

Can you tell me how to take mildew out of cloth?—Subscriber, Fowler.

Very fresh mildew stains can be taken out by simply washing in soap

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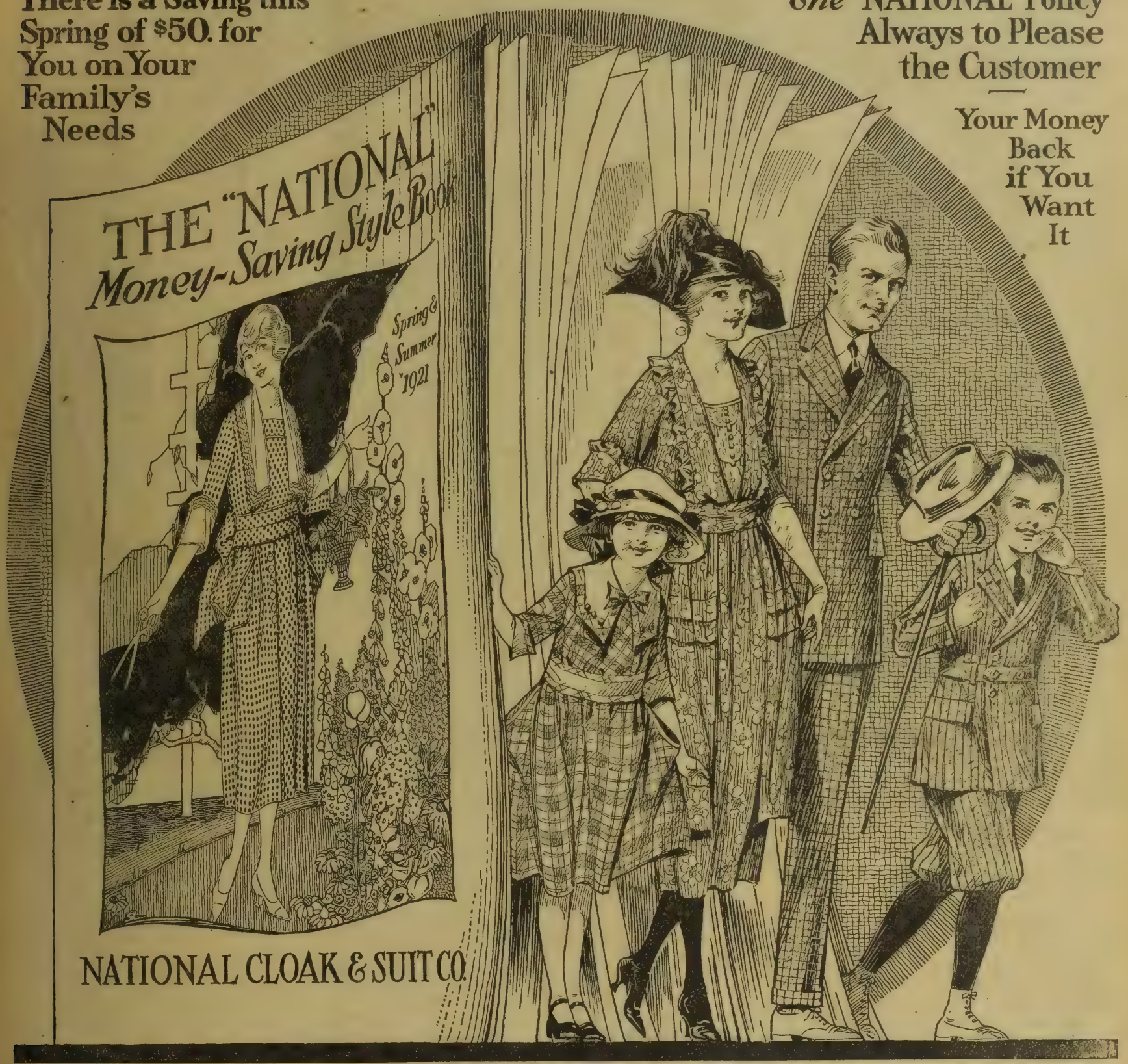

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and water and drying in sun. Light stains can be removed by soaking over night in sour milk and then drying in sun without rinsing, repeating this treatment several times if necessary; or moistening lemon juice and drying in sun will also be effective with light stains. Where stains are dark and old, it is necessary to use stronger methods and care must be taken that fibers of the cloth are not damaged in the process. It is sometimes better to put up with the slight discoloration than to run risk of spoiling the garment. However, if care is taken in use of the following there should be no trouble. First, Javelle water, used as directed in answer to "Removing Stains" in this department. Then as a last resort one might try using potassium permanganate. Remember that this, like the Javelle water, is apt to bleach out colored fabrics, and a little should be tried on a scrap of cloth or underseam first before applying it to prominent place on garment. First rinse garment to be treated. Dissolve 1 teaspoon potassium permanganate crystals in 1 pint water and apply a little of this solution to stain with medicine dropper, glass rod or clean cork, allowing to remain about five minutes. Remove with lemon juice any pink or brown stain left by the permanganate.

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HINTS FROM HOUSEKEEPERS

For "Subscriber, Lompoc"

Must you have the birthday candles on the cake? Wouldn't you like to use them for a centerpiece and to outline the initials and the number of years, in figures, of the birthday person in a wreath of asparagus fern, and have the cake on a flower trimmed tray on a small separate table? Asparagus ferns and red carnations or poinsettias would be pretty, then you could use red candles and tie the wreath on the table with a smart bow of red ribbon. This would make a good effect.

Use white cake as suggested with a filling of figs and whipped cream, cover with fig frosting and decorate with small colored candies and have candy carnations or poinsettias round the edge. Bits of angelica would give the necessary touch of green for leaves and stems.

In the cake put a bean (which will bring great honor to the finder), a ring (meaning marriage within a year), a penny (for riches), a key (a journey), a four-leaf clover (luck), a thimble (unmarried), a little image or amulet to drive away bad luck. The ones who get nothing are as well off as they were before. All these articles should be wrapped in paraffine paper and placed in little hollows and then iced over, marking the places so the one who cuts the cake will not cut into them. Each guest chooses the piece of cake wanted and makes some wish as the honor guest cuts the slice.

For a surprise arrange some funny tableaux showing the different birthdays of the one for whom you are entertaining. Nothing special would be needed as the more ludicrous this is the more it will be enjoyed. Darken a room and have a big screen for a background. Have some one play appropriate music at the piano. A baby in a cradle would represent the first year. A child starting out to school with books and candy or lunch a few years later; then some game, baseball or tennis; graduation; in business or at work; and finally some one dressed and made up to look as nearly as possible like present date.

For fun: Have different colored tiny candles fastened by their own wax into the halves of walnut shells. Each guest chooses a candle, then they are all lighted in absolute silence and set afloat in a pan of water, which may be stirred by each one in turn to make the fairy boats sail. The one whose boat gets across the "pond" first with the candle still burning is assured of marriage within a year, success in all undertakings and much honor. The boat that sinks or the candle that goes out brings poor success in love or fortune with disloyal friends and many adversities. If two boats touch or drift along side by side with both candles burning it signifies a love affair that will run smoothly. If either candle goes out it means loss of love on that one's part. If both go out it means both parties were mistaken in their affections. The boats that linger near the shore indicate fear in embarking on strange ventures and lack of confidence in self. This trial of destiny could be presided over by a quick-witted witch who would be able to give many telling "hits." — Mrs. A. Stainton, San Francisco.

Uses for Wrapping Twine

Large quantities of wrapping twine collect in most homes and I find there are many useful purposes to which the various sizes and colors can be applied.

Really attractive kitchen holders can be made by folding the ends of a black stocking leg in so there are no raw edges, then use the gay twine from the drug store to tack the folds together, making flowers in lazy daisy stitch for the centers of the pink and green twine and a border of basting stitch design of blue. Pin a large safety pin in one corner for a hanger.

For rough pot rag, crochet or knit the coarse twine from the hardware store in squares of a suitable size. These are quite as satisfactory as the metal cloths sold for the same purpose.

For a dish or bath rag knit a square of fine twine on coarse wooden needles, and a soft attractive cloth is the result. For hot dish doilies or bath room rugs, crochet over strips of old blue calico, spacing the stitches far apart. Crochet table pads or iron holders of medium string, backed with pink gingham, are attractive and useful. An edge crocheted on our sacks gives a pretty finish for a tea cloth. Soft twines make good padding for embroidered scallops. Jute twine, either dyed or plain, is attractive embroidery material for porch cushions.

Very fine string is excellent for knotting comforts, as well as for cross stitching the edges together. Do not collect your string in a ball, but hang it over a hook so the size and length desired can readily be selected.—Cecilia Stahl, Claremont.

Plant Lemon Cucumbers

It will soon be garden time and I want to tell the Cultivator readers of the way I grow cucumbers. I have cucumbers from early summer until frost off the same vines. I plant lemon cucumber seed by the yard fence. In thinning I pull them out, leaving only one in a place. They cover the fence and bear heavily and are not troubled with aphis as they are when they grow on the ground. I think taking them off the hot ground causes them to bear much better.—Cultivator Reader, Wasco.

NEEDN'T WAIT

"How are we to meet the high cost of living?"

"You don't have to meet it," answered the irritating person. "It overtakes you."—Washington Star.

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A BATHROOM is not merely a space in which plumbing fixtures are grouped in the most compact and economical manner.

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WASHINGTON ... SOUTHERN BLDG.	*COLUMBUS ... 166 N. THIRD	*NASHVILLE ... 315 TENTH AVE., S.	ATLANTA OFFICE. 1217 CITIZENS & SOUTHERN BANK BLDG.
*PITTSBURGH ... 445 WATER	*CANTON ... 1106 SECOND, N. E.	*NEW ORLEANS ... 846 BARONNE	DETROIT OFFICE ... 414 HAMMOND BLDG.
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The Future of Dairying in Arizona

THE California dairy industry makes more or less intimate contact with the dairy industry of Arizona, and for that reason dairymen of this state should be interested in the following article by W. S. Cunningham, dairy husbandman, University of Arizona, which appeared in a recent issue of The Arizona Cattleman and Farmer:

During this period of readjustment there is a great deal of uncertainty as to what type of farming will be most profitable during the next few years. The last five years have been unusual ones and do not serve as a basis from which one may judge the future. The experiences of these years, however, teach us conservatism and show us the wisdom of having a balanced agriculture. There is now a trend toward a diversification of crops. This will mean there will be more feed crops and consequently more livestock.

In many counties of Arizona the dairy industry is being built up very rapidly. Cochise County has shipped in more than 20 carloads of dairy cattle during the last year, and Pima, Navajo, Santa Cruz, Apache and Pinal Counties have increased their dairy herds. A part of this development has been because of the exodus of cows from the Salt River Valley. The farmers have considered that this was a good time to secure cows because of the cheap prices. On the other hand, many people have gone into dairying in order to stabilize their incomes. The prices of dairy products are not subject to so great fluctuation as are the prices of feeds and other products. The income from the dairy cow is sure and steady and the marketing of feeds through her is economical and profitable. County agents of the counties of southern Arizona are giving their farmers every encouragement to go into dairying, believing that there is no safer system of farming to follow in the near future.

Of course, not everyone can go into the dairy business. If one is not adapted to it, dairy farming is a great drudgery to him, and if one is indifferent to the importance of sanitation his dairy may be a curse to the consumers of dairy products. Dairying is a very exacting business, requiring constant attention and supervision. The dairy cow is a sensitive animal which responds abundantly to good care and treatment, but which suffers keenly with abuse and neglect. A good cow yields a handsome profit with proper feeding and care, but renders a loss to the man who starves or exposes her to undue hardships. The future will demand of a dairyman that he be a lover of the dairy cow, kind and patient, that he use business methods in his management, that he be clean in his methods of handling dairy products, considering the rights and health of the consumers of the products, and that, above all, he has good cows.

There are certain fundamental problems which will need the attention of all dairy farmers during the next few years. Some of the most important of these are: Increased production per cow, decreased cost of production, effective selling organization, increased consumption of milk and other dairy products.

Increased production per cow may come through the organized efforts of the farmers. It is impossible to get a rapid increase per cow in a community where small herds prevail except through cooperative bull associations and through cow testing associations. A rapid improvement in the dairy cattle is fundamental to keep the dairy industry on a profitable basis. It is not more cows that are needed so much as more milk per cow. Certain investigations have disclosed that in the Salt River Valley during the years 1914 to 1917, the average production of butterfat per year per cow was less than 100 pounds per cow. Some few improved herds averaged about 300 pounds per cow. This indicates that a great improvement must be made in the quality of cows. Thousands of dairy cows should go to the butcher and only good producers be retained. Grade or scrub bulls should be sold for veal or bologna.

Increased production per cow means less cost per quart of milk produced. The feed cost of the production of milk in many instances can be reduced by more careful selection of feed and by improved methods of purchasing. A careful study of crops and methods of cultivation may lessen the cost of feeds; in fact, every item which enters into the cost of producing milk must be scrutinized and reduced, if possible. There is often a great cry for higher prices of dairy products, but the future is going to demand more products at less cost. More milk per cow, then, secured by better breeding and selection of cattle and by better feeding practices will contribute toward the salvation of the dairyman of the future.

Cooperative selling and purchasing by dairymen is only beginning to function in Arizona. Already the dairymen of Tucson and Douglas have formed milk pooling stations for the selling of milk, and these organizations are in position to buy their supplies cooperatively, thereby securing wholesale prices. Cooperative effort for raising the price of milk only will usually fail. But if the object of a cooperative selling organization is to lessen the cost of distribution, improve the quality of the product, to educate the producers of milk to reduce the cost of production and to educate the consumers to the food value of milk, the organization will render a permanent benefit to the farmer and consumer.

The success of any business depends somewhat in getting its merits before the public. The amount of milk used in the United States is estimated to be less than one pint per capita per day. This low consumption is not because people do not like milk, but because they do not appreciate its food value and its health giving qualities. There are many inferior substitutes for dairy products on the market which are gaining a wide usage because they are properly advertised. In fact, they are so well advertised that dairy farmers have been known to sell their cream to a creamery and take home oleomargarine to use in their own homes. It has been definitely proven that butterfat contains vitamines not found to any extent in other foods which are vitally necessary to growth and well being. Users of dairy products are believed to have better health and to lead more vigorous lives on the average than persons not using them.

In comparison with other lines of endeavor the future of dairying looks bright. Through cooperative effort increased production and decreased cost of production can be secured, and by effective selling organization and increased consumption of dairy products the prosperity of the dairy farmer will be assured.

A Better Way of Milking
The De Laval Milker
THE FUTURE of the dairy business is dependent on a better way of milking. Think of the loss in time and loss in production of milking the twenty-five million cows of the United States and Canada twice a day by hand. No other industry of equal importance is laboring under such a handicap, and every year it is becoming increasingly difficult to secure good hand milkers.
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CALIFORNIA SHORTHORN BREEDERS SALE

The wonderful possibilities for pure bred herds in California are stated in two brief opening sentences in the announcement written by Secretary David J. Stollery for the catalog of the fifth sale of the California Shorthorn Breeders Association, which will be held February 22 at the university farm, Davis. Among the consignments is Ormondale Archer, a splendid dark red son of Golden Goods Jr., not quite two years old and a good herd sire prospect. On the dam's side he traces to Imp. Aconite and is, therefore, a heavy boned beef type. This animal, the first consignment of the McGurk ranch, near Stockton, is a half brother to Little Sweetheart. C. Harold Hopkins has entered, among others, a likely looking roan bull, Hopland Lad 2d, and another fine young roan bull, Caledonia King, has been consigned by George Gardner Pierce.

The entries of the university farm school, always good ones, comprise a heifer and two young bulls, one of them Senator Mayflower, by the noted sire, Sultan Mayflower.

Proud Hero, which is consigned by the Jack London Ranch, has excellent foundation for his pride. He is by the Duthie bred bull, King's Heir, and on both sides there is a long line of Duthie bred animals.

The Fair Oaks Ranch is entering seven fine Shorthorns, including the young sire, Ormondale Chief 2d, and several of his calves. This proven sire is a Cruickshank bull and is by Golden Goods Jr., sire of Little Sweetheart. Count Victor is another sire represented by calves in the Fair Oaks consignment.

The annual meeting of the Western Berkshire Congress will be held at the university farm, Davis, February 23 and 24. The first day will be devoted to the business affairs of the association, including election of officers, and the afternoon of the second day will be occupied with the sale of 30 very high class bred sows and gilts. This annual meeting of the Berkshire Congress has come to be regarded as an important livestock event in this state. In past years many constructive plans for the development of the pure bred swine industry have been inaugurated at these meetings and J. Francis O'Connor, secretary of the congress, writes that he is preparing an especially attractive program for this year.

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Fred W. Kiesel, Vice-President of the California National Bank, Sacramento, California, writes:

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CALIFORNIA BREEDERS SALES AND PEDIGREE CO.
C. L. Hughes, Sales Manager
Sacramento Cal.

To keep thoroughly posted subscribers should read every advertisement in the California Cultivator

Livestock News Notes

LIVESTOCK SALE CALENDAR

Herefords

February 23, Pacific Coast Hereford Breeders Association, Davis.

Holsteins

March 17, Holstein Guaranty Sale, Sacramento.
April 14—R. F. Guerin, Tulare.
April 21 and 22—Santa Anita Rancho.
May 5—Victory Herd, Carruthers.

Shorthorns

February 22, California Shorthorn Breeders Association, University Farm, Davis.

Poland Chinas

February 26, Kings County Poland China Breeders Association, Hanford.
February 25, State Poland China Breeders Association, University Farm, Davis.
February 28, Mrs. Nettie Andrews, Modesto.

Assistant Agent Waters of Orange County tells some interesting things that have occurred in the Orange County Association. One herd of 30 cows increased in production from 19 pounds of fat per cow a month in September to 36 pounds in December, due mainly to advice on feeding given by tester Soudin. This increase of 510 pounds of fat is more than some 30 cow herds are giving at this season of the year. Mr. Waters also reports that another herd increased from an average of 27 pounds per cow to 41 pounds per cow in six months time. Another man culled 13 head from a 45 cow herd and only decreased his production 12 gallons per day but saved over $60 per month.

C. B. Wiborg of the Petaluma cow testing association reports a herd average of 41.5 pounds of fat from 57 cows in December. There are not many herds of that size with such an average.

Howard Vaughn, who has recently established a herd of Shorthorns on his Mountain View Ranch near Dixon, is consigning two bulls and two females to the forthcoming sale to be held at the university farm during Stockmen's week. One of the bulls, a red, is a grandson of the noted champion, Cumberland Type, and is out of a Raspberry dam. The other bull is a grandson of Villager. Vaughn also breeds Chester White hogs. It is of interest to know that Mr. Vaughn was the breeder of the boar, Wildwood Prince, one of the great boars of the breed.

Straloch Farm, Davis, has recently bought a number of top hogs from the outstanding herd of Polands owned by A. D. McCarty, Modesto. They include the young boar Frisco Boy, sired by Williams Brothers' Long Boy and out of a daughter of The Yankee. This boar was the third prize junior pig at the last state fair. Among the sows are Liberty Girl 3d, grand champion sow at the 1920 state fair, and considered by many judges to be one of the best sows of any breed ever shown in that ring; Black Beauty C, reserve grand champion, state fair 1919, as a junior yearling; Master Lady and Miss Yankee, third and fourth prize junior yearlings at the 1920 state fair; Barbary Coast, an outstanding daughter of Kansas King, the boar most responsible for Mr. McCarty's remarkable sow herd, and Nuggett Nell, first prize senior pig, state fair, 1919, and fourth prize senior yearling in 1920.

Alcartra Walker Pontiac, a senior three year old granddaughter of Segis Pontiac De Kol Burke, owned by Jane Garden Farm, Sacramento, has just completed a seven day record of 26.11 pounds butter from 456.9 pounds milk. Tessie Leona Cornucopia, a four year old daughter of King Korndyke Sadie Vale 15th in the same herd, has 26.2 pounds of butter in her best seven days to date.

Corn is being shipped in for hog feeding by ranchers of Lassen County, who claim that Eastern corn can be laid down cheaper than California barley can be purchased.

The list of cosignors to the annual spring sale to be held under the auspices of the Pacific Coast Hereford Cattle Breeders Association during Stockmen's week at the university farm, February 23, made public by Secretary John A. Bunting, discloses a number of new names along

Guernsey Females

Our herd reduction sale still continues and there is a lot of fine Imported and A. R. cows with high production records and show ring honors left to be sold. We are also offering the choicest lot of young stock ever in one herd in the West. A number of bulls of all ages from the above sired by King of Hollow-Hill and Effie's King.

Also 30 head of females 15/16 Guernsey that will make wonderful family cows.

All T. B. tested and guaranteed breeders.

Everything Priced Reasonably.

Hollow-Hill Farm

Colton, California

There is an unparalleled opportunity to purchase selections from the greatest offering of

SHORTHORNS

ever made west of Denver
at the
Fifth Public Sale of Shorthorns
Under the auspices of the
California Shorthorn Breeders Association
at the
University Farm, Davis, California
Tuesday, February 22, 1921
at 12:30 P. M., sharp

67 Bulls, Many Herd Leaders Among Them
22 Cows and Heifers, Containing Some Very Choice Breeding

California Shorthorn Breeders Association
222 Sharon Building, San Francisco, Cal.
Clyde N. Moore, Auctioneer

MERRITT-BOWERS COMPANY, Tagus Ranch, Tulare, California
have just got in two carloads of registered Shorthorns and Hereford bulls, and have a large assortment of draft stallions of all breeds, work horses and mules, as well as Mammoth Jacks, Duroc-Jersey Hogs and Poland China Hogs for sale, with a guarantee on every animal.

TREAT YOUR OWN HERD FOR ABORTION
STOP LOSING CALVES

Dr. DAVID ROBERTS' ANTI-ABORTION TREATMENT has been successfully used for nearly thirty years—it is past the experimental stage. Its effectiveness in preventing and overcoming Abortion in Cows is being satisfactorily demonstrated in hundreds of herds every year. Whether you own five head or five hundred, you can

Stamp Abortion Out and Keep It Out

Ask for the "CATTLE SPECIALIST," sent free on request. Answers every question pertaining to ABORTION IN COWS. Tells how to treat your own herd at small expense. Write
Dr. DAVID ROBERTS VETERINARY CO., Inc. 212 Grand Ave., Waukesha, Wis.

THE 1921 GUARANTY SALE

"The Pacific Coast Holstein Classic"

50 Registered Holstein Tops

State Fair Grounds, Sacramento, Cal.

Thursday, March 17, 1921

An offering of selected individuals to meet the requirements of the buyer who wants top foundation breeding animals, and including

A SON OF CARNATION KING SYLVIA, THE $106,000.00 BULL!

A BULL WHOSE DAM AND SIRE'S DAM AVERAGE OVER 40 LBS. BUTTER IN SEVEN DAYS AND RIGHT AROUND 1200 LBS. IN ONE YEAR!

A BULL, SIX OF WHOSE SEVEN NEAREST DAMS AVERAGE 1043.23 LBS. BUTTER IN ONE YEAR!

A NUMBER OF CHOICE FEMALES HEAVY WITH CALF TO MATADOR SEGIS WALKER!

CHOICE DAUGHTERS OF KING KORNDYKE PONTIAC 20TH!

MONA FOBES, THE 30-POUND SHOW COW, THAT HAS 863.95 LBS. BUTTER IN 305 DAYS!

A WORLD'S RECORD JUNIOR 2-YEAR-OLD FOR BOTH MILK AND BUTTER IN 305 DAYS!

This is just a glimpse into the wonderful list of animals that will appear in this sale. See detailed announcements later, but write for catalog to management NOW.

Committee of Selection:

H. V. BRIDGFORD, Patterson — G. M. BROWN, Los Angeles
ALEX WHALEY, Tulare — C. L. HUGHES, Sacramento

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to 60-day retest by the buyer.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Cal.

The Pacific Herd of Poland Chinas

WILL SELL

20---Bred Sows and Gilts---20
2 Spring Boars by I AM KING
A Few Fall Weanlings

February 28, 1921

At the Ranch on Dry Creek Rd.

Sows bred to I Am King, 4th prize junior yearling, in class of sixteen, at State Fair, 1920. Gilts bred to Wonder's Buster, by A Buster.

Every animal guaranteed a breeder and as represented or full purchase price refunded.

Take them home at your own price. Half cash buys them.

NETTIE E. ANDREWS
MODESTO, CAL.

Auctioneer: Col. Geo. W. Bell

A 1 Duroc Ranch

— THE UTMOST IN DUROCS —

My herd has been selected for type, conformation and utility, with regard to fashionable blood lines. Here you will find Pathfinders, Sensations, Orions, Creators and Defenders.

Visitors Welcome. Correspondence Solicited.

J. P. Walker — Visalia, Cal.

Attention Duroc Breeders

I am offering for sale Golden Cherry 264101, my two year old boar by Great Model and out of the great sow, Cherry Blossom. Here is a pioneer sire and real herd header. Also have a few young boars and gilts for sale. Prices reasonable.

C. E. BORDEN

P. O. Box 51 — Oceanside, Cal.

with the "old guard" which can be taken as an indication of the interest being accorded this breed. Among the men to make their first consignments are: Roland Bass of Standish, who is sending forward eight head; James McMermy, Carlton, Oregon, three head; A. H. Barnum, Moro, Oregon, three head; George H. Harwood & Sons, Milford, Oregon, one entry; R. J. Prewitt, Antioch, three head, and the Napa state farm, Napa, four head. Other consignors are: J. H. Cazier & Sons, Wells, Nevada; University of Nevada; H. H. Gable, Esparto; W. J. Bemerley, Woodland; Finnell Stock Farm, Galt; H. M. Barngrover, and the University of California. The sale will consist of 60 head and it is stated that the offering will be of more uniform quality than the one sold last spring. The sale is to be managed by The California Breeders Sales and Pedigree Company, Sacramento, and Col. H. L. Hull of Iowa will be the auctioneer.

Each sale of Shorthorns in California develops some new breeders and at the sale at Davis on February 22 beginners will have an excellent opportunity to select a bull of best type and breeding from the seven bulls in the Milmar herd consignment. The character of the Shorthorns produced in this herd shows that Mr. Miller made no mistake in choosing only the best bulls available to head his herd and emphasizes the importance of proper herd bull selection. The two heifers contributed by this breeder will receive favorable attention and are of the sort that belong in first class herds.

A new Class F champion record of production for the Guernsey breed was recorded November 6, 1920, at the conclusion of a 12 months test by Katherine's Trixie, owned by Walter C. White, Ohio. Trixie's milk production for the period November 8, 1919-November 6, 1920, was 18,945.7 pounds, giving her a margin of 3,416.9 pounds over the previous record, held by Langwater Hope. Her butter fat record was 791.48 pounds. Katherine's Trixie was sired by Madge Chena's King of Anna Dean Farm, he by Ollie's King of Belle Vernon 2d. Her dam was the imported Trixie of the Isle, a cow with wonderful conformation and production qualities. Katherine's Trixie was born April 10, 1917, making her two years, six months and 28 days old when she began her test.

At the last meeting of the state agricultural society Henry A. Jastro of Bakersfield was elected president to succeed George C. Roeding of Fresno, who did not seek reelection. Chas. W. Paine was again appointed secretary and T. H. Ramsay of Red Bluff will serve as chairman of the livestock department.

C. R. Thomas, manager of the Los Angeles Livestock Show, has returned from the Cornbelt, where he selected 24 Shorthorn bulls. Mr. Thomas reports the sale of 14 out of the shipment to buyers in the vicinity of Reno. In commenting on the general cattle situation Thomas stated that range men in this state were demanding a better class of bulls than they have bought in the past.

D. D. Aitken, president of the Holstein-Friesian Association of America, addressed a crowd of 250 breeders and dairymen at Modesto, February 10. The meeting was arranged by members of the Stanislaus County Holstein Breeders Association. President Aitken stressed the value of better blood and management in the solution of the economic problems of the dairy industry.

Wm. Way, Modesto, reports sale of the boar Lord's Orion Cherry King to F. W. Bartlett Jr., Tracy. Mr. Bartlett has recently purchased a number of pure bred sows, and this boar, formerly used in the herds of Elmer Lamb and Mr. Way, is sure to be of great value in the new herd.

Earl J. Sturgis, who has been identified with the Holstein business in this state for many years, first with Morris & Sons and later as the superintendent of the Santa Anita Rancho, has taken charge of the Holstein herd of Fred Hartsook at Lankershim. Mr. Hartsook has purchased many wonderful animals during the past year and under the direction of Mr. Sturgis the herd should become one of the leaders of the state. Mr. Sturgis, who is a director of the State Holstein Association, has developed many of the great cows of the coast and has many times broken the various short time and yearly records of the Holstein Association.

Oakmere Ranch, San Diego, has just sold two fine Duroc gilts to the Hampton Ranch in Sacramento Valley. The pigs were sired by O. R. King Pilot, one of the herd boars of Oakmere. During January there were 73 pigs born at Oakmere from nine sows, making an average of 8.1 per litter.

Want a Pump?

D-C or Belt Driven

IRRIGATION
OR
Pressure Pumps

Here's Real Value:

For Garden Irrigation or pumping into Elevated Tank; Direct Connected, Motor-Driven, Westco Pump, capacity 30 G. P. M. Complete, with Motor, $140.00
F. O. B. Sacramento.
We are Distributors of
WESTCO PRESSURE WATER SYSTEMS, and
PUMPS FOR ALL PURPOSES
Your Inquiries Solicited

California Pump Co.
919 6th St. Sacramento

Seven Ply Hose!!

"Have taken over large stock, 70,000 feet ¾-inch seven Ply HOSE in 50 foot lengths. We are selling this hose at a sacrifice price without couplings. Can furnish couplings and clamps for 27 cents each. Write for sample or send your order. Hose won't last long. This same hose sells at your hardware for 25 cents per foot.

American Machinery Co.
518-524 Fourth St.
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BERKSHIRES

BERKSHIRES
mature quicker and dress out a higher percentage than other breeds.

The Profitable Hog

USE SHIRE POWER

The cheapest and best power that any farmer can use. Shire mares will raise as good a colt when working as when idle. Breed your mares to Shire stallions, the young stock will make you a very good profit. For information on Shires write:
W. G. Lynch, Secretary, American Shire Horse Association, Box H, Tonica, Illinois.

Poland Chinas

We are offering a few real boar prospects sired by The Californian. Priced right and guaranteed to satisfy.

P. B. LONG
Route 1, Box 62 Tulare, Cal.

LOS ANGELES COUNTY FARM WINS CULTIVATOR PRIZE FOR JANUARY

The prize for the highest production of butterfat by five grade cows entered in the state dairy cow competition for the month of January was won by Los Angeles County Farm at Hondo, for an average production of 78.45 pounds butterfat per cow, and the California Cultivator prize for this month was therefore awarded to this farm.

The production of the individual grades for the month was as follows:

Yr-Mo	Milk	Days in Milk	Milk, Lbs	Butter Fat — Percent	Butter Fat — Lbs	Credit
Amador	11-	6	1919	4.5	86.34	86.34
Mariposa	3-3	13	2080	4.1	85.27	100.62
Modoc	3-3	6	1547	5.4	83.54	98.58
Butte	4-2	7	1466	4.9	71.97	77.73
Alameda	4-10	5	1589	4.1	65.13	68.39
Averages		7	1720		78.45	86.33

This is the second time that grades in the dairy herd of the Los Angeles County Farm have won this prize. Other groups of five cows eligible for competing for the prize produced, on the average, as follows during the month of January:

Earl Graham, Compton, 71.91 pounds (credit 82.05 pounds); Adohr Stock Farms, Van Nuys, 67.57 pounds (credit 71.02 pounds); R. H. Walrath, El Centro, 66.97 pounds; F. F. Pelissier, Whittier, 65.67 pounds; S. G. Gambonini, Petaluma, 50.07 pounds (credit 51.48 pounds); University of California, Berkeley, 41.75 pounds (credit 46.22 pounds); J. M. Christen, Pacheco, 41.70 pounds (credit 45.81 pounds).

It is interesting to note that five out of the seven competing herds are located in Southern California, and that this is the fourth time that the California Cultivator prize has gone to this section.

TREMENDOUS HERD REDUCTION SALE

Santa Anita Rancho, owned by Anita M. Baldwin, Santa Anita, will be the scene of one of California's greatest public sales on April 21-22 when 100 registered Holsteins, about 40 registered Poland China hogs, and possibly some other high class livestock will go under the auctioneer's hammer.

The herds at Santa Anita have multiplied until their present size is taxing the carrying capacity of the rancho, and this sale will be the means of a reduction throughout, leaving herds of very substantial size for future breeding operations.

The Holstein offering will be a notable one, including two of the herd sires, the grand champion Merci Lad Korndyke Burke and Prince Walker Cornucopia, the 36 pound son of Prince Gelsche Walker. After this sale the $41,000 bull, King Korndyke Pontiac Acme, will have the herd heading honors to himself. The sale will be managed by California Breeders Sales and Pedigree Company, Sacramento, with Col. Ben A. Rhoades, Los Angeles, on the block.

HOG AUCTION SALES

California Farm Bureau Marketing Association announces the following dates for hog auctions for the remainder of this month: Turlock, 17; Merced, 16; Madera, 17; Fresno, 18; Bakersfield, 19; Tulare, 22; Visalia, 23; Hanford, 24; McFarland, 25.

A PROCLAMATION

FROM the time of the Mission Fathers to the present time the culture of the olive in California has been one of the honored and distinctive industries of the state.

For years the flavorous olive ripened in California's groves has been recognized not only as one of the earth's most nutritious foods but also as one of its choicest delicacies.

Therefore, I, William D. Stephens, Governor of California, hereby appoint and designate Monday, the 21st day of February, 1921, as California Ripe Olive Day, and I urge all loyal Californians to join in this effort to extend the use of this distinctive California product, thus promoting the well being of the industry and the prosperity of the industry and the prosperity of the state.—Wm. D. Stephens, Governor of California.

POLAND CHINA BREEDERS SALE

On Friday, February 25, the state Poland China Breeders Association will hold its annual sale at the university farm at Davis. This sale will be on the last day of Stockmen's Week and should attract a good crowd of buyers. The last few pure bred hog sales have been encouraging to the breeders. While the prices have been nominal, the demand is growing stronger. The offering is a carefully selected one from the best herds in the state and will afford good selections for the buyers. A. J. Elliott, Tulare, and Secretary H. K. Dickson, Bakersfield, have both been working very hard on this sale and deserve the support of all interested in Poland China hogs.

MRS. ANDREWS TO DISPERSE HERD

On Monday, February 28, Mrs. Nettie Andrews, Modesto, will sell some of her herd of big type Poland China hogs. The feature of the sale will be fine sows bred to I Am King, that stood fourth in the junior yearling class at the strong Sacramento show last year. This in itself is quite a recommendation for any boar. In addition to this he has proven himself a very strong breeder. There will be 25 bred sows and gilts in the sale.

Prof. L. F. Fletcher of the agricultural engineering staff of the university farm will conduct a two days tractor school in Ventura County about the middle of March.

Blackhawk Ranch

Diablo, California

Have Entered Six Choice Bulls in

SALE OF SHORTHORNS

AT DAVIS

Tuesday, February 22, 1921

They are all sons of the great breeding bull, Roan Radium, who sired Blackhawk Villager, Grand Champion at Los Angeles Livestock Show, 1920. Roan Radium was also sire of Grand Champion Steer at last State Fair and also sire of winners in Get of Sire and Produce of Dam classes at same show

Included in offering is Blackhawk Archer, out of a Cruickshank Violet dam. We consider this calf worthy to go to a good herd.

60 REGISTERED Herefords

At Public Auction

Wednesday, February 23rd

at 1 P.M.

University Farm, Davis, Cal.

Under Auspices of

Pacific Coast Hereford Cattle Breeders Association

J. I. Cazier, Pres., Wells, Nevada J. A. Bunting, Sec., Mission San Jose, Cal.

Contributors to Sale:

J. H. CAZIER & SONS CO., Wells, Nev.
UNIVERSITY OF NEVADA, Reno, Nev.
JAS. B. McNERNEY & SON, Carlton, Ore.
A. H. BARNUM, Moro, Ore.
UNIVERSITY FARM, Davis, Calif.
ROLAND BASS, Standish, Calif.
FINNELL STOCK FARMS CO., Galt, Calif.
W. J. BEMMERLY, Woodland, Calif.
H. M. BARNGROVER, Santa Clara, Calif.
H. H. GABLE, Esparto, Calif.
NAPA STATE FARM, Yountville, Calif.
R. J. PREWETT, Antioch, Calif.
GEO. W. HARWOOD & SONS, Milford, Calif.

A Splendid Opportunity for Buyers of Bulls

During the past few years Pacific Coast Hereford breeders have made very substantial improvements in their herds, through the purchase of high-class bulls for their herd sires and the addition of breeding females highly bred in the most productive families of the breed. The offspring of many of these high-class animals are now appearing in the public sales, and in this sale there will be a selection of bulls for range service that has certainly never been excelled in breeding by any previous public sale offering of the breed in California. Remember also that the type of these bulls was passed upon by the noted judge, Mr. Frank Van Natta, before they were admitted to entry in this sale.

Females of Substantial Breeding and Individual Merit

The female offering in this sale provides another excellent selection of foundation breeding material, at a time when the founding of a registered Hereford herd is most promising as an investment or as a life work. Besides being a well-bred lot of good type and character, many of these females have calves at foot by or are bred to such bulls as Patrician 5th, Beau Blanchard 76th, Beau Blanchard 48th, Beau Blanchard 37th, and others.

The Sale Contains

39 Registered Hereford Bulls 21 Registered Hereford Females

Tuberculin Tested—Guaranteed Breeders

THE FACT that Herefords topped the great Chicago market over 77% of the selling days of the year 1920 is one of several chief reasons why there is such a tremendous demand for registered Hereford bulls to head the range herds that supply these profit makers to the feeder or market.

THE FACT that there is such a strong demand for registered Hereford bulls is only one of the several chief reasons why the breeding of registered Herefords is a sound business to get into and stay in.

REMEMBER THAT in California in 1920 there were more registered Herefords sold at public sale than in any two previous years, and still the demand for breeding animals remained unfilled, and that for the first time the Hereford exhibits at California State Fair exceeded in numbers the exhibits of any other beef breed.

THERE ARE REASONS for this ever-increasing popularity of HEREFORDS, every one of which is founded firmly upon the dollars and cents return to the men who find the sure way to more economical production and greater profits through the use of good HEREFORD blood.

Attend This Sale, and Take Some of These Good Herefords Home With You—For Your Own Profit

Auctioneer:
Col. H. L. Hull
Des Moines, Iowa

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

"... It Keeps My Stock in Better Condition,"

says Mr. J. M. Henderson, Jr.
Sacramento, Cal.

Mr. Henderson is the owner of Purebred Stock Farms, and his ideas relative to feeding are soundly based and scientifically carried out. His estimation of the value of Pure Hawaiian Cane Molasses should count with every breeder or stockman.

His letter in greater detail: "It has brought results in many ways. I do not hesitate to recommend it to other dairymen. It has enabled me to keep my stock in better **condition at less expense** than any other feed that I have had occasion to use.'

Find out what Pure Hawaiian Cane Molasses will do for you, on your farm. Let us tell you of actual profit-making results that others have secured. Average analysis of food values are prepared for you in booklet form. Get this booklet. It is sent free, on request, to men who feed stock. Write today for your copy.

W. H. YOUNG COMPANY

58 Sutter Street San Francisco, Cal.

Shorthorn Cattle

My herd consists of Scotch and American families headed by the Marr Clara bull, Clarion. Just now I have a few good young bulls and a few females for sale at right prices. Market your crops through good Shorthorns.

GEO. E. DIERSSEN
Box 913 Sacramento, Cal.

Make Money

For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

D. G. Cummins & Son
Route 1 Visalia, Cal.

TIM ANSPACH
Livestock Auctioneer
30th & R Streets Sacramento, Cal.
Write or Wire for Sales Dates

CALEDONIA SHORTHORNS

Imp. Caledonia

Caledonia Shorthorns constitute one of the choicest collections of the breed owned in America. Our herd bulls, Imp. Caledonia, Gainford Matchless, grand champion at the 1919 San Francisco show and Pine Grove King stand out prominently in the West. Our females represent choice Scotch and American families, and are noted for their type and quality. We can at all times furnish foundation material and bulls suitable for any herd or for the range. Our prices are moderate and every animal is guaranteed. Visit our farm and herd. Send for special bull list.

CALEDONIA FARMS
WEST SACRAMENTO, CALIF.
OFFICE-57 POST ST. SAN FRANCISCO.

When Writing Advertisers Mention California Cultivator.

Sheep Parasites

SHEEP probably suffer more than any other kind of livestock from parasites. They are practically immune to tuberculosis, which is one of the serious ailments of cattle and swine, and among sheep there is nothing comparable to the devastating outbreaks of cholera among swine. Sheep have comparatively few bacterial diseases. Nevertheless, there is a steady loss of sheep in all parts of the country, and this loss is mostly due to parasites. To inform sheep raisers how to combat these parasites and prevent their appearance in the flock, Farmers Bulletin 1150, Parasites and Parasitic Diseases of Sheep, has just been published by the United States department of agriculture. It describes the most common of these diseases, giving the symptoms, treatment and preventive measures.

It is the sheep owner's business to prevent disease rather than attempt to cure it after it has made its appearance. While there are special treatments for the various diseases, which makes it advisable to call a competent veterinarian, there are a number of ways to prevent diseases caused by parasites. Among these the bulletin suggests pasture rotation, use of forage crops, feeding from racks or board floors, draining or filling swamps, and preventing wandering dogs from getting into the flock. Permanent pastures perpetuate parasites. The eggs of the internal parasites pass from the animals in the manure and thus the pastures become infested. The proper disposal of the manure will aid in preventing this.

Damage from parasites is greatest, as a rule, among lambs and young sheep. Hence, it is important to pay special attention to the care and handling of lambs and yearlings. Animals which are troubled with parasites usually do not have fever, but they are unthrifty and will lose rather than gain in weight. As a rule, also, there is some intestinal disturbance, shown by diarrhea or constipation. Unthriftiness may persist for long periods and may have a fatal termination. Prompt action to ascertain the cause when sheep become unthrifty will often prevent serious loss.

Parasites of sheep are divided into two general groups, external and internal. Among the former, lice, sheep ticks and scab mites are the most common. One application of sodium fluoride in the form of a powder rubbed into the skin will kill biting lice, but not sucking lice. Both kinds of lice, sheep ticks and scab mites, are destroyed by dipping the sheep. For lice and sheep ticks a number of dips are recommended in the bulletin, including coal tar creosote, cresol and nicotin, or nicotin and sulphur. For scab mites the official dips are lime-sulphur and nicotin-sulphur. Arsenical dips are not well suited to sheep dipping. All places which have been occupied by lousy sheep should be regarded as dangerous from this standpoint for a period of three weeks; if occupied by ticky sheep, as dangerous for two months; if occupied by scabby sheep, as dangerous for a month or two in the case of pastures, and a year or more in the case of buildings. Quarantine measures are essential in eradicating scab.

The most common internal parasites of sheep include tapeworms, flukes, roundworms, and a few other forms such as the maggots causing grub in the head, the tongue worm and the one celled protozoa. One of the most common of these is the grub, infestation with which can be largely prevented by smearing the nose of the sheep with a preparation made of equal parts of tar and grease or tar and fish oil. Other important internal parasites discussed in the bulletin are tapeworms, the gid parasite, hydatid, liver flukes, stomach worms, nodular worms, hookworms and lungworms. Of these, certain tapeworms are fairly common over the entire United States; one tapeworm occurs only in the West; gid is most prevalent in Montana; liver flukes are most common in the Gulf states and the Pacific Coast states; stomach worms and lungworms take a heavy toll in sheep in almost every state in the Union; and nodular worms and hookworms are common in the South and East.

Copies of the bulletin can be obobtain free by writing to the United States Department of Agriculture, Washington, D. C.

Shorthorn Prize Appropriation

The board of directors of the American Shorthorn Breeders Association voted at its January meeting to continue the appropriations for Shorthorn prizes for 1921 practically the same as in 1920. In a number of instances the appropriations have been materially increased. In others, where the fairs have not taken advantage of the association's cooperative attitude, there have been reductions or eliminations.

The scope of these prizes includes state and district association sales and shows, county fairs, champion bull prizes being offered in the county fairs as heretofore, calf clubs, United States bred Shorthorns winning championships at six of the more important Canadian fairs and shows, district, state, interstate fairs, national and international shows.

A very important ruling was passed relating to show entries, as follows: "Where it is found that any animal entered in competition for association money has been operated upon or altered in any way for the purpose of hiding natural defects of form, the exhibitor shall be denied the further privilege of competing for premiums offered by this association."

A comprehensive breeding and health guarantee was approved and is recommended to Shorthorn breeders in general, as follows:

Proper care shall be given to protect breeding qualities and health of animals.

All bulls guaranteed breeders. A bull should not be allowed to serve when under 14 months of age or allowed to run with herd while under 20 months.

Cows with under four months calves by side are considered proven breeders.

All other cows and heifers sold as a single lot guaranteed breeders; calves, however, sold by side of dam as one lot not guaranteed.

Heifers should not be served for first calf by heavy or old bull.

Cows and heifers over three months gone in calf, according to service date furnished at time of sale, but not proving in calf, must be reported to seller within three months from date of sale; all others served within three months of date of sale not proving in calf or not settled, must be reported within six months.

Heifers not settled when 22 months old shall be promptly reported. (Heifers over 16 months sold open, not settling within six months of date of sale, should be promptly reported.)

Any animal not proving up to foregoing guarantee shall be replaced with another of equal value at the time of purchase to the satisfaction of purchaser, or purchase price refunded, with no allowance for expenses or interest on money. Salvage to go to seller.

All animals offered at public auction sold subject to a 60 day retest, or to comply with laws of state into which animals may be shipped.

Animals to be segregated from buyer's herd until retest is made, except herd be an accredited one.

All tests for tuberculosis—either test before sale or retest—should be made by a federal or state veterinarian or veterinarian deputized by state veterinarian, who is cooperating with federal veterinarian and qualified to do accredited herd testing.

Articles of incorporation for the Santa Cruz County farm bureau exchange have been certified. A membership fee of $30 is required and the transactions will be entirely upon a cash basis.

The Western Berkshire Congress and Sale

The Classic Event of the Year
Will Be Held at the University Farm
Davis, Cal.
Thursday, Feb. 24th
(Stockmens' Week)

30 **Strictly Big Type Bred Sows and Gilts from the Leading Herds of the Pacific Coast Will be Offered at Your Own Price - - -** **30**

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OF THE

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Friday, Feb. 25, 1921
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During Stockmen's Week

A consignment of 25 bred sows and gilts from the best breeding herds in the state. Carefully selected by a committee of breeders interested in the future of the breed. An opportunity for any farmer or breeder to increase the value and efficiency of his herd and at the same time increase his profits.

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The long, deep, big-boned kind that matures rapidly and makes pork quickly. We can supply breeding stock of either sex and have some very special bargains for new breeders and farmers.

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MY PARTNER

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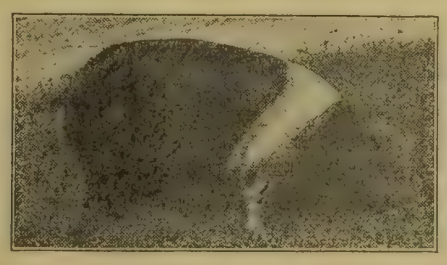
Blue Ribbon Hampshires



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at head of our great herd of brood sows

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18 High Class Brood Sows in herd—young stock for sale

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Three Top Boars

Fannie's Orion King assisted by Uneeda Orion B, 2nd prize aged boar at State Fair, 1920, and grand champion at Glenn County Fair, 1919, and Valley View's Sensation, 3rd prize junior boar pig and litter mate to 1st prize and reserve champion at State Fair, 1920, and a wonderful string of prize winning sows and gilts, including Miss Sensation, 1st sow pig and reserve champion at State Fair

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Don't Be Too Late Booking 200 Egg strain chick! Customers say: "Pullets raised from your chicks averaged 209 eggs last year"; "114 hens cleared $612 in 12 months"; "Never saw chicks grow faster"; "My 30 pullets laid at 4½ months, cleared $20 January"; "Get more winter eggs from 60 your hens than from 200 formerly." 140,000 electrically hatched. 180-290 egg White, Brown, Buff Leghorns; Andalusians; Reds; Anconas; Barred, White Rocks; Black, White Minorcas (ducklings, turks) often clear customers $5. Over half booked, reasonable. Hundreds satisfied. Customers repeat orders often. Write (rarely home) Profitable Poultry, 19 North Fair Oaks, Pasadena.

Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

Successful Chick raising accomplished, using Petaluma Electric Incubators and Brooders. Electricity is life. Modern poultrymen are rapidly adopting our methods with splendid results. Safe, efficient, economical, better chicks. Hatch for yourself, or get chicks from hatcheries using our machines or we will furnish chicks ourselves. Ask for free catalogue or any information desired. Petaluma Electric Incubator Co., Petaluma, California.

S. C. Light and Dark Brown Leghorns, winners at Los Angeles stock show and Riverside Fair 1920; first prize pen 15 eggs $10,00; second prize in pen 15 eggs $7.50; selected matings 15 eggs $3.50; 50 eggs $7.50. Pen 6 (Tormohlen strain) 15 eggs $5. S. C. R. I. Red, choice dark red heavy laying strain, 15 eggs $3.00; 50, $7. Baby chicks, All birds Hoganized. Order early. Phone 351-283. Eva Conklin, 1445 Portola Ave., Los Angeles, California.

Buy Early Chicks—Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, California.

Go to Town While the Chickens Pip—Go to bed without worrying about temperature. Charters' Regulator with the automatic "light that never fails" takes all grief off your mind. Needs filling and trimming only once a week. Send for catalog or send $12. Regulator on 30 day money back basis. Charters Mfg. Co., 334 Soquel Ave., Santa Cruz, California.

Sly's Old Mission Strain Rhode Island Reds. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. SLY, 1642 (D) Middleton Place, Los Angeles, California.

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Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made such a remarkable record in the state laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

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Get Chicks Now and have layers for next winter when eggs are high. Hatches every week. Prompt reliable service. Safe arrival of vigorous chicks from good layers guaranteed. Hatched by electricity. White and Brown Leghorn, R. I. Red, Barred Rock. Reasonable prices. Stubbe Poultry Ranch and Hatchery, Box 67-D, Palo Alto.

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An American bird for Americans. Splendid layers, fine broilers and fryers, beautiful in color, the ideal for the farm, city lot or show room. Blue ribbon winners 1920, in Oakland, Riverside and San Diego shows. Eggs for hatching. January baby chicks for sale. Hillview Poultry Ranch, Chatsworth, California.

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Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

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Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Baby Chicks from my Heavy Laying pure blood White Leghorns, Silver Campines, Brown Leghorns, Anconas. Oak Knoll Poultry Ranch, Santa Cruz, California.

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Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

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It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

For Sale—10,000 W. L. Baby Chicks every week from California's finest layers. Customers of 15 years ago still buy from us. Each year some report 200 egg average in large flocks from our pullets. Lay large eggs from start. $15.00 per hundred, $140.00 per thousand. We ship everywhere. Free circular. Laying hens and pullets. Four week old chicks 40 cents, later 35 cents. Day old Rocks and Reds $17.50, Pekin Duckling 30 cents, Turkeys 50 cents. P. Cook Chick Ranch, Alhambra, P. O. Los Angeles, Rt. 8, Box 45.

Booking Orders For Eggs from our wonderful utility and prize stock of Bronze turkeys, geese, Pekin ducks, Muscovy ducks, White King pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, guineas. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

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Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Baby Chicks—White Leghorns and large breeds. For prices and description address Sunny Stanislaus Hatchery, Riverbank, California.

Baby Chicks; thousands of them. S. C. White Leghorns, also other varieties and breeds. X-L Electric Hatchery, 351 Soquel Ave., Santa Cruz, California.

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

For Sale : Two S. C. Black Minorca cockerels April hatch, one rooster two years old. C. F. Schwab, San Fernando.

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For Sale Reg. Duroc Boars—1 by Imperial Type and Flower Queen farrowed Apr. 15, 1920. 1 by Imperial Type and Princess Pat, farrowed Apr. 27, 1920. 3 by Crescent Prince and Princess Lady, farrowed Apr. 12, 1920. Montana Land Company, So. Bellflower, Los Alamitos.

Bred Duroc Gilts — Orion Cherry King blood, bred to a good Defender boar. Weaned pigs for sale at reasonable prices. Mayflower Thoroughbred Stock Farm, East Bakersfield, California. John Kincaid, owner.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bred Sows and Gilts and young stock. Pathfinder and Great Wonder I Am breeding. Monthly payments if you wish. Derryfield Farm, Capital National Bank Building, Sacramento.

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Duroc Hogs and Guernsey Cattle—Pure bred stock for sale at all times. Hollow Hill Farm. B. W. Shaper, Manager, Colton.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

Feeders, Shoats, Gilts, Brood Sow—Pure breds. Seccombe, 8034 De Soto, Owensmouth.

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Grape Wild Farm—Berkshires, Guernseys, Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

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Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

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Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

For Sale—For cash or good paper 1 Imp. Belgian stallion foaled 1909. Also one registered Jack foaled in 1904. Both good and sure. For particulars address or see J. J. Adams, Dinuba, California.

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For Sale—6 Fine Poland China Pigs, 8 weeks old. By Tourist Master No. 390223; dam, Miss Prudence No. 837714. These are fine and will be sold cheap. A. H. Witman, 130 East Franklin Ave., Pomona, California. Phone 7229.

Pure Bred Polands shipped on approval. Contracts sent on request. Sires, Iowa Pilot, Smooth Clansman. We breed nothing but the best. California Swine Corporation, Escalon, California.

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Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

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This Ranch Is Priced To Sell—276 acres, on a fertile island in Contra Costa Co. 30 miles west of Stockton. All under irrigation except 30 acres; 3 siphons and flood gate. Free water; 160 acres raises celery and rich delta sediment soil. Balance would make a fine hog or dairy ranch in connection with the delta land. New 4 room house, large barns and out buildings. Also about 30 acres of alfalfa which needs resowing. The ranches adjoining are leased at $20 per acre. The price of this ranch is $130 per acre. $12,000 will handle same. E. F. Callaghan, 421 Yosemite Bldg., Stockton, California.

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For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192, Indio, California.

12½ Acre Dairy Ranch for sale; 10 head of cattle, 8 of them now fresh milking Particulars inquire Leo Pucci, R. F. D. 1, Box 29, Merced, California.

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Turkeys—"Goldbank"—"Copper King V" strain. Selected Giant Bronze toms. Sired by son of famous "Copper King V." First Prize Yearling, N. B. T. Club Show, Madison Square, N. Y., January, 1919. Bred to 20 lb. hens. Egg orders taken. Prices reasonable. Address: BRONZE KING MOUNTAIN FARM, P. O. Box 309, Calistoga, California.

For Sale—White Holland Toms, hardy nice fellows, $12 and $15 each. Hatching eggs in season $1 each. Pekin Duck Eggs $1 per setting. Book orders early. L. A. Robinson, Hemet, California.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, S. Reservoir, Pomona, California.

Pure Bred White Holland Turkey eggs at 75c, guaranteed. Pause Pheasantry, Fair Oaks, California.

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Caldwell's White Muscovy Ducks win, weigh, lay and pay. The largest duck of the duck family. The duck without the quack. Eggs, ducklings, breeders. Free circular. Caldwell Duck Ranch, Lock Box 274, Los Angeles.

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Mammoth White Pekin Duck Eggs for hatching. $1.00 per dozen. A. Surtman, Petaluma, California.

PHEASANTS

Beautiful Chinese Ringnecked Pheasants, a few pairs at $10. Eggs $5 per setting. Pause Pheasantry, Fair Oaks, California.

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For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

Cory Thornless Mammoth Blackberry—Strong plants direct from ranch where first discovered and propagated. Dozen $3.00 postpaid. Also Loganberry, Phenomenal Currant, Gooseberry, Raspberry and Giant Rhubarb. G. S. Wills, Jamestown, California.

Berry Plants—Strawberries, Gibson, Premier, Etterbury 80, and the Everbearers. Superb and Progressive. Also Ranera, the everbearing Red Raspberry, and Himalaya Blackberries. Write for prices. Chas. L. Beltz, R. 2, Santa Cruz, California.

Berry Plants — Strawberries, Loganberries, Currants, Gooseberries, Blackberries and Raspberries, for immediate delivery. All stock first class and strictly true to name. Write for prices. M. J. MONIZ, Berry Specialist, Sebastopol, California.

Biggest Money in Rhubarb—Double your income. Interest your orchard. See mine. I sell you plants and show you how to grow them. Fred W. Kelsey, Rosemead Avenue, 1½ miles west El Monte, California, Route 1, Box 491.

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Rhubarb Plants—Wagner's Giant 1 year, per dozen 50c; per hundred $4.00. Wagner's Giant, 2 year, per dozen $1.00; per hundred $8.00. Seed per pound $5.00. Currier Bulb Co., Santa Cruz, California.

R*O*S*E*S $1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue C. KAVAN NURSERIES, San Bernardino, California.

Brandywine Strawberry Plants from stock which produced $3,000 worth of berries from acre this season. Price reasonable. Lon King, 1158 West Fourth, Riverside, California.

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For Sale—Smooth Peruvian alfalfa seed direct to growers. Good quality 29c per lb. W. S. Sanders, 310 Fir Street, Los Angeles.

For Sale — Mountain grown Brandywine Strawberry plants, $1.50 per hundred, $10.00 per thousand. By mail postpaid. B. Bryan, Camp Baldy, California.

100,000 Grape Rootings $30.00 a 1,000. Figs, prunes, apples, pears, peach, apricots, almond, orange trees. Reduced price. Farm and garden seeds, 4 kinds of alfalfa. Box 501, Fowler, Cal.

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Pumpkin Seed — Mixed Pumpkin Seed, good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

Durango Cotton Seed for sale; small lots, 4c a lb.; 1000 lbs. or more, 3½c. F. O. B. Coachella, California; C. M. Devore.

For Sale—6000 rooted Mission vines. Special price. Apply to FRANK A. TETLEY & SON, Riverside, California.

Our Introductions—Wonderful New Hybrid Alfalfa. Write J. L. Lawson, Reliable Tree and Seedman, San Jose.

Chilean Alfalfa Seed—Cleaned by most modern method. 22 cents per pound. C. H. Biggin, Redlands, California.

For Sale—Rooted grape vines, California Concord or Pierce. Robert McIntosh, Box 936, R. D. 2, San Gabriel.

For Sale—Alfalfa Seed free from dodder and Johnson grass. 16c pound sack or more; less 18c. Charles Davis, Dos Palos.

5400 Lbs. Good Clean Common Variety Alfalfa Seed at market price. Chas. A. Haug, Star Route, Corona, California.

California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

CATTLE

Ayrshire Bull—Finlayston Sunset 24861—Age one year. Superior breeding with excellent Ayrshire dairy type. Write for price, pedigree, etc., or call. J. F. BUTTERFIELD CO., Breeders of Registered Ayrshires since 1869, 277 Brockton Ave., Riverside, California.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Shorthorns — Registered and grade bulls for sale from my herd bull, Orange Flash Frank E. Collier, Wildomar, Riverside County.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

For Sale—Jersey bull 6 months old out of imported bull Helen's Oxford Son. Price $75.00. J. R. Carhart, Fullerton, Calif.

Ayrshires: A few well marked and well put up bull calves from high producing stock. Wyndham Dairy, Redding, Calif.

GEESE

McNeely's Mammoth Geese $5.00 each, $15.00 for trio. Eggs in season 25c each. Peacocks $5.00 each. Chas. McNeely, Alpaugh, California.

PATENT ATTORNEYS

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TREES

Fruit Trees of Dependable Varieties and Quality—Peach Trees, both free and cling. Leading varieties. Apples—Arkansas Beauty, W. W. Pearmain and Banana, best for planting in Southern California. Crabapples, Transcendent, Hyslop, Red Siberian. Bartlett Pears on Japan Root. Grafted Walnuts, Grapes, etc. Stock first class, inspection invited. Plant now for best results. Los Nietos Valley Nursery, Downey, California.

For Sale—Fruit trees, all leading varieties, including Bartlett Pears, Royal Apricots, Tuscan Cling and Phillip Cling Peaches, Satsuma and Santa Rosa Plums, Eureka and Placentia Perfection Walnuts. Write for catalog and price list. Orange County Nursery Co., Anaheim, Calif. Salesyard: North Los Angeles Street.

For Sale: All kinds of citrus nursery stock, one and two year buds, fine roots. Y. Yamaguchi, Upland, 10th Street and Cucamonga Avenue. Phone Sunset 386-W.

10,000 Valencias; 2,000 Eureka lemons; 3,000 Texas Umbrellas; 3,000 Mission olives; 500 Wonderful Pomegranates; 100,000 sweet, 100,000 sour orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colorado 6352.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

We Still Have a Few Hundred choice grafted walnut trees for sale, Placentia Perfection and Eureka varieties. Prices right, also a few sacks of black walnuts for seed. THE WALNUT NURSERY, W. A. Litten, Prop., Whittier, California. Phone 6294.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

Cling Peaches, Apricots, Almonds — All varieties and sizes. Concord, Mayette, Franquette Walnuts, Cory Thornless Blackberry; large stock. State your wants and let us quote. Ekstein Nurseries, Modesto, California.

Walnut Trees—Closing out balance Placentia and Eureka grafted on black root; choice trees; reduced prices. Terms to responsible parties. Nurseries Ventura and Los Angeles Counties. R. E. PIERCE & A. G. SNOW, Oxnard, California.

Budded Avocado Trees. Leading varieties. Order early to secure best selection. Dr. Stonebrook's Avocado Nursery, 15 N. Raymond Ave., Pasadena. Phone Colorado 208.

For Sale—Walnut trees, fine stock, Eurekas grafted on black root. Prices, 8 to 10 feet in height $2.50 10 to 12 $2.75. La Puente Walnut Nursery, Puente, California. Phone 103.

For Sale — Peaches, Cherries and other fruit trees. Full line of shrubbery and roses, also flowering plants. Write City Nurseries, 109A Orange St., Redlands, California.

For Sale — 100,000 Florida Sour Orange Seed-bed Trees; 100,000 California sweet seedling orange seed-bed trees. SOUTHLAND NURSERIES, 1941 East Colorado Street, Pasadena, California.

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Fine Straight Rooted Florida Sour and Sweet SEED BED STOCK, 10 inches to 15 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

For Sale—Avocado seedlings, just ready to bud—about 800. Mrs. Beal, 317 South Olive Street. Phone 10089, Apt. 327, Los Angeles.

For Sale—Three thousand Phillips cling peaches; also a few Tuscans. Special prices to clean up. Burke's Nursery, Lodi, California.

For Sale: Avocado Seeds, also a few seedling plants six to twelve inches. L. B. Cadwell, Carpinteria, California.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

For Sale—About 230 one year old Avocado seedling nursery stock. H. Fordyce, Ojai, Ventura County, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Citrus Seed Bed Stock—Orange, Lemon, Grapefruit trees. L. A. Tuttle, R. 1, Box 385, Pasadena.

Walnut Grafting Wood for Sale—All the leading varieties. Dr. W. W. Fitzgerald, 625 N. Madison St., Stockton, California.

For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

Buy Your Trees, Grape Vines and Berry Plants of Bishop's Nursery, Highland. Send for circular.

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WANTED

Wanted — Do You Want an all-around Ranch Foreman or Manager? College education, practical experience—a young man who will "stick". Understands irrigation, leveling land, grain farming, and a crackerjack with all kinds of livestock. Unquestionable references given. Address Manager, 347 Gladys Avenue, Long Beach, California.

Agriculturist, a hustling young man, wants proposition, position or job in Fresno or Modesto district. Fruit or farming; fruit preferred. Experience, education, references. Write J. G. Forsyth, 5556 Echo Street, Los Angeles, California.

Wanted to Exchange—50 acres river bottom partially improved alfalfa land in dairy and fruit section, close to Fresno, at $10,600. $3,000 down, for small acreage or city property as second payment. R. W. Sharp, 601 N. 4th Street, Fresno, California.

Wanted To Hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

Position Wanted by agricultural college graduate, three years experience, chiefly Arizona and Florida. Speaks Spanish. References. A. B., Cultivator.

Wanted to Lease—A ranch from 40 to 160 acres. It must stand inspection. Cash or crop share. A. B. T., 347 Gladys Avenue, Long Beach, California.

Wanted—Agents to Sell Yuma Valley Fancy Alfalfa Seeds on commission basis. Give bank references. W. R. Whitman, Box 29, Yuma, Arizona.

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Rebuilt Windmills, irrigating pipe, tanks, pumps, cylinders, rods, fittings.
WHY PAY MORE
WE SELL FOR LESS.
New 1,000 gal. galv. tanks $47.25; 2,000, $67.25; 10,000 gal. redwood, $115; 25,000, $195. Many other bargains. 350 ft. 8 in. galv. irrigating pipe 35c. SPECIAL in complete pumping plant 15 h. p. Western engine, deep well double acting Ames pump with pipe, rods, cylinder for 90 ft. lift $950. This is only what pump alone would cost new. DEMMITT CO., Upstairs, 120 N. Main, Los Angeles.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale: 12-20 Yuba, 8-ft. Killefer automatic double disc, 8-ft. Killefer chisel, 4 gang power lift John Deere 12-inch plow, new tracks on tractor, engine just overhauled. Must have money. $1,750 takes the outfit. O. B. Lolmaugh, Phone Hemet 8847, Hemet, California.

Homespun Tobacco 2½ lbs. $1.00 prepaid. Five different grades, try this and select the grade that suits your taste best. Address Farmers Leaf Tobacco Ass'n, Dukedom, Tenn.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale—75 H. P. Victory Fuel Oil Engine, almost new. Changing to electricity; will sell engine cheap. W. W. Wakeham, Mendota (Fresno County).

For Sale—16 horse power Stover engine, or will trade for 25 horse power engine. G. H. Lillard, Norwalk.

MISCELLANEOUS

Distributors to appoint agents and sell Powerene at wholesale. Agents make $30 a day. Special terms to distributors. Equals gasoline at 5c. The equivalent of 20 gallons, express prepaid, $1.00. P. Barnes, H424, Santa Rosa, California.

Leaf Tobacco prepaid, 5 lb. packages medium smoking $1.80; weak $1.35, sample 10c. Aden Francis, Dept. Y, Dresden, Tennessee.

For Sale — Finest white orange blossom honey, 60 pound can, $10.00, f. o. b. Dinuba. Louis Sinn, Dinuba, California, R. F. D. 3/75.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

If You Want to sell or exchange your property write me. JOHN J. BLACK. 116th St., Chippewa Falls, Wisconsin.

White Mesquite Honey—Five gallon can, 60 pounds, f. o. b. Parker, Arizona, $6.50. G. E. Striplin.

GOPHER TRAP

"Go-For The Gopher." The Star Gopher trap is the best. Positive acting wire trap you can use. Interlocking jaws, very easy to set, right principle. Price 30 cents postpaid. Stamps accepted. Four for $1.00. Agents wanted. Star Manufacturing Co., 3802 Sunset Boulevard, Los Angeles.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 237-241 Court St., Los Angeles.

In order to dissolve the partnership existing between J. M. Crawford and H. E. Spires, the Victory Herd of registered Holsteins will be dispersed at public auction on their Hillcrest Farm, Carruthers, on Thursday, May 5. This is an offering of merit, the herd containing many highly bred females, including several granddaughters of Pontiac Korndyke, and headed by a son of the famous King Segis Pontiac Count as senior herd sire and by a 36 pound son of the Bridgford three times grand champion, King Segis Alcartra Prilly. The dam of this bull is also making right around 1,000 pounds butter this year. This sale will be managed by California Breeders Sales and Pedigree Company, with Col. Ben A. Rhoades on the block.

LOBBY—PAYING TAXES

(Continued from Page 238.)

like the word politics, is often misused, and we are all prone to use these words in their lower meanings. The lobby at Sacramento, there to give information to committees and to legislators, is entirely within its rights and perhaps working in the best interests of the state. We admit that at the time of writing those other words we had in mind the lobby as it existed a dozen or a score of years ago, when large corporate interests legislated for this state more truly than did those who were elected. At least such were the charges in those days.

The fear that such a lobby may return to Sacramento makes Californians stand at attention when thoroughly organized and powerful committees are not only informing legislators as to needs of their clients, but bringing great pressure to bear.

Now if the financial requirements of the state for the next biennium can be lessened and the King bill so changed as to lighten the burden on the corporations, it appeals to us that it would be a most wise step. We are told that California's tax bill is vastly higher than the average of other states. Let us lower it. In other words, instead of fitting our taxes to the budget, let us make our budget according to the amount of money which can be raised. But if the effort is to be made to raise part of the taxes on an ad valorem basis and put an unjust burden on the farmers, there is only one step they can take as a matter of self preservation, and that is entrance into a vigorous fight. They cannot say, as does the corporation, "Put the tax on us and we will simply pass it on to the consumer; we will not bear it ourselves." We wish they had not said that. It doesn't sound American.

CANNED FRUIT

What is the canner, and incidentally, or maybe primarily, what is the grower going to do with the vast quantity of last year's canned fruit still in storage? "Sell it to folks and let them eat it" is perhaps the quickest suggestion, and that is exactly what Mr. Canneryman and Mr. Grower are both anxious to do, but the world's appetite has of a sudden become very delicate. There are dozens of reasons for this condition, and we need not discuss them here, for none of them seem to lead to the answer to the question, "What are we going to do with the canned stuff?" We rather think in time we will be able to sell it and with it another large pack which should be put up this coming summer, but we may have time to think again before its accomplishment. Commenting on the seriousness of the situation, Vernon Campbell, vice-president and general manager of the California Cooperative Canneries, says:

"Today we have in the cannery warehouses of California some 6,000,000 cases of canned fruits, more than we packed in any one year before war demands brought about the great growth of the canning industry. And yet we only packed half a case of fine fruits for each family in the United States—one can a month for each family. This does not seem like overproduction, and yet less than half of our pack has been sold. Foreign markets will help absorb our increasing production, it is true, but we could sell every case of canned fruit that can be produced in this state for some years to come right here in this country, had we an efficient system of distribution which placed the fruit in the hands of the consumer at the right prices.

"The same conditions that affect the canned fruit market are affecting the marketing of our Santa Clara valley prunes and our other great crops which are now largely in the hands of the growers' organizations.

"The problem of marketing, the difficulties attendant upon the establishing of a more direct method of distribution, can best be solved through the power of cooperation, and this cooperation should be extended to include the various associations in one great powerful marketing organization for California."

The 1630

Allis-Chalmers

Farm Tractors

Here is a four plow tractor better adapted to California Farming and a bigger value. In construction, mechanical perfection and efficiency, it is a masterpiece, designed and built by the master-minds of the tractor industry in the $42,500,000 plant of Allis-Chalmers at Milwaukee.

In tractor buying you should demand just those features that make the Allis-Chalmers so superior—that makes it deliver full-rated power and do the work of 8 horses at one-third the cost. Not only the most economical in operation, but also in upkeep.

The reliability of the distributors is another factor, too. Get more information right away by sending in the coupon today.

H-V-Carter Motor Company

Distributors
52-58 Beale Street, San Francnsco

Send me without obligation more information about the best tractor for California soil conditions.

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Mail this coupon today or ask your dealer for more information

-quick, sure germination with Germain's proven strain

Complete information about this wonderful strain is given in our free 1921 Catalog. A card addressed to Dept. B will bring a copy of this valuable book by return mail.

Buy Germain's PROVEN Hairy Peruvian Alfalfa Seed from your dealer. Every sack is sealed and stenciled.

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Seed & Plant Co.
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From ground planted secured by use of The KEYSTONE POTATO PLANTER than by any other method of planting. Work perfectly accurate. A simple, strong, durable machine. Write for CATALOG, price, etc.

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When Writing Advertisers Mention California Cultivator.

Poultry Queries

Conducted by J. A. Koethen

Liver Trouble

Will you please tell me what is causing liver trouble among my hens? Several have died, and on examining them I have found the liver covered with white spots. Sometimes the hens are very thin. I have about 50 Anconas and am feeding barley morning and night and a laying mash at noon. They have milk (sometimes sour) before them all the time and a green field to run in. Is their ration too rich? The hens do not seem as lively as they should. Do you think they need a tonic in their mash or should their feed be cut down? Their sleeping quarters are dry and in a closed house. — Subscriber, Watsonville.

The crux of the matter is those white spots on the liver. What is their character? If they are nodules of a cheesy appearance and occur not only in the liver but in the spleen and intestines, they indicate that your hens have not liver trouble, but tuberculosis. If the liver is enlarged and "marbled or spotted" or very soft, then we may assume that the hens have liver trouble. The fact that some of the hens are very thin points to tuberculosis. It makes little difference what the trouble is, save that liver trouble is curable and tuberculosis is not. Your ration does need some alteration in any case, and when you have made that and given your hens the cleanest and most sanitary environment possible you have done all that can be done except to burn and bury deep the carcasses of those that die. First get them out of that closed house. If you cannot move the hens rip a side off the house and let the air in. Bad air is the most fertile cause of tuberculosis in man or beast. Second, I notice you are feeding no grain but barley. That is hard on livers. Better feed wheat, even if it does cost more, or use this mixture which is recomended by the poultry division of the state university: 100 pounds whole or rolled barley; 50 pounds Gyp corn or milo maize; 50 pounds cracked Indian corn. If you feed wheat you might make the formula 100 pounds wheat and 50 pounds each of Gyp or milo and Indian corn. In the third place, you do not need a mash containing beef scrap if your hens have milk before them all the time. It would be a good plan, just for a change, to give, instead of the mash, a hopper of bran or mill run with five per cent ground bone added. This is a maintenance mash, and while it will not make so many eggs it will help the hens to recover from the effects of a too forcing ration. When they seem more lively you might make the mash equal parts bran, shorts and corn meal, with now and then a little beef scrap added. Keep this before them and let the commercial mash go for a while. Bran, you know, is laxative, and will help to clear out their systems if their livers are overworked. A handful of charcoal in the mash will also be beneficial. You do not say how much grain you are feeding. With the mash before them all day, a quart of grain at night for 12 hens is ample, and if you have been feeding more it would be well to give less for a time. The mash you have been using is rather forcing, I think, and when you begin to use it again add an equal amount of bran. No tonic is needed. Just give nature a chance.

Ancona History

Can you not give us an article on the origin and history of the Ancona? —Subscriber.

The family history of the Ancona is very short and soon told. It is a Mediterranean breed and, according to Harrison Weir, is simply the common fowl of Ancona, Italy. The breed was first exhibited in England in 1853 and was described as having at that time "black and white patchy plumage." The beautiful greenish sheen which is so noticeable a characteristic now is credited to crossing with Dark Cornish. It is only within the last ten years that the Ancona has become well known in this country.

Feeding Hens

How much feed should be given a dozen laying hens a day, and what kind is best to make them lay?—Subscriber, Garden Grove.

I cannot do better than quote from the latest feed letter of the poultry division: "Approximately one pint of grain should be fed to 15 fowls of the lighter breeds, such as Leghorns, in the morning, and 1½ pints to 15 hens at night." "This makes a little over a quart for 15 hens, or a quart for a dozen. The ration recommended in this letter is as follows: Grain mixture: 100 pounds whole or rolled barley; 50 pounds Egyptian corn or milo maize; 50 pounds cracked Indian corn. The mash mixture, which may be fed ether moist or dry, but is usually fed dry in hoppers and kept before the hens constantly, consists of 50 pounds each of wheat bran, shorts and ground barley; 10 pounds soy bean or linseed meal; 10 pounds cocoanut, soy bean, linseed or cottonseed meal or ground beans; 30 pounds meatscrap or fishscrap; 5 pounds fine granulated charcoal; 1 pound finely sifted dairy salt." To this grain and mash must be added all the green feed the birds will consume and a constant supply of fresh water.

Feeding Turkeys

How much feed should be given turkey hens per dozen birds and how much to young turkeys six months old that are to be fattened for Easter?—Mrs. D., Garden Grove.

Frankly, I do not know. I have never seen any figures for turkey rations. The adult turkey is a very hardy bird and can usually be trusted not to eat more than it needs. Breeding hens should have a good feeding of wheat and oats—hulled oats are best—at night, and should be on range during the day. If they are confined they should have a great deal of green feed. For best results an occasional meal of beef scrap mixed with bran or of cooked meat such as beef liver or lungs should be given. Grit, shell and charcoal should be before them at all times. Confined birds should have green feed in some form before them constantly—grain sown in the pens is best. Young stock is fattened mostly on corn and barley. Gradually accustom them to the corn by feeding lightly at first. You might begin with cracked corn and then mix in a little whole and a little more day by day till whole corn has entirely taken the place of the creacked. At first the birds should be kept a little hungry, the grain being given only night and morning, but the last week or so before they go to market they may be fed all they will eat three times a day. One turkey raiser I have met kept the grain before his birds all the time the last two or three weeks. In feeding turkeys it is necessary to watch them closely and be guided in feeding by their appearance and behavior. As long as they act hungry they are not getting too much.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, January 31, 1921. Report for week ending January 30.

In the thirteenth week of the laying contest at Storrs a pen of White Leghorns entered by Ernest H. Scott of Farmington, Connecticut, tied for first place with another pen of the same breed owned by James O. Le Fevre of New Platz, New York. Each pen laid 44 eggs. Leghorns are expected to lay more eggs in the summer months, but it is very unusual at this season of the year to find that out of the six best pens for the last week in January five of them are White Leghorns.

Rhode Island Red No. 354, bred by Chas. H. Lane of Southboro, Massachusetts, has just made a splendid record for consecutive laying. Beginning November 30 last this pullet laid for 53 days without missing. This does not establish a new record at Storrs if the whole year is considered, but heretofore high consecutive layers have made their records in the spring and summer months, whereas the pullet in question has laid consecutively in midwinter during the season of very high prices. In less than two months this one hen had laid $4 worth of eggs. A flock of pullets like this would be profitable beyond the im-

"Red Top" Steel Fence Posts

will be exhibited at the Eleventh National Orange Show, San Bernardino

Booth 3
Section B

The exhibit will be in charge of Mr. A. A. Farnsworth, field operator, who will explain in detail the merits of

"RED TOP" Steel Fence Posts

and the advantages to be gained by their use.

Harry L. Baylies
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Los Angeles, Cal.

GERMOZONE

"the Best Remedy for Poultry and Pet Stock"

The old reliable, proven remedy for Roup, Colds, Canker, Swelled Head, Bowel Trouble, Snuffles, Wounds, Sores, Loss of Fur or Feathers, Skin Disease, Etc.

H. A. Kiewert, 5042 N. Long Ave., Chicago, Ill., says: "I had some of the worst kind of cases of roup in my chickens and I thought I would not save any but I have saved these birds, thanks to Germozone." H. A. Haines, Rosalia, Kas.: "If we had tried Germozone at first it would have saved us $1,000 worth of expensive experiments." Mrs. T. A. Morley, Galien, Mich.: "Have used Germozone 17 years and could not get along without it." E. W. Thiel, Waukesha, Wis.: "I have used your Germozone for white diarrhoea in baby chicks and sure got wonderful results. I also use it right along on grown fowls."

Germozone is sold by most drug, seed and poultry supply dealers, or mailed postpaid in 25c, 75c and $1.50 packages, from Omaha. Poultry Book and Book on Diseases FREE.

GEO. H. LEE CO., Dept. F-30 OMAHA, NEB.

NO MORE SPRAYING!
NO MORE MITES!
NO MORE LICE!

WEGNER MEDICATED POULTRY ROOSTS

Sold under a guarantee of satisfaction or money refunded. Write for particulars.

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KEEP BEES

Let them gather honey for your table and make your fruit more fruitful. Free booklet and price list of bee-keepers' supplies for the asking.

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Everything for the Beekeeper.

30 DAYS FREE TRIAL

One Man Pulls Biggest Stumps

Learn cheapest way to pull stumps and all about HERCULES One-Man Stump Puller. Alone, unaided, you can pull big, tough, tap-rooted stumps. So superior to others that we will send it to you on a 80-day free trial to let it prove its own merits by test. Write for great special offer. No money down

Write Today Send name and address and we will mail free the greatest land clearing book ever published. Send postcard for this free book and special offer today.

Hercules Mfg. Co.
3022 29th Street
Centerville, Iowa

Hercules
Horse Power
Hand Stump Puller

agination of the most enthusiastic poultryman. The total yield for all pens amounted to 2,287 eggs, or a yield of nearly 33 per cent. While this is an increase of nearly 300 eggs over the score for the previous week, it is still a little less than the six year average and nearly 200 eggs below the record for the corresponding week for last year.

The four leading pens in each of the principal varieties are as follows:

Plymouth Rocks

W. H. B. Kent (Barred), 429 eggs; Rock Rose Farm (Barred), 302; Ernest W. Picker (Barred), 290; Oregon Agricultural College, 248.

Rhode Island Reds

Charles H. Lane, 432; F. S. Chapin, 394; H. S. Bickford, 381; Deer Brook Poultry Farm, 378.

White Leghorns

A. P. Robinson, 399; James O. Le Fevre, 386; Lion Head Poultry Farm, 363; Max Axelrod, 352.

Other Varieties

Obed G. Knight (White Wyandotte)-488; H. P. Cloyes (Buff Wyandotte), 305; Harry D. Emmons (White Wyandottes), 204; Clemens J. Diemand (White Wyandotte), 200.

DESICCATED SKIMMILK FOR POULTRY

A Humboldt County dairyman has perfected a method of evaporating skimmilk and buttermilk, making an article especially adapted to poultry needs.

The finished product is in a dry, finely granulated form, according to the inventor, contains all the milk nutrients except butterfat. Unlike most other milk poultry foods its content of lactic acid is very low. This is possible because of the sweet cream butter made in Humboldt. Having a low percentage of lactic acid the food is not fed for its tonic value only but is a well balanced ration in itself, containing a large amount of protein, and can be fed continually as a laying ration, it is claimed.

NATIONAL EGG LAYING CONTEST

Mountain Grove, Missouri, report for January.

The number of eggs laid by the different breeds for the month and to date are: Wyandottes, 809, 2,208; Plymouth Rocks, 785, 1,682; Leghorns, 760, 2,116; Rhode Island Reds, 760, 1,773; Anconas, 688, 2,017; miscellaneous varieties, 659, 1,744.

The ten leading pens for January are: White Wyandottes, Missouri, 115 eggs; Columbian Rocks, New Jersey, 113; Barred Rocks, New York, 110; S. C. White Leghorns, Missouri, 109; S. C. Reds, Missouri, 103; S. C. Reds, Missouri, 103; S. C. Reds, Missouri, 101; R. I. Whites, Illinois, 99; White Wyandottes, Missouri, 97; S. C. White Leghorns, Washington, 95; Barred Rocks, Illinois, 95.

The ten leading pens to date are: S. C. White Leghorns, Washington, 329 eggs; S. C. White Leghorns, Missouri, 309; White Wyandottes, Missouri, 300; S. C. Reds, Missouri, 281; S. C. White Leghorns, England, 279; Columbian Rocks, Missouri, 274; Buff Orpingtons, Missouri, 273; White Wyandottes, Illinois, 270; White Wyandottes, Missouri, 267; S. C. White Leghorns, New York, 250.

THE FARMER'S SECRET

A farmer met another farmer driving in a narrow country lane in the deep snow of winter.

The track was only broken in the center of the road, so that turning out was difficult.

When the two met, the first farmer blustered:

"If you don't turn out for me I'll do to you what I did to the last man I met who wouldn't turn out for me!"

Much alarmed, the second farmer pulled out into the deep snow to let his belligerent neighbor pass.

When he was back on the road again he turned and said to the farmer:

"Tell me, neighbor, what did you do to the man who wouldn't turn out for you?"

"I turned out for him," replied the hot headed farmer.—Answers, London.

Healthy Hens *and* Fertile Farms

Dust AGRI Gypsum in the chicken yard, on the floor of the chicken house, and on the roosts, and you will not only protect and improve the health of the poultry but get a fertilizer that is worth many dollars.

When exposed to the air, chicken manure gives off ammonia, thereby dissipating its most valuable fertilizing element, nitrogen. These chemical fumes are, at the same time, very harmful to poultry. This also is responsible for the offensive odor. So by using AGRI Gypsum which absorbs and retains the ammonia you gain three ways, in healthy hens, an odorless chicken yard and a valuable and potent fertilizer.

AGRI Gypsum is an all-around fertilizer, a corrective for black alkali, a loosener of adobe, and a stimulant for all soils. Be sure you get AGRI.

UNITED STATES GYPSUM CO.
"World's Largest Producers of Gypsum Products"
Citizens National Bank Bldg. Los Angeles

Agri GYPSUM USG

Immediate delivery can be had on

Pioneer Incubators

in 540, 270, 135, 110 and 72 egg sizes, either electric, gas or coal oil machines; these are absolutely the best incubators made and when better ones are manufactured we will handle them.
Also fireless brooders in 100, 50 and 25 chick sizes. Pioneer hot water brooders in 200 and 100 chick sizes. Kresky brooder stoves. 500 to 1,500 chick sizes. "Chick-Elec" Electric hovers. 150 to 600 chick sizes. Reliable Blue Flame Hovers, 100 to 500 chick sizes. Cycle Hatchers, the best 50-egg incubator on the market. Poultry supplies, remedies, feeds, etc., always on hand.

We can supply baby chicks in any quantity and can handle single orders in 5,000 lots of R. I. Reds, Barred Rocks, White Leghorns, Brown Leghorns and Anconas, and we will have a limited supply of Black Minorcas, White Minorcas, White Rocks, White Wyandottes, Indian Runner Ducklings and Mammoth Bronze Turkeys.

All our chicks are hatched from selected eggs supplied from thoroughbred flocks owned by experienced breeders who have been connected with us since we first started in business fifteen years ago. Send to Department A for price lists and catalogs and place your order soon to avoid disappointment on delivery. Finest incubator, brooder and baby chicks display in the city. Visitors welcome at all times.

PIONEER HATCHERY

320 South Spring Street Los Angeles, California
"World's Largest Baby Chick Hatchers"

PERFORATED TREE PROTECTOR

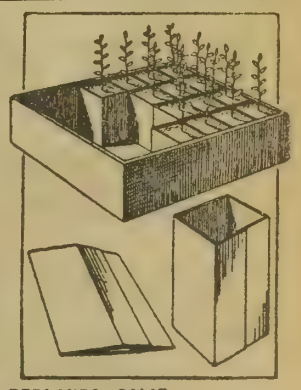
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

COLLAPSIBLE PLANTING POTS

Why not raise your early

Tomatoes, cabbage, chili, and egg plant for home use or for market. Do you know that you can start Cucumbers, Cantaloupes, Melons of all kinds in these pots in flats until they have three and four leaves, then plant pot and all, have melons two or three weeks earlier for market. Just the thing for Propagating Eucalyptus and Olive cuttings.

Write for samples and prices of both Pots and Protectors. State which you are interested in.



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Big Money Boring Wells

Have water on your own farm. In spare time make wells for your neighbors. It means $1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

Outfits for Getting Water Anywhere

Earth augers, rock drills and combined machines. Engine or horse power. *Write for easy terms and free catalog.*

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New and second hand pipe and casings. Riveted steel pipe, valves and fittings. Mail orders given prompt attention. Write, phone or call.

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Write me Today!

YOU can have the handiest, most reliable belt power outfit that is built if you own a Ford or Dodge. BELT POWER TRANSMITTER is all that you need. Catalog free. Frank R. Weisgerber, Salina, Kansas.

Los Angeles Markets

Los Angeles, February 16, 1921.

BUTTER

Butter: creamery extras, Produce Exchange price 65 cents.

Feb.	9	10	11	12	14	15
'21 ...	45	47	47	..	..	54

CHEESE

Brokers' prices:
California flats, 25@27.

EGGS

Fresh extras (case included): Produce Exchange closing price 34 per dozen. Case count Produce Exchange closing price 33 per dozen; pullets, produce Exchange closing price 32 per dozen.

Dairy Exchange price last week on ex-

Feb.	9	10	11	12	14	15
'21 ...	32	34	38	..	..	34

Manager Stanley of the Poultry Producers of Southern California reports that:

Conditions over East generally weak. Chicago prices around 30@31, New York were 47@50 on Tuesday, while a Wednesday morning wire indicates 1 cent lower.

POULTRY

Price to producers: Hens, lt., 33; heavy 35; colored, 34; broilers, 55; roasters 40; old roosters, 20; fryers, 55; ducks, old 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 5;; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 14@19; old, 9.

LIVESTOCK

Los Angeles, Feb. 15.—Weighed and delivered off cars without food or water:

Hogs, (hard grain), 125 to 175 lbs., 11.50; 175 to 225 lbs., 12.00.

Cattle (on foot, gross weight): Steers, good, 9.50@10.00; medium, 9.00@9.50. Cows, good, 8.00; medium, 7.00@7.50. Calves, 1.25 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 6.00; lambs, 12.00@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, February 15 by to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies heavy, market dull. Stocktons: Burbanks, quality poor, mostly 1.75@2.00; best, 2.25@2.50. Idahos: Russets mostly 1.25@2.00. Local: White Rose mostly 80@90 per lug; 2.25@2.50 per 100 lb. sack. Sweet potatoes: Supplies light, market strong. Best mostly 1.85 @2.10.

Onions: Supplies heavy, market dull. Stockton: White, cold storage, 2.50@3.00; Brown, mostly 1.00@1.15 cwt. sacked.

Garlic: Local best mostly 12@15 lb.; poorer 8@10.

VEGETABLES

These are the actual prices obtained February 15, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 1.50@2.00.
Beets: Doz., 40@50; sk., 1.75@2.00.
Cabbage: Field cr. best mostly 75@1.00.
Carrots: Doz., 30@35; sk., 1.00@1.25.
Cauliflower: Supply light, field cr., best, 3.00@3.25.
Celery: Cr., best 2.25@2.75.
Cucumber: Hothouse, best, 2.00@2.50.
Peppers: Bells, 18@22; Chilis, 23@25.
Lettuce: Local field cr. mostly 40@75; few 1.00.
Peppers: Bells, 15@18; Chilis, 25@27.
Radishes: 12½@15 doz.
Rhubarb: Crimson Winter, best bx., 1.40@1.60.
Spinach: Doz., 30@35.
Squash: Local Hubbard and Banana, lb., 1½@2; Italian, per flat, 2.00@2.50.
Tomatoes: Mexican, per lug, original 3.75, repacked lug 4.25, repacked crates, 3.00. Local, best 2.00@2.50.
Turnips: Per dozen, 30@35; sk., 90@1.10.

DECIDUOUS FRUITS

These are the actual prices obtained February 15, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms Cash on walk.

Apples: Supplies liberal, movement good, market firm. California: Bushel boxes Bellfleurs, fancy 4 tier best 2.25 2.50; ordinary, 2.00@2.10; 4½ tier, 1.85 @2.00; Jonathans fancy 3.00@3.50. Delicious fancy 3.00@3.75. Rome Beauty, fy., 2.75@3.25. Idahos and Utahs: Loose Jonathans. Romes and Arkansas Blacks, best mostly 6@7 per lb. Oregons and Washingtons: Bushel boxes, extra fancy Jonathans and Spitzenburg mostly 3.00 @3.40.

Pears: Various varieties, 6@10.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 1.75@2.25; special packed brands, 2.25@2.75; Imperial bx., 4.00@4.25.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.25 @2.00, few high as 2.75; loose, bx. 75@ 1.00 lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack large size 2.50@ 3.00; small low as 1.75; special brands mostly 3.00@3.75 according to size and quality, packing house culls, 25@85 box; few large size 1.00. Tangerines, best, 6@8 lb. small, 5.

HONEY

Supplies heavy. Demand slightly improved. Movement slow, market weak, prices lower. Prices and quotations f. o. b. usual terms: White orange blossom, 14@15, some high as 18; White Sage, 12@ 14; White Alfalfa, 12, Light Amber, 7@ 11, Light Amber Sage, 11@12; White Hawaiian 8, Light Amber Hawaiian 6. Beeswax: in l.c.l. sacked 33@35. Shippers expect lower prices, especially on dark honey which is said to compete with sugar. A large crop expected here account of recent rains.

WALNUTS

California Walnut Growers Asociation's prices: Soft Shell, No. 1, 22½; Soft Shell, No. 2, 16½; Budded, fancy, 26½; Budded, standard, 22½.

GRAIN AND FEEDS

Grain Exch. price bid February 15:
Milo: Carlots, 1.96¼; No. 2, Eastern blk., 1.75.
Kafir: Eastern, No. 2, 1.57½.
Corn: Bulk, No. 3 Yellow, 1.60; sacked No. 2 Yellow, 1.80.
Bran: Kansas, 32.25.
Wheat: Mixed feed 33.50@34.50.

HAY

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@24.00
Barley	18.00@22.00
Alfalfa	18.00@26.00
Barley straw	8.00@12.00

San Francisco Markets

San Francisco, February 15, 1911.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 51½

Dairy Exchange prices extras this week and year ago:

Feb.	8	9	10	11	12	14
'21 ...	41½	45	45½	48	..	51½
'20 ...	..	63½	..	63½	..	64

Rcts. wk. ending Feb. 14, 3,189 centals. 192 cases salted eggs received from China, February 9.

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Ore. Y. A.	33
Ore. Trip	33½
Cal. Y. A.	33½
Cal. Flats	26

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	38½
Extra Pullets	33
Undersized	30½

Dairy Exchange prices, extras this week and year ago:

Feb.	8	9	10	11	12	14
'20 ...	..	48½	..	47	..	49
'21 ...	31	31½	32	36½	..	38½

Rcts. wk. ending Feb. 14, 487,458 dozen.

POULTRY

Wholesale prices are:

Hens: Colored, 34@37; White Leghorn, 34@37; strictly young roosters, 37@40; old roosters, 22@25; fryers, 50@55; broilers, 65@68.

Ducks: 30@35.

Squabs: 75@85 per lb.

Turkeys: Dressed, fancy, 50@55; poor quality 42@45 per lb.; live, 43@45.

Geese: 32@35 per lb.

Pigeons: Old, 2.50@3.00 dozen.

Belgian Hares: Live, 26@28 per lb.

Jackrabbits: 2.50@3.00 per doz.

LIVESTOCK

Western Meat Co. prices:

Cattle: Steers, No. 1, 8½@9; do, second quality, 7½@8; do, thin, 4½@6.

Cows and Heifers: No. 1, 6½@7; do, second quality, 5@6; do, thin, 3@4.

Calves: Light weight, 9@10; medium, 8½@9½; heavy, 7½@8½.

Lambs: Milk, 10@11; yearlings, 8@8½.

Sheep: Wethers, 7@8; ewes, 4@6.

Hogs: Hard, fat, grain-fed, weighing 100 to 225 pounds 11; 225 to 300 pounds, 10½; 300 to 400 pounds, 9½.

California Farm Bureau Marketing Association reports:

No.	Hogs	Ave. Wt.	Dock	Price
Tulare, February 8				
88		195	20	$11.00
37		152	20	10.50
48		237	50	10.50
20		198	...	10.25
17		254	...	9.25
20		344	330	7.75

Three cars, 31 consignors, $5,042.22.

Visalia, February 9			
89	180	...	11.20
16	179	20	11.05
49	216	...	10.75
79	201	...	10.70
1	240	...	10.25
18	253	...	10.25
1	350	...	9.00
4	325	40	8.00

Three cars, 22 consignors, $6,618.42.

Hanford, February 10			
91	191	...	11.00
82	198	...	10.80
68	219	...	10.50
42	215	...	10.20
83	166	40	10.20
10	323	...	8.70
12	215	130	8.00
12	341	160	7.00

Five cars, 34 consignors, $8,629.36.

Total for the week 11 cars, 87 consignors, $20,290.00.

HIDES AND PELTS

Hides: No. 1 heavy, 60 lbs. up, 5; No. 1 medium, 45 to 60 lbs. 5; No. 1 light, 30 to 45 lbs., 6; No. 1 native bulls, 4; No. 1 center branded in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 7; No. 2 wet salt kip, 15 to 30 lbs., 6; No. 1 wet salt calf, trimmed, 8; No. 2 calf, 2 per lb. less. The price of No. 2 hides will be 1 less than the price of No. 1. Hides having any defects will be classed as No. 2.

Dry hides, 16 lbs. and up, No. 1, 11; dry kip, 7 to 15 lbs., No. 1, 12; dry calf, under 7 lbs. No. 1, 14; dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, ½ price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Wet Salted Horse Hides: No. 1, large, skinned to hoof, 2.50; No. 1, medium, skinned to hoof, 1.50@2.00; No. 1, small, skinned to hoof, 50@1.00; No. 1, colt, skinned to hoof, 25@50.

Dry Horse Hides: No. 1, large, skinned to hoof, $1.50; No. 1, medium, skinned to hoof, 1.00; No. 1, small, skinned to hoof, 50@75; No. 1, colt, skinned to hoof, 25@50. All cut, scarred or badly cured hides are culls and worth proportionately less.

Goat Skins: No. 1 large, not matted, Angora, 30 up; No. 1, medium, not matted, 15@20; No. 2, 5@10. Damaged skins and very small kids, worthless.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearings, good, 1 to 3 months' growth, 10@20; shearings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20; milk lambs, 5@10.

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, $1.75@ 2.25 for No. 1; do, Oregon Burbanks, $1.50 @2.25; Salinas, $3@3.25; Idaho Gems, $1.75 @2.25; sweet potatoes, $5.25@5.50 per 100 lbs.; new potatoes, $5.35@5.75 per 100 lbs.; Arkansas, 6@6½c per lb.

Onions: Australian brown, 75@1.00 per cental.

Garlic: New, 7@10 lb.

VEGETABLES

Wholesale selling price:

Artichokes: Doz., 60.
Beans: 15@17½.
Beets: $1.50@2.00 sk.
Brussel Sprouts: 5@7 lb.
Carrots: $1.00 sk.
Cauliflower: Doz., 90@1.00.
Cucumbers: Hothouse, small, $4.50 box of 2½ dozen; large, $2.50@2.75 per dozen; English, $2@2.50 per dozen.
Cabbage: Lb., 1.
Celery: Cr., 1.50@2.50; fy. cr., 2.75@3.00.
Egg Plant: Southern, 5@15 per lb.; Florida, 20@25 per lb.
Lettuce: L. A. cr., 1.75@2.25; Imp., 2.75@3.00; Sacramento, 1.75@2.00.
Onions: Green, per lug, 1.00@1.50.
Peas: Lb., Fresno, 16@18; Imp. Valley, 20.
Parsnips: Sk., 1.75@2.00.
Peppers: Bells, Southern, 10@17; Florida, 15@20; Chili, 10@15.
Rhubarb: 2.50@4.00 bx.; Sebastopol, 2.50@3.25.
Spinach: Cr., 1.50.
Squash: Italian, 1.25@1.50 per flat box; cream, 60@75 per lug; Hubbard squash, 1.00@1.25 per sack; marrowfat and pumpkin, 1.00 sack.
Tomatoes: Southern, 1.00@2.00; fancy, 3.00@3.50; hothouse, 35@40 per lb.; Mexican, repacked, 3.00@3.50 per crate, 4.00 @5.00 per L. A. lug; Florida, 10.00@11.00 per crate.
Turnips: Sk., 75@1.00.

FRESH FRUITS

Apples: Bellfleurs, nominal; Newtowns, 3½ tier, 2.50@3.00; do, 4 tier, 2.25@2.50; 3½ tier, 2.75@3.00; do, 4 tier, 2.25@2.50; B grade, 1.50@1.75; 4½ tier, 1.25@1.50; Oregon Newtons, 2.00@3.00, according to size; Hood River Spitzenberg, nominal; Arkansas Black, fancy, 3.00@3.50; do, choice, 2.25@2.50; Golden Ortley, 3.00@

Avocados: California, doz., 4.00@9.00.

CITRUS

Navel oranges, 2.00@4.25; lemons, 2.00 @3.50 per box; lemonettes, 1.50@2.00; grapefruit, new crop, 2.00@3.50; do, Arizona, 4.00@4.50; limes, 1.00@1.50; tangerines, 2.00@4.50 per half orange box.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 19 lb.; Sunmaid, seeded, 36 15-oz. pkgs., 22 lb.; seedless Sultanas, 25-lb. bxs. 21 lb.; Thompson seedless, 25 lb. bxs., 22 lb.; do, 48 15-oz. bxs., 23 lb.; 3-cr. L. M., 25-lb bxs. 22 lb.; 2-cr. do. 21 lb.; 1-lb. cluster, 20-lb. bxs., 5.50 box.

Apricots: Fancy, 25 lb. boxes, 28 lb.; extra choice, do, 22 lb.; choice, do, 20 lb.; standard, do, 17 lb.

Peaches: Blue Ribbon brand, 48 11 oz. to cs, $10 cs; Blue Ribbon brand, 24 2 lb. bxs to cs, $11; fancy, 25 lb. bxs, 19c; extra choice, 25 lb. bxs, 17c; choice, 25 lb. bxs, 15c.

Pears: Fancy, 25 lb. bxs., 20; extra choice, 25 lb. bxs., 15; choice, 25 lb. bxs., 12.

Figs: Fancy black, 25 lb. bxs., 12 lb.; extra choice, do., 9 lb.; choice do, 8 lb.; fancy white, do, 15 lb.; extra choice, white, do, 12 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4 layer, 10 lb., 2.00 box; choice 4 layer, 10 lb. boxes, 1.75 box.

Prunes: 30-40s, 25 lb. bxs., 15 lb.; 40-50s, do, 12 lb.; 50-60s, do, 10 lb.; 60-70s, do, 8½ lb.; 70-80s, do, 7 lb.; 80-90s, do, 6 lb.; 90-100s, do, 5 lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8 lb.; choice, do, 7 lb.

NUTS

Peanuts: Japanese, 8.
Pecans, 25.
Almonds: California Almond Growers Exchange quote:
Nonpareil 26

SULPHUR

It has been proven and so recommended by the University of California that if you sulphur your grape vines and orchards six times they will not be affected by MILDEW or RED SPIDERS.

ANCHOR Brand Velvet Flowers of Sulphur, also EAGLE Brand and Fleur de Soufre, packed in double sacks, are the fluffiest and PUREST sulphurs that money can buy; the best for vineyards; the best for bleaching purposes, LEAVING NO ASH.

VENTILATED Sublimed Sulphur—Impalpable Powder, 100% pure, in double sacks, for Dry Dusting and making Paste Suphurs.

For LIME-SULPHUR SOLUTION, use our DIAMOND "S" BRAND REFINED FLOUR SULPHUR. We can furnish you this sulphur at such a low price that it would pay you to mix your own solution and net you a profit equal to the amount paid out for labor in spraying your orchard, even if you pay your men $5 per day for making the solution and applying same.

To create additional available plant food and prevent smut in grain, drill into the soil 220 POUNDS PER ACRE of TORO BRAND SPECIALLY PREPARED AGRICULTURAL SULPHUR — or our DIAMOND "S" BRAND REFINED POWDERED SULPHUR. This soil treatment has increased various crops up to 500%. Send for Circulars No. 6, 7 and 8.

Also PREPARED DRY DUSTING MATERIALS, Tobacco Dust, Dusting Sulphur, Mixtures, etc.

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Ask us for prices for Carbon Bisulphide, the surest remedy for destroying ground squirrels.

Alfalfa Growers!
IMPROVE INCREASE **YOUR** SOIL CROPS
USE
GERMOSOIL

The Successful, Guaranteed Inoculant

GERMOSOIL is made in the largest and best equipped bacteriological laboratories on the Pacific Coast.

GERMOSOIL IS THE ONLY CERTIFIED INOCULANT

Whether you are growing legumes for hay, forage, seed, or green manure, inoculation is precaution against failure, and an assurance of success.

Price $2.00 per Acre

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Sole Distributor of GERMOSOIL
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Salesmen Wanted Everywhere

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ORANGE SHOW
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MILLIONS OF ORANGES
IN WONDERFUL
FEATURE EXHIBITS

Complete Industrial Section
of
Farm and Ranch Equipment

10 Regular Trains Daily
From Los Angeles
Pacific Electric Railway

Home of King Korndyke Pontiac Mead
Bargains In Bull Calves from Tested Dams.
Top Herd in U. S. for Fat Production of 100 Cows.
LOS ANGELES COUNTY FARM HOLSTEINS
HONDO, CALIFORNIA
Three Miles South of Downey on Downey-Long Beach Blvd.

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707 No. Main Street
Los Angeles

We Are Pioneer Builders of Pumping Machinery
Therefore Our Experience Is Valuable To You

I. X. L.	26
Neptus	25
Drake	18
Languedoc	17
Hard Shell	12

HONEY

From Rafael & Wing: There is very little honey coming in and not many sales being made, consumers buying only for their immediate needs. Prices to producers: California ambers, 9@10c; light ambers, 10@11c; light amber to white sage, 15@17c; light amber to white orange, 15@17c; wax, 35c. No comb honey in this market. There seems to be more Honolulu moving than anything else. Several large lots have been moved at from 8 to 11c.

BEANS

Below California Bean Growers Association shippers prices C. R. C., Feb. 14:

Pinks	5.65
Large Whites	4.15
Small Whites	3.55
Mexican Reds	5.90
Blackeyes	6.50
Red Kidneys	9.00
H. B. Limas	5.50
Bayos	9.50
Crans	6.10

HOPS

Cal. 1920, lb., 33@35.

RICE

Fancy Japan: Spot, 4.75. Futures, February, 4.60; March, 4.25; April, May, June, 4.20.

GRAIN

Sales grain exchange, February 15:

Wheat: Milling, 2.80@3.00; feed, 2.75@2.95.

Corn: 1.75@1.90; White Egyptian, 2.75@2.85.

Oats: Red feed, new crop, 1.45@1.50; seed, 1.65@1.75.

Barley: New feed, 1.25@1.35; off grades lower: shipping, 1.35@1.45.

Shorts: 40.00@45.00 ton.

Mill Run: 37.00@43.00 ton.

Middlings: 48.00@52.00.

Milo: Cal. Red, 1.95@2.00; Eastern 1.60@1.70.

Kafir: Eastern, 1.60@1.70.

HAY

Under date of February 12, A. W. Scott Co. says:

Arrivals of hay for the past week have been 952 tons. Notwithstanding that receipts continue heavier prices have been maintained on the San Francisco market. A little better tone is also manifest among the buyers here as there seems to be a little more general business making the consumption of hay in San Francisco a trifle heavier than it has been.

A temporary lull in the dispatch of vessels has reduced the export demand to a very low point this week. The country dairy demand has been better and a general inclination on the part of alfalfa raisers to let go has created active trading from the alfalfa centers, particularly the San Joaquin districts, and reaching even far to the north of the state. The differential in freight between Nevada and California is so favorable to our districts that comparatively little Nevada hay has been handled recently. Of the different grades probably the cheaper oat hay has been doing the best owing to the demand for dry stock feeding or for draft stock that is not working.

Citrus Markets

Los Angeles, February 16, 1921.

Oranges have been rather quiet but owing to the rain delaying picking a slightly firmer condition prevails. Some of the state's finest crop is going out this year, and severe culling is holding up the brand. For the first season some sections are showing serious injury, sometimes as high as ten per cent from the orange tortrix. This pest is making culls of some of the finest of fruits.

Lemons are much firmer and a few very good sales are being made.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 6,525 cars; lemons, 1,716; total, 8,241. To same date last season; Oranges, 6,794; lemons, 1,548; total, 8,342. From Central California to date, this season: Oranges, 4,008; lemons, 84; total, 4,092. To same date last season: Oranges, 3,439; lemons, 200; total 3,639. From Northern California to date this season: Oranges. 305; lemons, 4; total, 309. To same date last season: Oranges, 261; lemons, 21; total, 282.

AT THE AUCTIONS

February 9

New York: 11 or., 1 mixed, 4 lem. Nav. 2.15-4.55, lem. 3.30-4.15, Tangerines halves, 2.95.

Boston: 14 or., 3 lem. Nav. 2.55-3.70, lem. 3.75-5.00.

Philadelphia: 5 or., 3 lem. Nav. 2.75-3.40, lem. 3.00-3.55.

February 10

New York: 15 or., 4 lem. Nav. 2.60-4.65, Tangerines halves, 2.85-3.50, lem. 1.65-4.10.

Boston: 10 or., 5 lem. Nav. 2.35-4.10, lem. 2.90-3.90.

Pittsburg: 6 or., 1 lem. Nav. 2.35-3.45, lem. 3.55-3.90.

February 11

New York: 7 or., 4 lem. Nav. 2.05-4.95, lem. 3.20-4.00.

Boston: 8 or., 1 lem. Nav. 2.45-4.60, Tangerines halves 2.90, lem. 3.25-4.05.

Cleveland: 6 Nav. 2.60-4.35.

Philadelphia: 2 or., 1 lem. Nav. 2.00-3.50, lem. 2.65.

St. Louis: 6 or., 1 lem. Nav. 1.65-4.00, lem. 2.30-3.05.

February 14

New York: 22 or., 6 lem. Nav. 2.20-5.00, Tangerines 3.25, Navelencias, 4.00-4.55, lem. 2.90-4.00.

Boston: 11 or., 6 lem. Nav. 3.15-4.35, Tangerines halves 2.95, lem. 2.50-4.00.

Cleveland: 8 or., 1 lem. Nav. 2.00-4.65, lem. 3.00-3.55.

St. Louis: 7 or., 1 lem. Nav. 2.55-3.65, lem. 2.55-3.05.

February 15

New York: 16 or., 2 lem. Nav. 2.85-4.45, Tangerines halves 3.10. Ruby Bloods halves 1.60-2.10, lem. 3.35-3.70.

Boston: 9 or., 2 lem. Nav. 3.25-4.30, lem. 3.00-3.75.

Philadelphia: 2 or., 1 lem. Nav. 2.95-3.85, lem. 2.95-3.35.

Walnut Trees

of dependable varieties and quality. Grafted on Northern California Black Walnut. Carefully selected scions from best bearing trees.

Placentia Perfection and Eureka

Los Nietos Valley Nursery

Downey, Cal.

KINGS COUNTY ORGANIZES MARKETING EXCHANGE

The Kings County farm bureau has organized a marketing exchange and has just received its charter, and as soon as the necessary membership is secured to insure sufficient volume of business to operate economically the exchange will hire a competent manager to take charge of its affairs.

Result of Successful Hog Sales

The present organization is probably the result of the successful hog auction sales for which the county has been noted during the past few years. During the past year the sale of hogs alone through the farm bureau has returned to the members over $320,000, and during the three years that these sales have been in operation the revenue to the producer has been in excess of $840,000, so this one item of marketing is no small item of business for the new organization, as it is the plan of the exchange to take over the management of these sales.

The farmers of the county feel need for a better method of marketng veal calves and this branch will probably be organized at the earliest possible moment.

Grain Elevators Essential

One of the really big things now being planned in Kings County is the erection of grain elevators to handle at least a part of the wheat and barley crop of the Tulare Lake region. Perhaps few people realize that this district, which is almost entirely in Kings County, produces annually seven and one-half millions of dollars worth of wheat and barley. It is the present plan of the grain department to erect two storage elevators, one at Corcoran and the other at Stratford. These elevators will of course handle only a part of the total crop, but it is hoped that some of the large operators will erect elevators and become affiliated with the marketing organization, which is in turn affiliated wth the state organzation operating the large terminal elevators at Oakland.

The incorporating directors of the exchange are C.D. Barbour, Lemoore, who is also the temporary chairman; F. A. Jackson, Lemoore; F. W. James, Lemoore; J. W. Arthur, Hardwick; M. D. Baihley, Corcoran; Chas. R. Putz, Laton; J. A. Romine, temporary secretary, Hanford; J. P. Lemon, Hanford; J. W. Jenkins, Hanford; H. A. Crane, Hanford; W. I. Tibbs, Hanford.

The membership cost is $50 each and an intensive campaign is being started to secure at least ten members in each of the 11 farm bureau centers of the county. The membership fee is payable $20 cash and the balance a one-day note, which is to be used by the organization as collateral.

WEATHER REPORT

San Francisco, Cal., February 12, 1921.

Stations	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	.98	35.31	27.64	58	38
Red Bluff	.01	22.23	15.45	66	36
Sacramento	T	13.81	12.12	68	38
San Francisco	.00	18.50	14.23	67	44
Fresno	.00	5.70	5.82	76	34
San Luis Obispo	.00	12.99	12.14	78	34
Los Angeles	.00	6.19	9.42	82	44
San Diego	.00	3.04	6.12	68	40

WEATHER REPORT

San Francisco, Cal., February 5, 1921.

Stations	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	1.88	35.48	25.93	56	38
Red Bluff	.08	22.09	14.61	58	38
Sacramento	.19	12.85	11.38	58	40
San Francisco	.06	18.50	13.26	59	44
San Jose	Not Being Received.				
Fresno	.30	5.94	5.44	60	37
San Luis Obispo	.85	13.66	11.39	68	42
Los Angeles	.10	6.20	8.68	72	46
San Diego	.08	2.87	5.58	70	46

GARDEN GUIDE

Payne's Garden Guide for 1921, also list and prices of seeds, plants and trees, contains much of information, including planting and working calendar, seeding table, and other matter of value in addition to catalogue. One of the largest illustrations shows California wild garden scene taken in Exposition Park, Los Angeles, some three years ago. This wild garden should be continued as a part of Exposition Park every year.

San Bernardino—Redlands District

The Finest Ranch in the Valley

AT AUCTION

Saturday, Feb. 26th, at 10 A.M.

105 Acres—Known as the Purvis Ranch

Excellent alfalfa, beet, potato and bean land. If you are looking for a productive, well paying ranch, this is your opportunity.

90 ACRES

Level Silty Loam Soil

15 Acres Wood Lot

This land has been continually improved for several years and is now in a most fertile condition. Family orchard.

Ideal ranch house and furnishings, 6 rooms, modern—hot and cold water, bath room, electric lights. Out houses for help, 5 room house with large screen porch, also bunkhouse.

Barns, shop, garage, chicken yards, corrals, (hog and feed house with cement floors.)

Fully equipped with all necessary farm machinery and implements.

LIVE STOCK—3 brood mares, 2 horses, Brown Jersey cow with twin calves at side. Black Jersey cow. Jersey Holstein. 3 black Jersey Holsteins heifer calf at side. 3 yearling heifers. 11 head feeder hogs. 1 grade sow, 4 shoats.

REGISTERED Berkshire boar, sow and litter of five.

From San Bernardino: East on 3rd to Allen—right on Allen to Mill, left on Mill to end of street, left into ranch.

San Bernardino-Redlands car, off at Winery curve and Mill. East 1½ blocks, north 1 block.

— PARTICULARS ON REQUEST —

C. H. O'Connor & Son, Auctioneers

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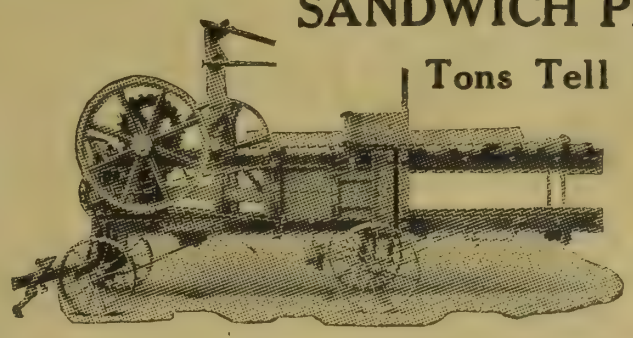

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10 Sows—20 Gilts

Bred to The Californian and The Skipper by The Pilot. These Boars sell. All of our 1920 show herd and some great prospects for this year's show.

Tulare Sales Pavilion **March 1st**

HUGH C. SHINN Geo. W. Bell, Auctioneer

HAIRY PERUVIAN

— FROM PEDIGREED FIELDS —

Each sack tagged and sealed by County Horticulturist Agent, which guarantees seed TRUE to NAME. Your Government recommends HAIRY PERUVIAN above all others.

Fancy, 31 cents per pound; delivered.

ALFALFA SEED

From Grower to Planter

Fancy Common 22c; Fancy Smooth Peruvian 28c; delivered

W. R. WHITMAN Box 29, Yuma, Ariz.

Where Is the "Deficit"?

"No appropriation should be considered where the need is not urgent."
—Message of Governor Stephens to the 1917 Legislature.

The people voted, in November, additional State costs totaling $18,000,000.

Governor Stephens in his message to the 1921 legislature declares:

". . . it is because of this voluntary action of the people themselves that the financial difficulties referred to have arisen."

Let Us Consider the Facts

State officials estimate our income for the next two years at **$67,000,000**

Charge up against this the 1919-1921 budget, which was **$47,000,000,** and add the **$18,000,000** voted by the people for the next two years. The total is..... **65,000,000**

We still would have left in our treasury ..... **$ 2,000,000**

Two Million dollars left, after paying every cent the people of California ever voted to pay. Two Million dollars left, after paying for every State expense at the rate we had to pay when costs were higher than they will be again for many years.

Two Million dollars left, after re-appropriating in full for the vast burden of "unnecessary duplications and unnecessary waste" which Governor Stephens admits now exists in the State government.

Two Million dollars left, after we Californians spend for our State government twice as much as the average citizen of other states.

Who Wants This Money?

Yet Governor Stephens declares "it is because of the voluntary action of the people themselves that the financial difficulties referred to have arisen."

Governor Stephens goes further. He goes $15,000,000 further.

After we have paid every dollar that we paid in 1919-21, and after we have paid every dollar we voted to pay at the November elections—after we have provided a surplus of $2,000,000 for emergencies, Governor Stephens calls for $15,000,000 more.

Other states are economizing. Illinois in one year has reduced her governmental costs $2,500,000.

Yet California State officials call upon the people for $15,000,000 above all amounts previously spent or now authorized.

Already California is spending vastly more than her sister states which are now reducing their budgets. The per capita government costs for actual running expenses (as distinct from interest and new investments) are shown by the 1919 U. S. census report to be as follows:

Average for all states,	$5.16
Illinois,	3.[illegible]
CALIFORNIA,	7.76

These Things Are True

The people have created no deficit, and there is no deficit.

The extra $15,000,000 now demanded by state officials is over and above all appropriations ever made in the past and all new expenses authorized by the people. No increase of any tax rate is necessary.

Ask your legislator to demand that the state live within its income.

Tax Investigation and Economy League

HERBERT W. CLARK, President **W. V. HILL, Secretary**

1504 Humboldt Bank Building, San Francisco

"The Power to Tax is the Power to Destroy"

CA

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — February 26, 1921 — No. 9

California Mortgage Lifters

The dairy cow is coming back to many California communities — and with her return is coming assured prosperity. Other special crops have come in and swept some communities off their feet and those crops have been planted to exclusion of the dairy industry. Soil fertility was depleted, the special crops which at first proved extremely profitable ultimately proved disappointing. All of this proves the fact realized for many years that nothing is more dependable in the long run than animal husbandry.

SPRYWHEEL

The $150 Tractor—Crating and Freight Extra

"Multiplies Man Power by Five from Seedtime to Harvest"

**"I Wouldn't—
Like to Think of Farming Without Sprywheel"**

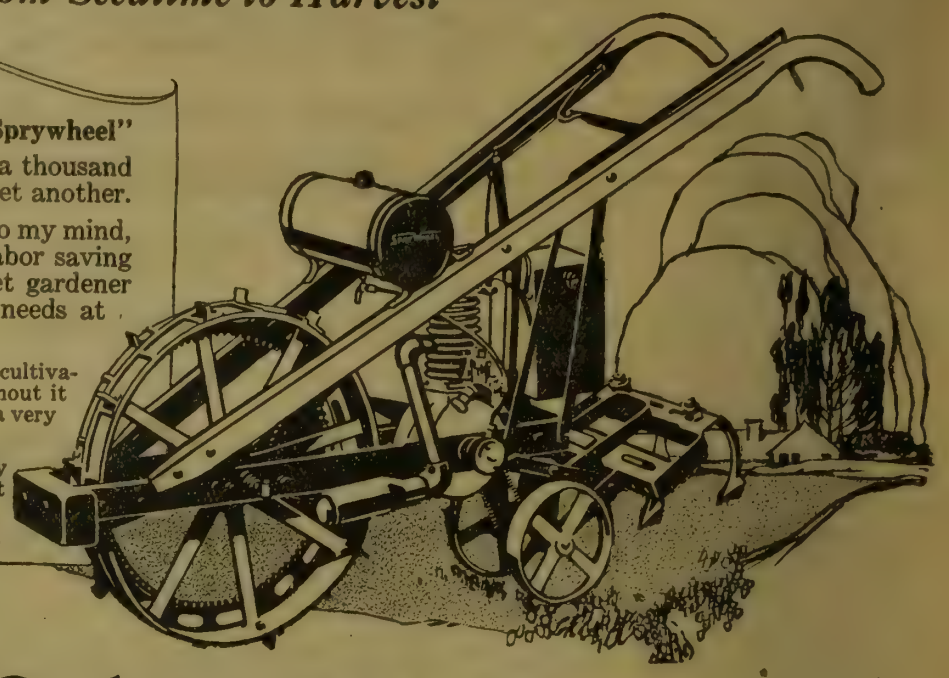
"I wouldn't let my Sprywheel go for a thousand dollars unless I knew where I could get another.

"The big point about the Sprywheel, to my mind, is not merely its very remarkable labor saving qualities; it is the fact that a market gardener cannot get the amount of labor he needs at any price today.

"With the Sprywheel, he can keep his crops cultivated and get the maximum yield, when without it he would either lose his crop entirely or get a very much smaller yield.

"This has been my experience and I certainly would not like to think of farming without Sprywheel."

P. T Hurley, Belmont, Mass.



How to Cut Cultivating Costs Below Pre-War Standards

Every gardener and farmer wishes to cut the money cost and the labor cost of raising crops. He wants maximum yield and early, full maturity. This requires thorough cultivation—cultivation at frequent intervals and almost up to maturity.

Late cultivation—after the plants have grown tall or spread into the rows—is extremely profitable. It has always required a lot of hand labor. This labor is hard to get when you need it—and it is ruinously expensive.

Sprywheel cuts the cost of both early and late cultivating. While the plants are small a two or three row attachment is used. When plants have grown larger, Sprywheel goes between the rows. It cultivates the narrowest or the widest rows. It will do any work that a hand hoe or a wheel hoe is used for—and will do it *five times as fast.*

That is how gardeners and farmers who use the Sprywheel cut down the money cost and the labor cost of raising crops and secure maximum yield and early maturity. It is just as necessary for cultivating crops as horses and tractors are for doing the heavy work.

What a Sprywheel and one gallon of gasoline will do

One gallon of gasoline runs a Sprywheel all day. It enables one man to cultivate fifteen miles of growing corn, cotton, peanuts, potatoes, tobacco, cabbage, celery, seedlings or small fruits—and to cultivate them thoroughly.

It multiplies man power by five—makes it possible for one man to do more hoeing, weeding and hilling than any five men pushing wheel hoes or using hand hoes.

Quickly converted into a power lawn mower

Besides tools for weeding, hoeing and hilling, there is the *Sprywheel Lawn Mower Attachment.* It can be attached in five minutes. Converts Sprywheel into a power lawn mower. Enables the home gardener to handle a good sized garden and keep the lawns presentable at the lowest cost for labor, time and money.

Sold by authorized Sprywheel dealers

Sprywheel is sold by authorized Sprywheel dealers who are granted exclusive territory. Write to-day for a Sprywheel catalog and the name of the nearest Sprywheel dealer.

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California Cultivator

Vol. LVI, No. 9 | Los Angeles, February 26, 1921 | One Dollar Yearly

"How Are Cattle Selling?"

By C. L. Hughes

The writer of this article is generally regarded as having more accurate information relating to the purebred cattle market in California than any other man. During the past four years he has sold more than $1,500,000 worth of cattle.—Editor.

SO MANY readers of the Cultivator have asked the above question of the writer, and are still asking it, that it appears the question is one of great present interest. However, that does not appear to be the real question in most cases, for it is usually followed by "How do you think the market will be this year?"

Prophesying is dangerous, even foolish generally, but there is perhaps much in the present livestock situation in California that can be quite accurately forecast by a study of conditions in the immediate past and in the present.

In considering the demand for and probable price levels for dairy cattle within the balance of this year there are present a number of influences that will most certainly affect the market. Let us consider first the grade dairy cow situation. During the war thousands of dairymen went out of business, and remember this—a very large number of their cattle went to the butcher. Their lands were turned over to the production of agricultural war babies, such as wheat, cotton, beans, rice, and much of the alfalfa that was grown was sold as hay, rather than fed on the farm to cattle.

Imperial Valley saw the conversion of most of her alfalfa fields into cotton fields.

Prohibition converted many of the alfalfa fields of the San Joaquin Valley into vineyards.

Beans and wheat and barley displaced the dairy cow on many farms in the San Joaquin.

In the Sacramento Valley raw land that would normally have been developed for alfalfa production was planted to rice.

Salt River Valley, Arizona, went cotton mad and practically depleted its dairy cow population that once numbered upwards of 60,000.

Necessity made business men out of some dairymen, and thousands of boarder cows went to the butcher under the stress of war time costs of production.

Such were the influences that worked through several years to reduce the number of dairy cows throughout this state and Arizona. But now the tide has turned.

Imperial Valley is going back to cows. The alfalfa is growing and dairy cows will start flowing into the valley within the next 60 days, if they can find them.

The vineyards of the San Joaquin will withstand the onslaught of milk, and the dairy cow will not yet return to the fields that so profitably produce the wherewith to make wine.

In the upper San Joaquin the dairy cow has already returned to many of the farms that cast her out a few years back, and still many others are nearly ready to welcome her.

In the Sacramento Valley the rice headache is giving way to the clear-headed decision that after all livestock farming is the permanent agriculture.

In the Salt River Valley, Arizona, the bankers have added their ultimatum to a case already decided—Salt River Valley must go back to dairy cows.

Add to the above the fact that a number of the large alfalfa producing sections of Nevada and Idaho are under quarantine, that no hay can be shipped out, and that cattle must be secured to consume it, and you have a brief outline of the dairy cow situation as it exists today.

It is true that the price of butter fat has reached a level that is alarming to many dairymen, but it is also true that feeds are reaching low levels and that the butter situation at present is absolutely abnormal, due in large measure to conditions in the condensed milk industry which have temporarily thrown most of our milk through the separator. This condition is apparently near to solution, and once condensing is under way in any considerable volume the fact seems certain to be reflected in a firmer butter market.

Conditions for the operation of dairy farms have certainly improved to a great extent during the past year, and this fact, in connection with some of the factors mentioned above, accounts for the present very large demand for the better sorts of grade dairy cows. As one of the evidences of this demand I might mention the fact that while my activities have very largely to do with registered cattle, yet within a space of two weeks during the month of January inquiries for a total of more than 700 head of grade Holstein dairy cows reached my desk.

Now as to the conditions affecting purebred registered dairy cattle: There never was a time when the outlook was as promising for the immediate future in California as at present, in my opinion. Not a few of the men who have directed inquiries for grade Holstein cows to me have also inquired as to an opinion on the advisability of buying purebreds instead of grades at this time. The answer to that question of course varies with individual cases, for there are many who should handle grades for a time at least for many differing reasons, but on the whole there are many men who can properly add at least a few purebreds, and others who can sensibly buy purebreds entirely.

The market for purebred dairy cattle will never reach the point of saturation until every dairy animal on every farm is a registered purebred, and then there will be the unlimited market for improved animals that will endure as long as dairy cattle exist, so that the capacity of our market may be classed as unlimited at the present time. Out of over 500,000 dairy cattle in California, only a little over 8000 are registered Holsteins, a comparison that gives something of an idea of the limits of our market for registered breeding animals within the borders of this one state, to say nothing of the very substantial foreign business that is right here today, and ours to expand if we do the things that are demanded in order to hold this trade.

Nor should we expect any lowering of the price levels for purebred registered dairy cattle, for, speaking for California, we have never at any time had an inflation in values, and there is no doubt but that the normal price levels that have prevailed in this state, coupled with the high class regulations under which cattle have been sold in public sales, have in a very large measure been responsible for the present stable and sound condition of the purebred breeding business, and this feature of stability is one of the greatest factors in influencing new men toward the breeding business, for no sensible man wants to invest his time or money in any business that is built upon an unstable foundation if he knows it.

Present prices of butter should have absolutely no influence on the price of registered dairy cattle, for any man who couples up the price per pound of butter today with the price of a good registered cow today has manifestly not the qualities of mind that the successful breeder must have. The breeding of purebreds is a permanent thing, one that has never failed to be profitable over a period of years if the breeder uses the sound sense and business acumen that he would have to use to be successful in any line of business.

The work of cow testing associations, the California State Dairy Cow Competition, and other movements of like objective, are gradually showing dairymen the difference between the good, profitable cow and the poor, boarder cow. As improvement in production can come only through the consistent use of purebred bulls, the market for better dairy bulls is being constantly widened, and this market is reflected in the demand for better breeding animals necessary to produce such bulls. Right here is another factor that every breeder must take into consideration today that the buying public for registered cattle is better informed today than ever before, is therefore more critical and, with the gradually increasing numbers of registered dairy cattle offered through the public sale, has the opportunity for more critical selection. Thus it has come about that the better sorts of registered dairy cattle are finding an increasing number of buyers at prices that are on the upgrade, while the contenders for the commoner cattle are not increasing in the same proportion, and prices are on the downgrade. Anyone who has carefully analyzed the public sales of dairy cattle in California during the past year has certainly been impressed with the great necessity for every breeder to constantly improve his herd if he expects the buying public to appraise his cattle at substantial values.

The recent tightness of money has been possibly the only factor that has kept the prices of registered dairy cattle from reaching new high levels in California, but this has been very largely offset by the liberal terms of payment made by most breeders who have been selling cattle to buyers worthy of credit, and it is a matter of record that this credit has been used only in a limited way, a very large percentage of transactions having been made on a strictly cash basis.

Taking all of these things into consideration, there seems no reason to expect any decline in prices for registered dairy cattle in California, and

(Continued on Page 289.)

A Sound Business

The demand for registered beef cattle either Shorthorns, Herefords or Angus, is constantly widening in this state with the growing knowledge of the worth of good blood.

Agricultural News Notes of the Pacific Coast

Northern California

Dates for the state fair at Sacramento have been set as September 3-11.

California has shipped 12 million dozen eggs to Eastern markets this season.

J. B. Hammon has been appointed assistant farm advisor of Alameda County.

A viticultural department was organized by the Sonoma County farm bureau last week.

Alameda County beekeepers met at Oakland and discussed small farm production of honey.

Hop growers of the Sacramento Valley are forming an association to handle the 1921 crop.

The Glenn County farm bureau is organizing a farmers' mutual fire insurance company.

Tehama County grain growers will erect two large grain elevators, one of them at Red Bluff.

Boundaries are being established for the Snake River drainage district near Gridley, Butte County.

Some of Lake County's larger pear orchards are being subdivided to make homes for small farmers.

Members of the Marin County farm bureau have signed up 11,000 sacks of potatoes in a potato pool.

Colusa County rice growers have joined the state wide rice pool planned by the Pacific Rice Growers.

The Rescue farm center of El Dorado County has organized a bull association, selecting an Ayrshire.

Mendocino County farm bureau has organized a marketing department with Mr. Moffitt as managing director.

The Tucker farm center of Napa County dedicated its center hall on January 15. There was an attendance of 300.

A Holstein and a Jersey purebred calf club are organized in the membership of the Glenn County farm bureau.

Sacramento Valley rice growers are charging millers with demoralizing the rice market and causing the loss of a million and a half dollars.

The Knightsen center of the Contra Costa County farm bureau is planning to build a center hall. Some funds have already been collected.

The purple vetch department of the Humboldt County farm bureau has signed up 2500 acres and this is being planted as rapidly as weather conditions permit.

The office of the state market director has been holding meetings among tomato growers with the aim of forming a cooperative marketing association for the state.

The Pacific Rice Growers Association has filed complaint against the California Rice Milling Company, charging sale of 20,000 sacks of rice contrary to instructions.

The Alvarado center of the Alameda County farm bureau has ordered three tons of certified seed potatoes. Part of this will be used in test plots to determine suitability to local conditions.

Saratoga blossom festival committee is planning for larger program than ever. The principal feature this year will be giant chorus which is now rehearsing. The festival will be held in March, exact date not yet chosen.

Central California

Stanislaus County is pushing the anti-Japanese crusade.

San Joaquin County farmers are to hold big rabbit drive, February 22.

A considerable acreage is being planted to grapes in the Inyo-Kern Valley.

Grain elevators are to be constructed at several points in Stanislaus County.

The Stanislaus County farm bureau has appointed W. J. Norton secretary-manager.

The Tulare County Poultry Association handled a total January business of $20,447.25.

A model septic tank was exhibited at all farm center meetings in Kings County during January.

Five hundred acres on the big Tagus ranch north of Tulare is to be planted to fruit, mostly peaches.

Fresno irrigation district recently voted $1,750,000 worth of bonds, the majority being 20 to one.

County highways have been accepted near Fowler and Reedley, Fresno County, of a total of 20 miles.

Resolutions endorsing the Raisin Association were passed by the Kings County farm bureau directors.

A Shafter, Kern County, rice grower reports production of 41 sacks per acre on a ten acre tract previously in alfalfa.

Farm home department meetings will be held in Kern County at Kern Delta, March 1; Wasco, 3; Edison-Fairfax, 4.

Eight counties of the San Joaquin Valley are planning to pool efforts in a great advertising campaign of the Valley.

The Lockwood center of the Monterey County farm bureau is planning erection of a grain elevator at San Lucas or Kings City.

Sales managers for the Peach Growers predict lower average price for dried peaches than has obtained during the past two years.

California apples shipped by all water route via Panama arrived in best of condition and at materially less cost for transportation.

Turlock, Stanislaus County, recently shipped out its first carload of cotton to gin at Fresno. Several more carloads will soon be ready.

The cooperative creamery association of Riverside, Fresno County, recently met in annual session, heard reports and elected directors for the coming year.

Retrial of Tulare irrigation district vs. Lindsay-Strathmore irrigation district water suit involving pumping of water from the Kaweah river delta begins in March.

Stanislaus County rice growers were recently addressed by President Quatman of the Glenn County Rice Growers Association on the pooling contract for the 1921 crop.

Five hundred head of Tulare County bred Duroc-Jerseys were recently purchased for shipment to the Hawaiian Islands. They were shipped from Los Angeles harbor, February 21.

Twenty boys and girls of the Prairie Center of the Tulare County farm burea have started on a pig raising contest; there are 17 members in the pig feeding club of the Burton-Westfield Center.

Souhern California

Almond blossoms are a glorious sight at Banning.

Farm center meeting at Burbank, Los Angeles County, February 28.

A farm bureau center is planned for Yucaipa, San Bernardino County.

Two more days of the National Orange Show at San Bernardino.

Beet planting is going on in the Smeltzer district of Orange County.

Imperial has been selected as the site for Imperial County fair grounds.

Orange County's citrus fruit shipments for 1920 totalled about $16,000,000.

A poultry department is being organized in the Los Angeles County farm bureau.

Imperial Valley has shipped 1,600 cars of lettuce to date, fully one-half of the total crop.

The first ripe cantaloupe of the season was brought into Brawley. Imperial County, February 8.

The Mutual Orange Association of Yorba Linda, Orange County, is completing a new packing house.

The Santa Barbara Walnut Growers Association is installing a vacuum cleaner in the main warehouse.

Apple Valley, San Bernardino County, has been euthusiastic in the county farm bureau membership drive.

There is proposal in San Diego to construct a dam on the site of the Old Mission dam of the Spanish fathers.

Hundreds of acres of cotton will be volunteered in the Blythe district of Riverside County, according to A. M. Douglas.

The citrus experiment station has on display at the National Orange Show at San Bernardino 350 varieties of citrus fruits.

More than 150 attended the first quarterly all-day meeting of the Walnut-Spadra-Pomona center of the Los Angeles County farm bureau.

Victor Valley land owners will fight against water appropriation there of San Bernardino and Pasadena. The latter city has filed on 5,000 inches.

The Southern California Fair at Riverside will run through nine days, opening October 8, closing October 16. W. W. Van Pelt was chosen secretary.

To protect citrus by-products an Orange County grower says a tariff of 15 cents a pound on citric acid and 30 cents a pound ad valorem duty on lemon oil is necessary.

The Tustin farm center of Orange County has started a movement to make fumigators, by terms of contract, responsible for damage done to citrus groves in which they operate.

Supervisors of Riverside County have approved a resolution presented by Kings County to the effect that every effort be put forth to retain in the state motor vehicle law that clause permitting supervisors to lighten loads in their respective counties.

County Horticultural Commissioner Call of Ventura County is planning a series of gopher control meetings with field demonstrations. Farm Adviser Staunton will cooperate in the work, and it is planned to have W. C. Jacobsen, superintendent of rodent control of the state department, present to advise.

The Coast and General

Arizona cattlemen met in state convention at Phoenix, February 8-10.

Farmers of Waitsburg, Washington, recently sold a pool of 25,000 bushels of wheat at $1.50.

Oregon is working for a tariff of four cents a pound on cherries in the emergency tariff bill.

More moisture is badly needed on ranges in southwestern New Mexico and southern Arizona.

A large shipment of hops has just gone from Chehalis, Washington, yards, to London buyers.

The Spokane poultry show recently held attracted breeders from Idaho and Oregon as well as Washington.

Arizona farm bureau is perfecting a state association and hopes to affiliate with the national farm bureau.

Dairymen of Lane County, Oregon, are increasing the capital stock of the cooperative creamery from $15,000 to $75,000.

The legislature of the state of Washington is endeavoring to simplify state administrative affairs so as to reduce taxes.

A National Bean Federation has been organized with headquarters at Lansing, Michigan. E. A. Little is temporary secretary.

Wheat growers of Oregon are organizing a cooperative marketing association on the plan followed by Washington and Idaho wheat men.

Vineyardists along southern shore of Lake Erie report prices received last year highest ever, some grapes commanding $200 per ton.

The Tillamook County Jersey Cattle Club, Oregon, is planning to join the Pacific Jersey Association. J. Donaldson is president of the club.

A bill has been introduced into the state legislature of Washington enabling the marketing of farm crops and the securing of rural credit.

Sixty-one cars of Yakima apples have been shipped during recent months to English and European ports by way of Seattle and the Panama.

The highway construction department of Arizona recently suspended highway construction and is now being flooded with telegrams asking resumption.

A group of settlers on the irrigated project at Burbank, Washington, have a commercial organization which meets every two weeks to discuss farmers' problems.

There were exported from the United States in 1920 26,841,772 dozen eggs. This is 12,000,000 less than the preceding year. Cuba received by far the largest share.

Four carloads of western Washington eggs were recently shipped from Seattle to New York City, constituting the largest single shipment so far made from that territory.

The reclamation service is to undertake the reclamation of the section in the Gila River above Florence. In the absence of satisfactory bids the work will be carried on by the service.

California has about 40,000 acres of pears, mostly Bartlett, Oregon, 13,212, and it is thought that within the next ten years the pear will be a larger shipper from the Pacific Coast than the apple.

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Santa Rosa..The Battery Shop
Sausalito, Linderman's Serv. Sta.
Sebastopol, Walkers Bat. Ser. Sta.
Selma..Selma Batt. & Tire Co.
Sonora, Gibbs Sto. Batt. & Ign. Wks.
Stockton, Stockton Auto Ign. Co.
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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard — D. F. Reichard
J. W. Mills — J. B. Neff
Fred M. Reed — Louis B. Stanton
G. E. Gordon — M. E. Bemis
A. R. Gould — E. L. Koethen

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

Lemon men and their bookkeepers have been doing some figuring and serious thinking. Their figuring has shown an approximate cost for growing every box of lemons of $1.47; cost of picking and hauling to the packing house, 49 cents per box; cost of storing box, of packing and loading, $1.02; or a total cost of $2.98. (An investigation along similar lines, made in 1911, showed the cost $1.88). Selling charges and freight bring the price delivered to dealer in East to $4.50.

* * *

So much for the costs. When it comes to figuring up the net to the grower, "there ain't no sich thing." In fact, it has been determined that during the past year there has been an average loss of $1 on every box of lemons sold. The prices secured in the better markets have been running around $3.50, with occasionally $3.95 and again as low as four bits. This is not a temporary condition, for the lemon growers have been struggling with these difficulties for nearly three years now.

* * *

What are we going to do about it? Well, congress is talking and the lemon men are spitting on their hands and taking up the fight with railway commissions. The railway people have refused to grant an emergency rate.

* * *

As to the talk in congress, it finally did result in some action by the senate. Whether the amendments and changes will be accepted by the house may be known by the time these words are read, but action must be swift for this congress is pretty nearly dead.

* * *

Speaking of March 4 reminds that Attorney General Palmer's administration will be ended within the next seven days. Glory be! He certainly is endowed with the "stubborn gift that no philosophy can lift."

* * *

The names of the new cabinet are not all announced. Charles Evans Hughes, however, will be secretary of state, and we are reasonably assured that Mr. Meredith of Des Moines, Iowa, will be succeeded by Mr. Wallace of Des Moines, Iowa, in the department of agriculture. So far as semi-officially announced, other members of the cabinet are generally approved the country over.

* * *

The new president—and, by the way, the new vice-president, who gives promise of being a real man on a real man's job, but one which seldom had a fair chance—has one big job, not as big, however, as some of us feared a few weeks ago. We believe President Harding goes into office with a fund of good-will behind him which will mean much in restoring confidence.

* * *

The final session of the state legislature is now on, or will be before these words are read. It looks as if one of the greatest fights ever staged at Sacramento will be made on the King bill. The question as to who will pay the taxes for the support of the state is involved. That particular phase of the question is evaded by those who are opposed to the bill. Owners of farming lands have borne the burden of taxation so long that it is presumed that they must continue forever. And they will so continue unless they awake to the present situation and study this matter. Capital has taken the position that it must be guaranteed and that it must not carry the burden of taxation, or if it is carried, it is only temporary, for the state railway commission soon passes the burden on to the producer or to the consumer. This, it is said, must be from the laws of business—which has been too true, but how long can farmers continue to produce bread and butter on that basis? Perhaps forever, but we honestly think that capital should take a different attitude. The passage of the King bill will not settle the questions here raised by any means but it appeals to us that its defeat at this time would prove serious. There is more involved than appears on the surface.

* * *

Speaking of taxes, a popular topic of conversation at this moment, we are entirely safe in saying that there was never a time in the history of our country when there was such insistent demand for reduction. This demand has even gone so far as to call for a shortening up of the battleship building program. As an example of some of the ways in which tax money is spent we are now given a list of the items paid by the federal government to cover the cost of the president's peace mission to Paris. One of the items of that expense was for rent of the entire Hotel Crillon. This was $176,853. There must have been a case of rough house, for we note another item of expense was "damages to hotel property, $125,870." The American delegation were hearty eaters, for note the cost of food was $193,629; "wages of servants at hotel, $131,507"; "laundry bill American delegation, $64,969"; "kitchen supplies, $283,560"—this in addition to the cost of food noted above—"fuel, light and compressed air, $52,457"; "confidential expenses for president, $17,534.16." These are only a few of the items, for the entire bill as presented to congress totaled $1,435,567.16, to which is added "other expenses, $250,144.91." This liberal expense was doubtless in large part offset by the campaign of "thrift and buy a Victory Bond" conducted back in the states.

* * *

With the great need of California soils for more water and more fertility it is nothing more nor less than criminal for our greatest cities to pour literally millions of dollars into the ocean in the form of sewage. Yet today it is suggested in the city of Los Angeles that an additional expenditure of $12,000,000 or $13,000,000 be made in order to convey this wonderful wealth to everlasting loss in the Pacific Ocean and at the same time to the detriment of people living near the outlet. Modern science makes it possible to handle sewage, separating its fertile elements, and leaving the water almost as pure as when it fell upon the mountain tops. This water could then be used for irrigation in many of California's richest valleys.

DR. HUNT IN ROME

Californians have been gratified at the selection of Dean Thomas F. Hunt as American representative to the International Institute of Agriculture.

The appointment came during Dr. Hunt's stay in Europe during his sabbatical year. This has given him opportunity to gather and to give a fund of information regarding world conditions in production, supply and marketing.

Dr. Hunt writes us: "The first number of Part I of the Monthly Bulletin of Statistics of the International Institute of Agriculture is being sent. It is on prices and contains novel features." One of the principal features has to do with conversion of the figures having to do with quotations so as to make them intelligible to the farmer in every country, that is, quotations of dollars per bushel in New York mean little to the Frenchman, Italian or German, who wish their quotations in francs, lire or marks per quintal. Consideration is also given to differences in freight rates and to other questions affecting values to the producer. Regarding the work of the institute Dr. Hunt adds:

"In addition to publishing 36 bulletins a year in five languages, each month a summary of the statistics of production is sent by wire or wireless to the United States and other countries. Altogether it is a service that cannot be obtained elsewhere in the world and is at the disposal of all who read any one of the five languages, English, French, German, Italian or Spanish, couched in terms that anyone can understand."

AUTO LAW

The California Vehicle Act has been amended so many times, as improvements have come in automotive vehicles, that other amendments or, still better, substitution of one consistent act, seems to be best. Those connected with the auto industry are pushing for the passage of Assembly Bill 945 introduced by Assemblyman Lee of Pomona.

The effort has been made to incorporate in this bill everything, so far as possible, which has to do with the welfare of the industry and the safety of the traveling public. For instance, the age limit is to be raised to 18 years. At present a child of 16 is permitted to register and drive automobile or truck on the public highway. This suggestion has brought protests from some legislators because of the fact they set up that their son or neighbor's son of 15 or 16 can and does handle the auto as well as any man of mature years. This may be granted in many cases; again, a child of 16 may be entirely unfitted for driving an auto. Granted also that some adults have proven incapable of keeping their heads in a complicated situation, the fact remains that the 16 year old has not the judgment nor the perfect control of the machine which should be required of every driver. No railway company would for a moment trust a locomotive in the hands of one who had not had years of experience, and yet the locomotive engineer has a lesser responsibility than the driver of an auto on a crowded highway.

The present law also calls for examination of the qualifications of every man or woman who expects to take the machine on a public highway. Many tragedies have been caused by inefficiency that could have been prevented by reasonable examination at time of application for permit.

The bill provides for forfeiture of driver's license for violation of its provisions. There are also corrections in the amount of auto license fees on various standard vehicles, in general a slight reduction for lighter weight vehicles and material increase for auto busses, trucks and heavier passenger cars.

NOT WASTED

On the cover of the Cultivator for January 29 we used a beautiful illustration of a Tulare County irrigation canal and referred to the economy which should prevail in using our water. A subscriber takes exception. He writes:

"I have been a subscriber for nearly 20 years and am generally well pleased with the paper. However, I wish to call your attention to a gross misstatement in your issue of January 29, 1921, front page illustration and editorial on page 134. This water is not wasted.

"If all the ditches and streams coming out of the hills were cemented where would the water come from to supply our pumps, both for irrigation and domestic use?

"Our rainfall in the valley is only from six to eight inches, which doesn't penetrate the ground more than from two to four feet in ordinary seasons. Also none of the water of the smaller streams in the southern end of the San Joaquin Valley ever reaches San Francisco Bay, and it is only in exceptionally wet seasons that any water runs to waste from Kings River, the ditches taking it all as fast as the streams can supply it. I hope to see a correction of this matter in an early issue of your paper. You must have been misinformed by one of the water thieves."

All of which may be true, and we are glad to get our subscriber's viewpoint, but we cannot help but ask if it would not be more economical to save this water and conduct directly to the lands rather than allow it to percolate into the earth's lower strata only to be pumped back.

Who Will Pay Our State Taxes?

WE ARE all wonderfully proud of California. We have paid our taxes fairly willingly, though we have conceded they are far higher than in most other states of the Union. We have felt that our position out here at the front door of the nation, our wonderful scenic and climatic endowment, justified us in more liberal taxation and the more liberal advantages which the taxation gives. Note especially our good roads campaign—and notwithstanding experts to the contrary, California has some wonderfully fine roads. But this matter of taxation is one which, while we submit, as noted, fairly willingly, we are even more willing to pass on to the other fellow if we can.

On our editorial page last week we referred to the condition formerly existing, or rather to a case, possibly extreme, which showed wherein one large corporation failed to pay its just proportion of taxes. Things are somewhat different since the new plan of taxation by which corporations are released from county and municipal support and bear the burden of paying the money required by the state administration. The corporations now complain that a bill before the state legislature, known as the King tax bill, if passed, will work a hardship upon them; it means a material increase in the taxation on corporations over that of the past six years. Those of us who have had occasion to pay ad valorem taxes for county and municipal support likewise realize that we have had our taxes increased approximately 100 per cent. Perhaps not that much in rate, but considering increase in valuation and rate, that is about correct.

Touching upon this point the Fresno Republican says:

"We haven't got very far from the original situation—that there is a definite amount of state costs to be paid; that the legal method of paying them is to levy an assessment on certain corporations for their payment unless it shall be shown by reasonable figures that this would make the state rate exceed the county and city rate. This hasn't been shown yet. And the legislature has only until the first Monday in March, we believe, to settle the matter."

Farm bureaus and other farm organizations and the press of the state generally take the position that there is no injustice to the corporations in the provisions of the King bill, and the interest is so live in this question that we quote liberally from other papers in the hope that it may help to make the situation somewhat clearer.

But before touching the matter of costs or proportion, we think it well to consider the question from the standpoint of the state legislature as influenced by a lobby. As we said last week, a lobby may be entirely within its right and a valuable aid to more intelligent legislation, but California has had one upheaval in order to escape a lobby which was dominating rather than informing. We never want our legislation under control of such a lobby again. On this particular point another issue of the Fresno Republican suggests:

"If we are not to have a return to a situation such as we had prior to ten years ago, where it was the business of the corporations to go actively into state politics to guard their interests and to accomplish their purpose—if we are to preserve the state as the representative of all, and not of certain classes that have greater incentive to make 'use' of the state, then we must do two things: We must keep alive and vigorous the interest of all citizens in state affairs, whether they pay taxes to it or not; and we must see to it that no groups or persons, no special corporate interests, have either reason or opportunity to drive on the legislature, either to influence it or to own it. This is of much greater importance to us, as a commonwealth, than any question of whether 22 cents a hundred shall be added to our tax bills or be brought to us, in devious ways, through alterations in rates of light, power, water, gas, travel, insurance or banking facilities."

Corporation baiting is a popular exercise, but we believe the present campaign has been as free from that abuse as any recent campaign of this nature. So long as the people cannot, or at least do not, unite in cooperative control of many of our great public utilities, corporations are necessary. The advancement of California has been due to a large extent to far seeing and enterprising activities under control of great corporations, and there was never a time when plans so large in scope as to give a thrill in the very contemplation of them were under way as at present. The Colorado is to be harnessed and the waters of the Sierra Nevada are to give light and power to all parts of the state at a cost of hundreds of millions, and private capital is to be encouraged in the support of this and almost numberless other great movements. But such advancement must not be encouraged by granting unjust relief from taxation.

As to fair play between the great mass of us and the corporations the San Francisco Chronicle suggests:

"It is gratifying to notice that in the discussion of the King bill there is less and less denunciation of corporations as such and more effort to ascertain where exact justice lies. So long as practically all important business and a multitude of small mercantile concerns are incorporated, and doubtless four-fifths of the heads of families are part owners of corporate securities, to assume that 'corporations' are villainous is to assume that most of us are villains.

"We are not mostly villains and, moreover, if we were we should be smart enough, needing as we do hundreds of millions of new corporate money to be invested in this state, not to let the impression get out that if we can catch people investing money in this state we will soak them, because if investors do get that impression we shall not get any new money. There are plenty of places were new capital will be welcomed.

"We have corporations, especially some public service corporations, which are financially hard pressed. And there are multitudes of ad valorem taxpayers in the same fix. It is unfortunate that either have to pay increased taxes, but the people voted the money. And, on the other hand, there are both corporations and individuals who have been making a lot of money.

"We are convinced that upon the equities of the case this increase of taxation for state purposes should fall on the corporations, because we are sure that they now pay a rate much lower than that paid by the ad valorem taxpayers. Even had the corporations put their case in the hands of skillful men we are sure that the result would have been the same as that now obviously impending, for the facts are not with them but against them. But their propaganda has been really pathetic and excites some sympathy."

But we do believe there is possibility of tax reduction. We are rather liberally supplied with commissions. Here, again, however, there has been somewhat of injustice through thoughtless shouting: "Reduce the commissions." Some of California's greatest advancement has been made possible because of wise decisions of the railway and other commissions of this state. At the present moment the railway commission seems to be under fire and we will have to admit the increase in freight rates makes it look as if the commission has been exceptionally liberal with the railways. Most of our street car lines are still operating on the same compensation basis that they were five or ten years ago, but the railways have been given a freight increase of approximately 65 per cent. But that is another question and not directly involved in the present discussion. We still believe in possibilities for good in the railway commission.

But there are commissions or bureaus which look to us like duplication. For instance, an irrigation commission, a water commission, a forestry commission, a fish and game commission. Why not all these and others under one management such as the department of agriculture?

On this point we believe the legislature and the state administration are planning very definite changes which will mean much in economy, and we think that feature of the case will be settled entirely satisfactorily to the people.

Regarding the amount of money required, the Sacramento Bee says:

"At the November election the people voted to nearly double state aid to the public schools, and also for increased interest on state highway bonds, to enable them to be sold.

"Together, these measures, so made binding upon the state government, call for additional outlays of about $18,000,000 during the next two fiscal years. If in this period the corporations were to pay no higher rates of taxation than they have been paying for the past four years, the state treasury would be short of money to the extent of about $16,000,000, if the increased state aid to the schools and highways, called for by the people last November, were attempted to be given, and unless a state tax be levied on individual property owners to obtain that sum.

"And even if the King taxation bill, increasing the rates of taxation of public service and certain other corporations, be enacted, the total of the corporation taxes levied by the state in accordance therewith, during the two years specified, will fall somewhat short of the state budget requirements

"But let it be understood clearly that the measure in question aims to do nothing more than to make the rates of taxation to be paid by the railroads, gas, electric and other public service corporations, and by banks and insurance companies, for state purposes, as the constitution requires, proportionately equal to the rates now paid by individual property owners for city, county and district taxes.

"The rates fixed in the King bill are even a little less than those named by the state board of equalization, in its report to the governor, as commensurate with the local taxes paid by property owners in general, from which local taxes the corporations specified are constitutionally freed under our present system of taxation."

To sum up, the voters ruled that $18,000,000 additional should be expended. The state's best interests called for its advancement in growth which means advancement in cost of state government. We will not recede; we must proress. Who will pay for it, the farmer who is now overburdened or larger interests whose burden does not yet approach that of the farmer?

"Cut down taxes" is a fine phrase to conjure with. How in the deuce can we do it?

The Eleventh National Orange Show

THE National Orange Show is running true to form and encouraging a spell of weather. It can render no greater service, for the Southland is wanting just what it is getting, a supply of rain water.

The quality show on Washington Navel oranges is a great one, and for the first time in the history of the show three sweepstakes prizes go to one concern, the American Fruit Growers, winning first with 24 boxes Lindsay Navels, second and third on Highland and Rialto fruit. With lemons Upland growers take first in sweepstakes, while Riverside and Highland take second and third. East Highland grapefruit have proven high winners, with Lindsay and Riverside second and third.

It's a great quality show. Of course, the gate money is being swelled by spectacular features in addition to the large and fine commercial exhibit. The spectacular features were never better worked out than this year. One of the most educational exhibits, however, is that of the citrus experiment station at Riverside. It has literally hundreds of varieties of fruit, many of them of highest commercial importance; many others of no commercial importance whatever—a most educational exhibit. There is good music and plenty of vaudeville to keep up continuous interest on the part of the attendants.

ORANGE SHOW AWARDS

Class No. 1

24 Boxes Washington Navels — Sweepstakes: 1, American Fruit Growers, Lindsay, trophy and $100; 2, American Fruit Growers, East Highlands, $50; 3, American Fruit Growers, Rialto, $25.

Class No. 2

40 Boxes Artistic Display—Oranges: 1, Mutual Orange Distributors, Redlands, trophy and $50; 2, G. N. Hanson Fruit Company, Upland $25; 3, Upland Chamber of Commerce, $15.

Class No. 3

40 Boxes Artistic Display—Lemons: 1, American Fruit Growers, Los Angeles, trophy and $50; 2, Riverside Chamber of Commerce, $25; 3, Upland Chamber of Commerce, $15.

(Continued on Page 274.)

The Same Guaranteed Performance in the 12-20 OilPull

Into this, the smallest of the standardized line of Rumely OilPull tractors are built all the well known features of the largest sizes that for twelve years have established the Rumely tradition of quality, power, dependability and long life.

Oil Burning—Guaranteed to burn all grades of kerosene under all conditions and at all loads up to its full rated brake horsepower.

Oil Cooled—No overheating—no freezing—proper temperature of motor under all conditions for successful kerosene burning.

Two-Cylinder Motor—Low speed, heavy duty, horizontal, valve-in-head.

Enclosed Transmission—Cut steel, case-hardened, driving gears—transmission completely enclosed and running in oil.

Roller Bearings—Hyatt heavy-duty, anti-friction roller bearings in transmission and rear axle.

Two Speeds—Two forward speeds of 2.1 and 3.25 miles per hour.

Close Regulation—Governor controlled—speed of engine automatically adjusted to every change in load.

Perfect Lubrication—Combined fresh oil, force feed (Madison-Kipp) and splash system—constant lubrication to all parts.

Easy to Operate—Ratchet hand starter—low platform—all levers within easy reach—short turning.

Accessibility—All working parts easy of access.

All Around Usefulness—Handles all power jobs—equally efficient in drawbar or belt.

Large Capacity—Pulls three 14" moldboard plows under ordinary conditions—operates a 22x36-inch Ideal Thresher fully equipped.

The OilPull is also built in 16-30, 20-40 and 30-60 H. P. sizes.

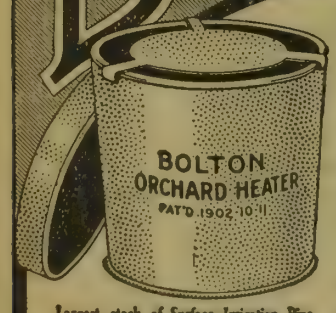
There's a Rumely dealer in most towns—if not in yours, you can deal direct with us.

ADVANCE-RUMELY THRESHER CO., *Inc.*
17-19 Main St, San Francisco, Cal.

ADVANCE-RUMELY

Arnott & Company Rumely OilPull Tractor —Distributors— **Los Angeles**

BOLTON ORCHARD HEATER



The U. S. Department of Agriculture estimates the annual loss by frost at $75,000,000. It may hit you next. The Bolton Orchard Heater

Prevents Frost Damage

Safest and surest frost prevention method known. Coal and wood heaters take too long to generate required heat. The Bolton beats Jack Frost to it, generates heat rapidly, maintains the temperature above the freezing point. This is important.

Send for Booklet B-2

Tells you all about frost prevention. Filled with valuable information for the grower.

W. R. AMES COMPANY
8th and Irwin Streets San Francisco, Calif.

Largest stock of Surface Irrigation Pipe and Pipe Equipment on the Pacific Coast

FRUIT TREES

We can still supply a limited number of trees
Write for Our Price List

The Fresno Nursery Co.

FRESNO CALIFORNIA

When Writing Advertisers Mention California Cultivator.

Raisin Contract Campaign Progressing

Prominent bankers of the San Joaquin Valley have lately issued the astonishing statement that they have had no mortgage foreclosures since the establishment of the Associated Raisin Company. Among them stands O. J. Woodward, veteran banker and business man of Fresno for a long period of years. He said, "Every bank is a reflection of community prosperity. As far as my bank is concerned there has never been a foreclosure on a raisin vineyard since the California Associated Raisin Company was organized. The story of the old days of individual marketing and the hardships that went with those days cannot be told too often."

There can be but one answer to the tide of public opinion centered on this campaign for renewed contracts; the cause is right. A few packers and speculators still assume that they have the right to gamble upon the product of the farmer's labor, but the decisions are coming in daily by the hundreds against them. Meetings have been held and demonstrations staged in support of the new contract.

At Dinuba the other day 5000 people held a barbecue and pageant which depicted the change from the old "raisin fed hog" days to the congenial surroundings of the present time. The stores closed all day and the signing of contracts went on throughout the festival. Two hundred contracts were signed and turned into the main offices at Fresno one day last week. Japanese growers met and unanimously signed up for the association. Three thousand acres of bearing vinyard were signed up by L. R. Rogers and J. Blaine Rogers.

Seldom has there occurred so spontaneous a response to an appeal for the rights of the producer as has been in evidence throughout this campaign. No cause could receive such a unanimous support and not be just. Each day letters and testimonials come from growers who are sending in their contracts and pledging their fullest cooperation. Outside organizations are watching with the keenest of interest, for the cause of the California Associated Raisin Company is the cause of all growers' cooperative organizations—the right to market at a fair price that product for which they have expended both their strength and their money.

Many times before the formation of this company raisins were sold at a price under the cost of production; they have never sold under the cost of production since the association was organized. Much of the phenomenal success of the raisin association may be directly attributed to advertising, and the cumulative results of these national campaigns have served to create a demand in excess of the supply.

Spring Spray

All peach, almond and apricot trees should be sprayed with lime-sulphur as late as possible in the spring before the blossom buds burst into full bloom. The first spraying should have been done in the fall before the middle of December for peach blight and shot hole fungus control. Of the two sprayings the second or spring spraying is the more important and should not be omitted under any circumstances.

The commercial lime-sulphur is generally used.

Twig borers, curl leaf and pernicious scale or San Jose scale will be controlled by the spring application.

A power outfit is necessary for the best results as it is important that the liquid be forced into the rough places on the bark under a pressure of 150 to 200 pounds. The nozzle should be held close to the limbs in order that the full driving force of the spray may be realized. This is especially important when it is sought to control twig borers. These small grubs bore into the ends of the tender shoots, causing them to wilt and die; often the damage is serious, and when not killed outright, the young trees are left misshapen and injured. Later these grubs find their way into the fruit, causing the wormy peaches and almonds.

During the winter the larva or grub of the twig borer remains just under the bark in the crotches of the limbs and can be discovered by the frass or sawdust that is pushed out of the burrow. For about two weeks the larva is busy in its efforts to quit its winter quarters and finally emerges about the time the young leaves appear, when it bores into and destroys the shoots. The late spraying is timed to control this pest. It is equally important at this time to thoroughly coat all of the small limbs and branches for control of curl leaf on peach trees.

While late treatment is advised, growers must be governed by the weather conditions, size of orchard, capacity of pump and efficiency of equipment. If possible the work should be completed just as the trees are coming into bloom.

The curl leaf fungus causes the leaves of some varieties of peaches to curl and drop, weakening and injuring the crop and the tree itself. This fungus is easily controlled on most varieties but the liquid must be directed against the smaller branches and fine brush which must be well coated.

Lime-sulphur sprays are not recommended for brown apricot scale occurring in cherry, prune, apricot, plum and occasionally on peach trees; however, all deciduous trees are benefited by a thorough application of lime-sulphur, while the trees are dormant.

The attention of almond growers is particularly called to the importance of spraying this season with lime-sulphur as peach blight and twig borers often occasion severe losses in almond orchards.

Spraying followed by rain within 24 hours should be repeated.—H. P. Stabler.

ALFALFA FOR FERTILIZER

The National Orange Company has used alfalfa for fertilizer for a number of years, starting when it could be bought for $5 a ton, and the result has been so satisfactory that even at $25 a ton the alfalfa fertilizer is cheaper than stable manure. At present the company is grinding its alfalfa fertilizer, but Harry Chase of the National Orange Company states that a series of saws operated by power are being built by his company and the bales of alfalfa will be sent through saws and cut to fertilizer at a much less cost. Soon after spreading, plow, but alfalfa does not lose any of its properties by exposure. Stable manure as soon as it is spread begins to give off ammonia and this is a loss. The company plows to a depth of about four inches. Alfalfa will hold water longer than stable manure.

APRICOT SCALE

Prof. E. O. Essig of the college of agriculture is author of Circular 224, "Control of the Brown Apricot Scale and the Italian Pear Scale on Deciduous Fruit Trees." Prof. Essig says:

"The control of the brown apricot scale and the Italian pear scale has been so thoroughly worked out in practice that it seems advisable to make the information serviceable to many fruit growers who are not familiar with it. This can best be done by describing first the characteristics of the insects separately and then discussing the control measures for both together.

The circular gives full description of the brown apricot scale, then the pear scale, with results from the application of certain sprays. The time for spraying recommended is the period of dormancy between December 15 and February 15. In applying the spray the spray gun is preferred to the ordinary long rod.

Sprays

The sprays most effective in the control of these two scale insects are distillate emulsions, crude oil emulsions, and miscible oils. For the brown apricot scale alone, any of these, if properly prepared and ap-

The Burden of Proof Is on Our State Officials

The wealth of the State belongs to the people of the State. It is ours to give. It is ours to withhold.

State officials demand $81,000,000 of our money in the next two years.

This is $33,000,000 more than was authorized by the 1919 budget.

It is $15,000,000 more than the 1919 budget, plus all the money the people at the November elections authorized the administration to spend.

We are now told that the people must give this money to the administration or prove that the administration does not need it.

A Fair Proposition

Let us be reasonable. The people's money belongs to the people. It does not belong to the State office holders. Our present revenues are sufficient to cover a budget equal to that of 1919-21 with its war-time prices and $18,000,000 in additional expenditures for schools, dependent children and bond interest.

If State officials want more than this, if they are asking us to support State Boards that Governor Stephens admits should be abolished, and if they are asking us to spend money on other useless functions, we are entitled to know it.

Our Double Tax Burden

Already our per capita payment for State government each year, according to the U. S. Census Bureau report (1919) is	$11.24
The average per capita payment for State government throughout the United States (1919) is	6.05
The excess per capita cost for every Californian is	5.19

This is 89 per cent above the average State government cost, and now we are asked to load on our backs an additional $15,000,000.

Who Gets This Money?

We are told that the school teachers will get this money, but this is not true. They are already provided for in the amounts voted by the people at the November elections. We are told this money is for dependent children and bond interest, but this is not true. These sums we have already authorized. We are told that the people must prove that this additional money is not needed, but this is not true. The burden of proof is on the State office holders who are now asking $81,000,000 of the people's money to spend in the next two years.

These are the facts:

No Revenue Deficit Exists. No Ad Valorem Tax is Needed.

Ask your legislator to demand that the State live within its income.

Tax Investigation and Economy League

HERBERT W. CLARK, President W. V. HILL, Secretary

1504 Humboldt Bank Building, San Francisco

"The Power to Tax is the Power to Destroy"

plied, will give excellent results. The Italian pear scale, however, is more resistant and requires heavier and more numerous applications of distillate emulsions and miscible oils. This scale yields most readily to the crude oil emulsions, which are far superior to commercial lime-sulphur for this purpose.

Many growers realize the difficulty of securing proper materials for home made emulsions, as well as the variability of the home made mixtures even under the best conditions. They prefer to buy manufactured products, especially when only small quantities are needed. The commercial emulsions and miscible oils are no more effective than a good home made preparation and are only of interest as a matter of convenience. These preparations are on the market in great variety. Many are sold under trade names. Practically all grades of petroleum distillates, as well as crude petroleum, are obtainable in a form ready for use after simple dilution with water. If these ready made preparations are to be used, it is important to purchase only from reliable and well known manufacturers or dealers.

ELEVENTH NATIONAL ORANGE SHOW

(Continued from Page 271.)

Class No. 4

Eight Boxes Washington Navels — 1, Riverside Chamber of Commerce, trophy; 2, Cucamonga Citrus Fruit Growers Association, certificate; 3, C. E. Merryfield, Highgrove, certificate.

Eight Boxes Valencias — 1, Riverside Chamber of Commerce, trophy; 2, American Fruit Growers, Lindsay, certificate.

Class No. 5

12 Boxes Washington Navels—Packinghouse Brand: 1, American Fruit Growers, Rialto, $75; 2, California Mutual Packing Company, Riverside, $50; 3, G. A. Hanson Fruit Company, Upland, $25; 4, Upland Heights Orange Association, Upland, certificate.

Class No. 5-A

Four Boxes Washington Navels — 1, Cucamonga Citrus Fruit Growers Association, trophy; 2, Highland Chamber of Commerce, certificate; 3, G. A. Hanson Fruit Company Upland, certificate.

Four Boxes Ruby Bloods — 1, Upland Citrus Association, Upland, trophy; 2, American Fruit Growers, Casa Blanca, certificate; 3, Highgrove Fruit Exchange, Highgrove, certificate.

Four Boxes Valencias—1, L. V. W. Brown, Highgrove, trophy; 2, Fontana Citrus Association, Fontana, certificate; 3, Cucamonga Citrus Fruit Growers Association, certificate.

Four Boxes Homassasas—1, American Fruit Growers, Rialto, trophy; 2, Fontana Citrus Association, Fontana, certificate; 3, Highgrove Fruit Exchange, Highgrove, certificate.

Four Boxes Medium Sweets—1, Cucamonga Citrus Fruit Growers Association, trophy; 2, Upland Citrus Association, Upland, certificate 3, Fontana Citrus Association, Fontana, certificate.

Four Boxes Thompson Improved Navels—1, Riverside Chamber of Commerce, trophy 2, Cucamonga Citrus Fruit Growers Association, certificate.

Four Boxes Seedlings—1, Highgrove Fruit Exchange, trophy; 2, Riverside Chamber of Commerce, certificate; 3, California-Portland Cement Company, Colton, certificate.

Four Boxes St. Michael—1, G. A. Hanson Fruit Company, Upland, trophy; 2, Highgrove Fruit Exchange, certificate; 3, Riverside Chamber of Commerce, certificate.

Four Boxes Malta Bloods—1, Highgrove Fruit Exchange, trophy.

Four Boxes Tangerines—1, American Fruit Growers, East Highland, trophy; 2, Mrs. K. R. Jordan, Upland, certificate; 3, Riverside Chamber of Commerce, certificate.

Class No. 6

Twenty-four Boxes Lemons—Sweepstakes: 1, Upland Lemon Growers Association, trophy, certificate and $100; 2, Riverside Chamber of Commerce, certificate and $50; 3, Highland Chamber of Commerce, certificate and $25.

Class No. 7

Twenty-four Boxes Seedless Grapefruit—Sweepstakes: 1, American Fruit Growers, East Highland, trophy and $75; 2, American Fruit Growers, Lindsay, trophy and $25; 3, Riverside Chamber of Commerce, trophy and $10.

Class No. 7-A

12 Boxes Lemons, Packing House Brand—1, Stewart Citrus Association, Upland, $75; 2, Upland Lemon Growers Association, $50; 3, American Fruit Growers, Lindsay, $25; 4, American Fruit Growers, Corona, certificate.

Class No. 8

Four Boxes Lemons—1, American Fruit Growers, Lindsay, trophy; 2, Highland Chamber of Commerce, certificate; 3, Riverside Chamber of Commerce, certificate.

Class No. 9

Four Boxes Seedless Grapefruit—1, L. V. W. Brown, Highgrove, trophy; 2, Riverside Chamber of Commerce, certificate; 3, Fontana Citrus Association, certificate.

Class No. 10

40 Boxes Artistic Display Seedless Grapefruit—1, American Fruit Growers, Los Angeles, $25; 2, Upland Chamber of Commerce, $15; 3, Riverside Chamber of Commerce, $10.

Class No. 11

One Box Washington Navels, Commercial Pack—1, American Fruit Growers, Lindsay, trophy and $25; 2, Stewart Citrus Association, Upland, certificate and $10; 3, Riverside Chamber of Commerce, certificate and $5.

Class No. 12

One Box Lemons, Commercial Pack—1, American Fruit Growers, Lindsay, trophy and $25; 2, Escondido Citrus Union, trophy and $10; 3, Upland Lemon Growers Association, trophy and $5.

Class No. 13

Feature by Chamber of Commerce or Fruit Association (without mechanical action)—1, Fresno Chamber of Commerce, trophy and $200; 2, Riverside Chamber of Commerce, certificate and $125; 3, Pasadena Chamber of Commerce, certificate and $75.

Class No. 13-A

Feature by Chamber of Commerce or Fruit Association (with mechanical action)—1, Associated Chambers of Commerce of San Gabriel Valley, trophy and $250; 2, Redlands Chamber of Commerce, certificate and $150; 3, San Diego Chamber of Commerce, certificate and $100; 4, Orange County Associated Chamber of Commerce, certificate and $75; 5, Ontario Chamber of Commerce, certificate and $50.

Class No. 13-D

Feature Display by Independent Firms or Corporations, Packing Fruit—1, California Fruit Growers Exchange, Los Angeles, certificate and $200; 2, American Fruit Growers, Los Angeles, certificate and $100; 3, Elephant Orchards, Redlands, certificate and $50.

Class No. 14-A

Plate of Five Washington Navels—1, Randolph Marketing Company, Upland, ribbon; 2, Stewart Citrus Association, Upland, ribbon; 3, Old Baldy Citrus Association, Upland, ribbon.

Plate of Five Ruby Bloods—1, Alta Loma Rancho, Alta Loma, ribbon; 2, Cucamonga Citrus Fruit Growers Association, ribbon; 3, W. T. Holland, Highland, ribbon.

Plate of Five Medium Sweets—1, Highgrove Fruit Exchange, Highgrove, ribbon; 2, Cucamonga Citrus Fruit Growers Association, ribbon; 3, Alta Loma Rancho, Alta Loma, ribbon.

Plate of Five Tangerines—1, Stewart Citrus Association, Upland, ribbon; 2, Randolph Marketing Company, Escondido, ribbon; 3, G. A. Hanson Fruit Company, Upland, ribbon.

Plate of Five St. Michaels—1, G. A. Hanson Fruit Company, Upland, ribbon; 2, Highgrove Fruit Exchange, ribbon; 3, M. M. Randall, Highland, ribbon.

Plate of Five Seedless Grapefruit—1, G. A. Hanson Fruit Company, Upland, ribbon; 2, Riverside Chamber of Commerce, ribbon; 3, Escondido Citrus Union, Escondido, ribbon.

Plate of Five Valencias—1, L. V. W. Brown, Highgrove, ribbon; 2, G. A. Hanson Fruit Company, Upland, ribbon; 3, Escondido Citrus Union, Escondido, ribbon.

Plate of Five Lemons—1, Upland Lemon Growers Association, Upland, ribbon; 2, American Fruit Growers, East Highland, ribbon.

Plate of Five Navelencias—1, Mrs. E. S. Bishop, ribbon; 2, Alta Loma Rancho, Alta Loma, ribbon.

Plate of Five Thompson or Improved Navels—1, Alta Loma Rancho, Alta Loma, ribbon.

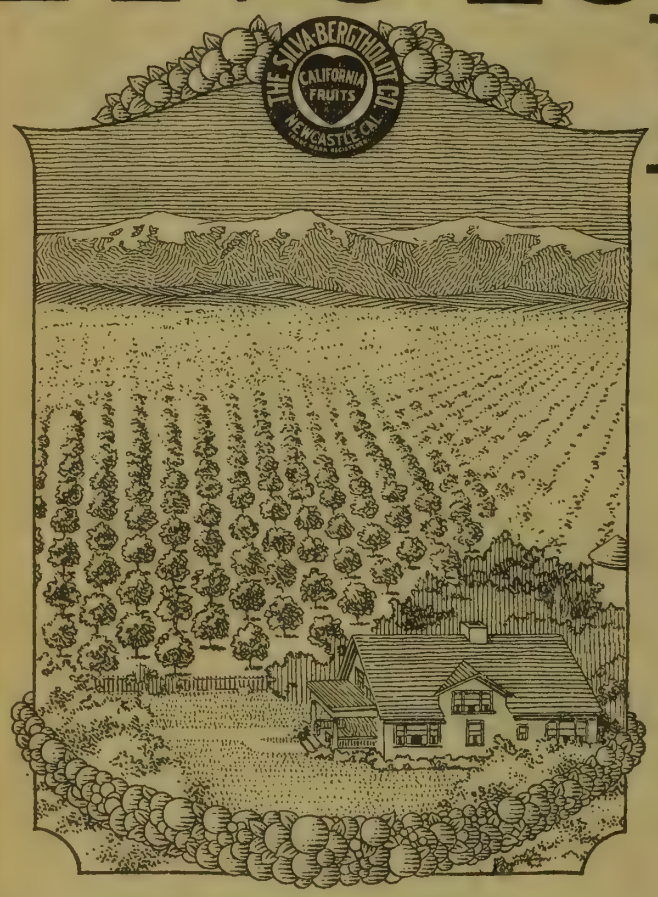
Plate of Five Seedlings—1, Riverside Chamber of Commerce, ribbon; 2, Highgrove Fruit Exchange, Highgrove, ribbon; 3, M. M. Randall, Highlands, ribbon.

Class No. 14-C

Artistic Plate Display — 1, American Fruit Growers, Los Angeles, trophy; 2, Alta Loma Rancho, Alta Loma, certificate.

(Continued on Page 299)

Five Years Hence



In another five years the present readjustment conditions will have been forgotten. Every dollar invested in trees today will be paying you dividends then.

Provide for the future by planting now.

Millions of acres of fertile lands now unprofitably employed in growing cereal crops will insure the future prosperity and happiness of their owners if planted to commercial orchards today.

PRUNES, PEARS, PLUMS, APPLES, CLINGSTONE PEACHES, FREESTONE PEACHES, CHERRIES, APRICOTS, ALMONDS, WALNUTS, GRAPES, OLIVES.

—all profitable according to their adaptability to your location.

Submit today a list of your tree wants for prices.

Catalog of useful Horticultural information mailed on application.

Nothing will add so much to your enjoyment as a well selected home orchard. Do it today.

Foot-hill grown trees are practically immune to crown-gall and diseases common to other localities. Roots, such as pictured above, are grown only on our foot-hill soil and location. They are tree insurance.

J. E. Bergtholdt
Secy. and Mgr.

SILVA-BERGTHOLDT COMPANY

NEWCASTLE - - - - - - CAILFORNIA

Montgomery Ward & Co.

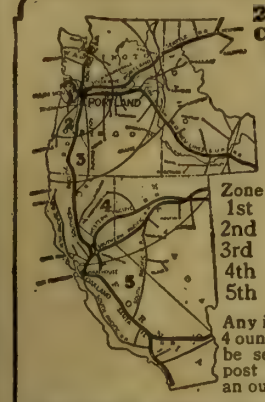
Satisfaction Guaranteed or Your Money Back

New Low Prices—YOUR Opportunity to Save

HERE are a few of the many money-saving offers presented by Montgomery Ward & Co. Every item is backed by our iron-clad guarantee of "Satisfaction or Your Money Back," coupled with the stability of 49 years of service rendered honestly. The new Main House at Portland means greater variety and rapid delivery of goods. We are anxious to have you test the merchandise and service from our new home. The offers on this page are typical of the thousands shown in our new 1921 Spring catalog. We are doing everything we can to help you cut the cost of living. Note the quality of the merchandise shown here—and see the remarkable prices! Compare these values with those offered elsewhere and figure your big saving. **Then Send Your Order Direct From This Ad.** You will be more than pleased with the goods. If you have a copy of our new catalog you will find many other items that will interest you—you will find new low prices on nearly everything you wear or use.

If you haven't received your copy write today for Buyer's Guide. But let us convince you NOW that we can save you money—**send your order from this ad!** TODAY!

How to Order From This Ad It's easy to order from this ad. Just clip out the **Entire Page and check the items you want sent to you.** Tell us the **number, size, color** and **amount** of merchandise wanted. Tell whether you want the items shipped by Parcel Post, Express or Freight. Enclose your personal check, draft or money order for amount of purchase allowing a small amount (usually 5c to 8c) for postage. See the map to the left for zone postal rates.



2200 Miles Closer to You

Here are the postal rates on territory served by the Portland house:

Zone	1st Lb.	Each Add. Lb.
1st	.05	.01
2nd	.05	.01
3rd	.06	.02
4th	.07	.04
5th	.08	.06

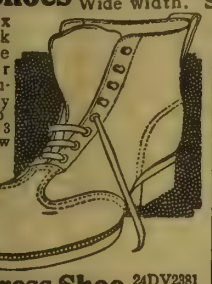
Any item weighing 4 ounces or less can be sent by parcel post for one cent an ounce.

Send Your Order From This Ad Direct to Portland

New, Complete PORTLAND House

This new, big, complete house of Montgomery Ward & Co. is now ready to serve you. Fresh stocks from the markets of the world are ready for your selection. Montgomery Ward & Co., in its forty-nine years of service, has always been a leader in the fight to give the utmost value per dollar. In doing so, the quality of goods offered has not been sacrificed to make prices seem low. Every item is standard and is backed by our guarantee of satisfaction. The new, complete store at Portland gives us an opportunity to be of greater service than ever before. Our big general catalog offers many other attractive bargains. If your copy has failed to arrive write for another. Ask for Catalog DV.

Work Shoes 24DV1835—Sizes 6 to 12. Wide width. Strong brown wax leather work shoes. Krome tan leather Soles. Popular everyday workshoe. Shipping weight, 3 lbs. Price now **$2.98**



Boys' Dress Shoe 24DV2381—Black. Sizes 9½ to 13½. Wide width. Made of strong Black Gunmetal leather. English style. Shipping weight, 1½ lb. Special price **$3.19**

For Women 24DV267—Black. $3.49. 24DV264—Brown, Widths D, E, EE. Sizes 2-1-2 to 8. Women's popular oxfords. Soft kid finished leather. Shipping weight, 1-1-2 lb. **$3.49**

Bargains in Fine Suits for Men

Here is the result of our effort to produce a really good All-Wool suit of choicest serges and worsteds. The remarkable price is the result of buying direct from the factory where the latest designs are produced. Three button, soft roll lapel. Cuff bottom trousers, usual pockets, beltloops and suspender buttons. Excellently tailored. Sizes, chest 35 to 44 inches, waist 30 to 42 inches, inseam 30 to 36 inches. In ordering state chest, waist and inseam measurements—also height and weight. A surprising value that we guarantee to please. 39DV1024—Blue Serge. 39DV1028—Black Serge. 39DV1032—Gray Serge. 39DV1140—Grey Worsted. 39DV1036—Brown Serge. 39DV1144—Brown Worsted. 39DV1148—Blue Worsted.

Shipping weight 5 pounds

$29.85

Boys' Suits Reduced Here is a winner among boys' suits—a splendid quality model at an incredibly low price. All-wool fabrics. Cash and lower pockets have flaps. Twill body lining. Full lined knickerbockers with usual pockets. Double sewed seat, crotch and inseams. Exceptional tailoring throughout. For the lad who is active, this suit will stand a lot of wear. Remarkably low in price when you consider the high quality of the fabrics. Sizes 10 to 18 years. 39DV3202—Blue Serge. 32-DV3340—Brown Cassimere. 39DV3344—Olive Cassimere. Shipping weight 4 pounds. Special **$10.75**

Raincoat 42DV5301—Here is our leader in a remarkable value olive tan raincoat of asia cloth. Sizes 34 to 46 inch chest. Average length, 49 inches. Shipping weight 3 pounds. Now **$6.75**

Save on Hosiery

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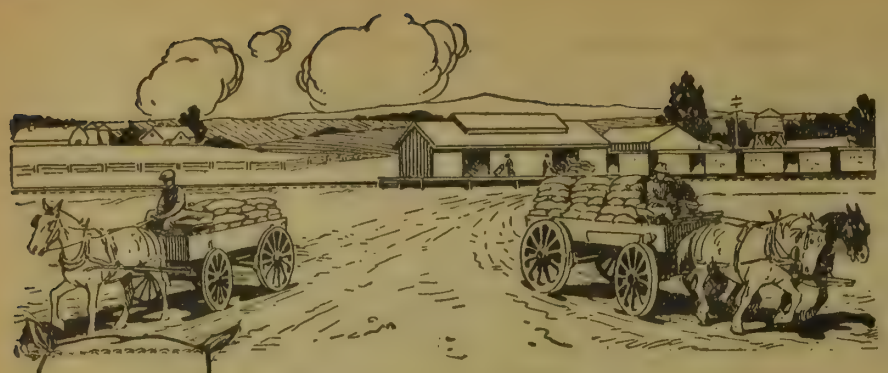

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Propagating Aphycus Lounsburyi

By Harold Compere

ONE of the simplest and cheapest methods of propagating the parasite Aphycus lounsburyi is by the use of black scale infested cuttings. This method was first used at the Sacramento insectary during the summer of 1918. At that time a generation of parasites was produced from mature black scale that were growing on olive twigs, the twigs having been made into cuttings and placed in moist sand. The scale infested twigs were taken from the orchard, cut to convenient lengths, the foliage trimmed away so as to prevent unnecessary evaporation, and the butt ends of the cuttings placed in trays of moist sand. The trays of cuttings were then placed in a cage and the scale exposed to the attack of a number of adult Aphycus. At the end of 30 days parasites began emerging from the scale. In the Sacramento district scale of the proper size could not be obtained after July so that these experiments in propagation were temporarily dropped.

Later at the Alhambra insectary this method of propagation was tried out again. In this second attempt pepper tree (Schinus molle) cuttings infested with black scale were used. For some unknown reason this attempt was a failure, all the scale drying up within a few weeks.

More recent attempts at this method of propagation have resulted in success. Citrus cuttings were obtained from a locality where the majority of the scale were of the proper size, namely, newly matured scale or scale of the third stage just before they commenced to oviposit. The citrus twigs bearing the scale were cut into 12 inch lengths, the foliage trimmed away, and the butt ends placed in moist sand. The trays of cuttings were placed in cages and the scale exposed to the attack of the parasites. Nearly all of the suitable scale were soon heavily parasitized. The Aphycus completed their development and began issuing as adults 30 days later.

The propagation of Aphycus by this method is only limited by the amount of suitable material that can be procured from the orchards. In the "even hatch" areas during April and May there is an unlimited quantity of scale of the proper size. This, however, is available at a time after the period when the most effective liberations are made in the interior districts. If this method of artificial propagation is used the most satisfactory material is that which supports quantities of third stage scale which are commencing to form eggs. All foliage should be pruned away so as to retard evaporation and prolong the life of the cutting. The insectary should be kept very humid and a temperature of 80 degrees be maintained. The cuttings should be well shaded and the sand frequently watered and never allowed to dry out.

Fresno Agricultural Society Meets

The regular monthly meeting of the Fresno Agricultural Society was held in the office of County Horticultural Comissioner Roullard on Tuesday evening, February 15. The members present enjoyed an unusual and rather rare treat in the form of a quantity of fresh grapes.

The discussion for the evening was led by Richard Schmidt, horticulturist of the Wylie M. Giffen Farms, and was on the subject of "Promising New Shipping Grapes and the Packing of Grapes in Sawdust." It happened that Mr. Schmidt had placed some of the sawdust packed grapes in cold storage on the 15th of October for experimental purposes and used this meeting of the society to show the results ogtained.

The three varieties which had been packed in this manner were the Emperor, Ohanez, or Almeria, and the Olivette de Vendemian. All of the grapes were in an excellent state of preservation, especially the Ohanez. A large part of the bunches of this variety were in perfect condition and even the stems were aparently as fresh as the day they were picked.

In the discussion of the subject it was brought out that there is an excellent future for the drum packing of grapes to be shipped to Eastern markets under ice for the holiday trade and perhaps for the months of spring and early sumer before the first new fruit reaches the market.

This fruit must of course compete with the Spanish Almeria grapes which have the whole Eastern market at that time, but it is felt that if we grow the same varieties or better ones we should be able to meet this competition.

Mr. Schmidt pointed out that investigations carried on between 1906 and 1911 indicated that under usual conditions of packing and storage the Ohanez would keep from 70 to 155 days with less than five per cent deterioration, the Emperor 80 to 120 days, and the Malaga from 50 to 80 days, so it is safe to assume that the Ohanez could be marketed as late as April 1, the Emperor up to the middle of January at least, and the Malaga could probably be held until the middle of December. It was pointed out that if the growers of California are to be successful in maintaining a good demand for the drum packed grapes, every care must be taken to insure only the very best quality of carefully culled clusters being packed. One of the principal causes of decay in the package is due to mechanical injury to the fruit from rough handling either in the field or in the packing house. If the picking of the fruit could be so regulated that very little handling would be necessary in the packing house it is felt that a great deal of spoilage could be eliminated.—F. K. H.

HARDY AVOCADO

Young avocado trees are more strikingly tender as compared with mature specimens than any other subtropical subjects the writer has observed. Living in a rather cold section, his avocado trees six feet high, of several named varieties, were well covered. Four posts were set and top and sides thatched with fan palm leaves, using about 25 leaves for each cover. In spite of this every variety except Fuerte was severely injured in the foliage.

Florida growers have noticed that young avocado trees which were growing vigorously when frosts came were less injured than those apparently nearly dormant. The same thing has been observed by the writer. This is quite opposed to the susceptibility of citrus trees. The latter are lowland tropical trees of pronounced hardiness for purely tropicals. The Guatemalan avocados come from high altitudes (6,000 to 8,000 feet), where frosts sometimes occur, although in a tropical land. This places them in the subtropical class. All the writer's avocados, except the Fuerte, stopped growing in the hottest weather of summer and grew no more during the year. Doubtless this was due to the fact that these trees are natives to cool uplands where hot, dry weather is never experienced.

Fuerte continued to grow throughout the summer, was growing vigorously when frosts came and still is growing. There must be something about the leaves functioning that makes them comparatively resistant to frost damage. It is an interesting phenomenon. As many of these varieties are quite hardy when of good size, it is evident that avocados become hardy in proportion to their age and growth. A score of seedlings of named varieties in the writer's garden, about a foot high, although well covered, were severely injured. The covering was more complete than that of the trees six feet high. Avocado trees are denuded of foliage and the wood severely sunburned in the hotter and dryer parts of California. Therefore

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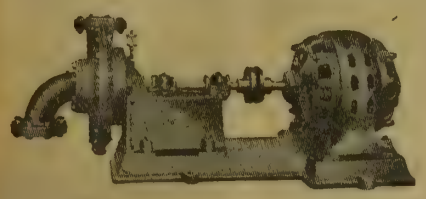

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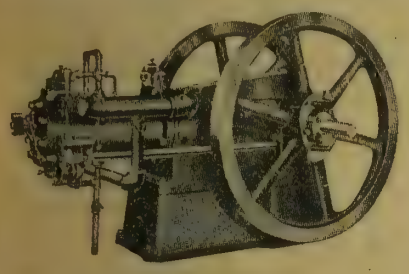

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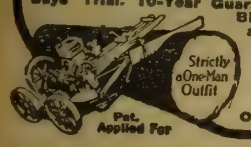

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shade young trees with light cloth cover during summer, except in coastal sections, and with something decidedly more protective in cold sections during winter.—E. B.

THE HOME ORCHARD

In the afternoon of February 4 Farm Adviser Hodgson of Los Angeles County held a pruning and grafting (topworking) demonstration on the half-acre Jackson "ranchlet" at Athens-on-the-Hill, south of Los Angeles. Here was found one of every sort of citrus and subtropical fruit, deciduous trees, berries, currants, gooseberries, etc., a real home orchard and garden.

There is no type of planting where the farm advisor may do so much good for the individual orchardist as in these small home places. Commercial growers must of necessity know something of culture, varieties, etc., before venturing funds in the enterprise, but the home place, as in the one under consideration, is often planted by those who know little or nothing as to varieties, culture or general care. Poor varieties are common, in many fruits but unknown seedlings. Intelligent care is seldom given because the owner had previously been engaged in some line of business in the city and is making his first attempt in horticulture. Mr. Hodgson is paying short visits to many of the suburban ranchlets, pruning, grafting or budding one tree of each kind. Notices of these demonstrations are sent throughout the district and neighbors gather for instruction. It is a splendid missionary work that is destined to materially raise the standard of home products and yet be equally enlightening to commercial orchardists.

FERTILIZING ASPARAGUS

In a Massachusetts station bulletin a detailed account is given of a fertilizer experiment with asparagus that was conducted for a period of nine years on coarse sandy loam which was typical of the soils used for asparagus culture. Seven crops of young stalks were produced during the experiment, and the yield steadily increased each year until the sixth, which was the crop of maximum size on nearly every plat.

In commercial asparagus growing as usually carried on in Massachusetts it is a common practice to apply what appear to be excessive quantities of fertilizers. Applications of 460 pounds of nitrate of soda, 300 pounds of acid phosphate, and 260 pounds of muriate of potash per acre appear to be as large quantities of these elements as could be utilized by the crop. Nitrate of soda at the rate of about 400 pounds per acre in connection with manure at the rate of ten tons per acre increased the crop, and appears to be the maximum amount which proved beneficial. The application of either acid phosphate or muriate of potash with manure at the rate of ten tons per acre appears not to have increased the crop. Generally speaking, chemical fertilizers upon this sandy soil give as good results as manure.

As summarized, of the chemical fertilizers used a mixture of 466 pounds nitrate of soda, 300 pounds acid phosphate and 260 pounds muriate of potash per acre produced the best yields. Manure at the rate of ten tons per acre produced nearly as good results as the chemicals, while combinations of manure with chemicals and with nitrate of soda were no better than manure or chemicals used separately. When nitrate of soda was added to manure it was most efficient when applied in two portions, one in the spring and one in the summer Nitrate of soda applied with acid phosphate and muriate of potash was slightly more effective when applied in summer in four years out of seven. Muriate of potash proved to be the most satisfactory potash compound used. There was no apparent cumulative effect produced by the annual use of manure, and the asparagus tops harrowed into the soil each year seemed to supply sufficient organic matter for the efficient use of chemicals.

One of the features of the Maricopa County Agricultural and Horticultural exhibit at the 1920 Arizona state fair was the 59 varieties of vegetables and fruits grown on one city lot.

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Questions and Answers

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Thornless Blackberries

A subscriber at Klink, Tulare County, writes: "What has been the experience of Cultivator subscribers with the Thornless blackberries, both Burbank and Corey varieties? Are they to be depended upon as to bearing qualities?" This is a good suggestion and we hope to hear from berry growers.

Beefing the Cow

I have a cow 14 years old that I would like to fatten and sell this spring. She gives about five quarts of milk in the day. I milk her once a day. Please let me know when I am to dry her and how.

Milk for three days once in 24 hours, then every other day until you can get very little milk when let run for several days. If bag does not cake no bad results will come from not milking. Feed only on hay. As soon as the cow is "dried off" she should be placed on a ration which will lay on flesh, and if we are to get the top price for her that flesh must be of good quality. The following ration was used on a lot of "boarder" cows and the owner made a good profit on the increased weight and the half cent he received over the top market price when the cows were sold. These animals were fed for 30 days and sold for eight cents per pound, when the market was about seven and a half cents. They were fed as follows: Placed in a small outdoor run and taken off the alfalfa hay they had been receiving, a good grade of barley hay being substituted. Each cow received 10 pounds daily of barley hay and three pounds for every 1000 pounds (estimated) weight of the following mixture: 200 pounds cottonseed meal, 100 pounds rolled barley. Of course it will not pay to feed a cow that has come through her lactation period in good flesh on the above ration. It frequently happens that the poor milk producer puts on flesh during her milking period instead of putting milk in the pail for her owner. Such a cow should be sold as she stands. On the other hand a cow that is poor in flesh when she is dried off takes on flesh rapidly when changed from a milk to a fattening ration.

Of course a cow giving only five quarts in 24 hours—this is only about 10 pounds—is not paying for the food she is consuming, therefore the quicker disposed of the better, but such a cow might produce a quantity of milk sufficient to make her a paying investment if she received a properly balanced ration and was milked oftener than once in 24 hours. If the owner is convinced that he is getting the maximum of milk production from his cow and that the amount is below the cost of production the sooner he sells her to the butcher the better it will be for his bank account. Such a cow is not only a bill of expense to her owner but is causing an economic loss in the community in which she is kept by consuming feed that should be fed to a higher producing animal. A survey was made recently in a Southern California cow testing association, and in one case a very fine appearing cow, but a "boarder" of the first water, was traced through 17 dairies at a total cost in hay and grain consumed of over $3000.

Propagating Cane Berries

Please tell me the best way to propagate blackberries and raspberries. I have a few expensive plants, and want to set out a patch of berries from them.—Subscriber, Madera.

The reproduction of many of the cane fruits is through layering or planting of cane and placing tips and often entire cane underneath the soil. The tips will readily take root and a new vigorous plant may be secured. Most of these vines may also be reproduced by root cuttings. The reproduction is more satisfactory, where young and vigorous plants are used. Old and weakened plants are liable to give a young plant reduced vitality and vigor. The tips should not be covered by the earth until they begin to thicken and assume a leafless snake like appearance. This will be, say, at the end of July or August.

Killing Eucalyptus

Is there any time of the year that by cutting down eucalyptus trees it would kill the roots? If not, could you suggest something?—Subscriber, Lomita.

No, there is no such period with the eucalyptus. At least, we have cut them at all times of the year and they continue to sprout and grow after cutting in spring, summer, fall or winter. It has been claimed that if cut early in summer when full of sap and growing vigorously the shock is so great that they are more liable to die. The only way is either to grub out the larger roots or to cut, clear away the dirt from the stump, pile over brush and rubbish and burn. If this does not prevent growth, then grubbing out is the only remedy.

Eradicating Bermuda

I would like to know if there is any way of cleaning a place of Bermuda grass without picking it up by hand behind a plow or spring tooth, or allowing the ground to dry out. I have 20 acres and don't see how I can stand the pressure. There is an agent around here with a spray, $2.50 per gallon, which would cost me $700 to $1000 to use on this plan, and this being my first year I don't see how I can make it in returns with market prices as they are. What will coal oil, distillate or formaldehyde do to the grass and will they spoil the ground for production?—Subscriber, Artesia.

It is possible that coal oil or distillate sprayed on Bermuda on a very hot day might be beneficial. There are also proprietary sprays which are recommended. Then one may use strong solutions of sulphate of copper or take advantage of the poison or toxic acid of some of the arsenite sprays. Again, some in their desperation have applied common low grade salt an inch or more deep, which naturally has killed the soil for all crops for two or more years. All these chemical weed eradicators prove expensive, are not as satisfactory as one would wish and often are poisonous in effect on soil. The best cure for Bermuda or other pestiferous weeds is the plow and cultivator. Plant beans, beets, or other crop calling for clean culture, and one may rid the place of the weeds and make money doing it because the thorough culture demanded to keep the weeds or grass down will have such excellent effect on the cultivated crop that good production will result.

Woolly Aphis

A small "louse" that covers itself with a white "wool" ruined the fruit on a crabapple tree last year. It is now spreading on other apple trees and seems to make the small twigs knotty. Is this what is called the "white woolly aphis"? Can you tell me some good spray for the trees thus affected? Also, what is a good spray for a variety orchard and when should it be used?—Subscriber, Norwalk.

Presumably your guess is correct as to the woolly aphis. It is a most perplexing and destructive pest, not only infesting trunk and branches but you will probably also find it on roots near the surface. It is liable to cause large knots on branch and root and these enlargements prove serious handicaps to growth of tree. Subterranean or underground forms should be eradicated by liberal application of tobacco extract, which is made by steeping stems of tobacco leaves, or, more economical is the purchase of the commercial form known as nicotine sulphate. Full directions for use are given on the package. This is to be applied about the crown of the roots which have been excavated two or three feet out from the trunk of the

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Concentrated application saves half the material.

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We invite correspondence.

The California Sprayer Co.
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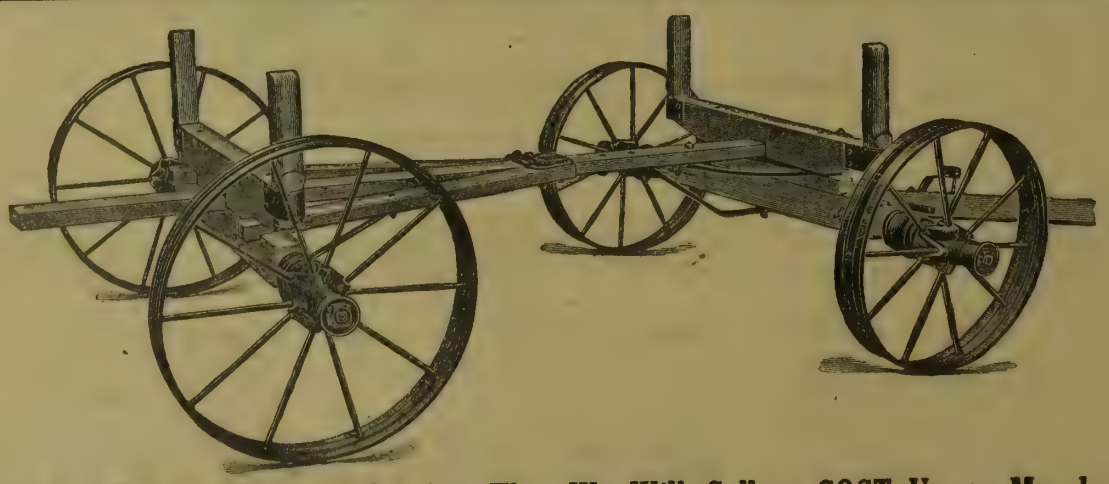

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tree. After spraying with the solution, cover. Then one may apply tanglefoot bands or any sticky solution around trunk of tree to prevent insects climbing up. Spray top of the tree at once or while the tree is dormant with nicotine sulphate, 40 per cent strength ¾ ounce, soap 4 ounces, water 4 gallons. Dissolve soap in hot or boiling water and add the nicotine. Where the pest is massed in rough places on trunks of trees, scrubbing with this soap tobacco mixture will more effectively remove the pest. The spray as given above is good for various forms of aphis. If infested with San Jose scale use lime-sulphur wash. Instructions on package used in putting up the commercial preparation give strength to use for different periods of the year. In the case of apples and pears of course various other sprays, usually containing arsenates, are used as the trees bloom and the young fruit grows, for codling moth.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Estray Act

What is the procedure with respect to dealing with animals taken under the estray act?—Subscriber, Los Angeles.

The taker up of the estray must confine it in a secure place; within five days thereafter file with the recorder or pound keeper a notice containing description of the animal with marks and brands, if any; the probable value; and a statement of the place where found and where confined. For the filing of this notice there is a fee of 50 cents. If the animal exceeds $10 in value such notice must be published in a newspaper within the county at least once a week for three successive weeks, stating time the animal will be delivered to the constable. In case he knows the owner of the animal, within five days of the taking of the animal he must serve notice which shall contain the same information as the notice recorded and for which no charge shall be made Within 30 days from the filing of the above notice, if anyone appears and demands possession for the owner of the animal and pays to the taker up his lawful costs, the taker shall deliver the animal to the claimant. His costs are the fee for filing the notice, cost of publishing the notice, and attorney's fee for preparing the notice not to exceed $2.50. The law allows the sum of not to exceed $0.50 per day for the keeping and care of each horse, mule, jenny, or cow, bull, ox, steer, or calf, and the sum of not to exceed 15 cents per day for any other animal, provided, that the taker up must properly feed and water animals while in his care, and if he fails to do so, shall forfeit all lien thereto. If the claimant of the animal is dissatisfied with the amount for the care of the animal he must tender the amount he deems right and then take action for the recovery or possession of the animal from the taker up and the matter of expenses is thrashed out. Delivery cannot be made until the payment of the amount adjudged to be proper. If no person claims the animal within 30 days or if the claimant fails to pay the expenses or bring the action, then the taker up must notify the constable of the township in which the animal is held, which notice shall specify full compliance of the provisions of the act and that no claimant has appeared, or if such has appeared that he has failed to pay the expenses and costs and commence action and, further, that the animal is held subject to sale. The constable shall thereupon proceed to sell the animal at public sale in conformity to the law on execution sales, and shall be entitled to the same fees as on execution. Out of the money realized from the sale of the animal the constable shall first obtain his fees, then pay the taker up his expenses and costs, and the surplus, if any, he shall pay to the county treasurer to be held by him for the owner of the estray, if he shall appear in one year thereafter and prove to the satisfaction of the board of supervisors that he was the owner, in which case the board of supervisors shall order such sum to be paid over. If the owner does not so appear, the money is turned over to the county school fund of the county. Sale so made by the constable conveys good and valid title.

Trespass

I am taking care of a neighbor's place, who is now out of the state. Another neighbor has lately persisted in traveling over the place, which is unfenced, although there is a good road alongside. I have warned him to keep off, but he refuses to do so. What can be done?—Subscriber, Cudahy.

You may bring an action against such party for trespass, as ownership of the premises is not necessary for such action, but mere possession and the right to the immediate possession of the property.

Title to Land in Oil District

I am purchasing two lots from a bank. Near this point they are drilling for oil. I am informed that unless I purchase what is termed "surface right," I cannot prevent an oil company from drilling on my place nor can I get possession of the same. Is this true? What is a surface right?—Subscriber, Inglewood.

It is true that there are some grants of land wherein the mineral rights were reserved by the government. It is true that in some of the old Mexican grants the mineral rights were retained by the Mexican government and thereafter transferred to the government of the United States. Whether in any particular instance mineral rights have been released from the government of the United States, it will be necessary to ascertain the history of the title to the identical property. In the matter at hand, however, it is not necessary to make such investigation. You were purchasing from a bank, which is undoubtedly thoroughly responsible and would be responsible to you if they did not or could not convey the full and whole title to the property. Secondly, the placer mining laws are the only laws under which oil locations can be established. Now, in order to base a claim under the placer mining laws it is essential that a discovery of oil or mineral be made. A discovery of oil cannot be made, however, without drilling upon the land for the oil and actually finding oil under the land, but no one has the right to enter upon land without making actual proof that there is mineral or oil lying under the land. In other words, no one has the right to enter upon such land to explore the lands and see if there is oil there, as the burden of proof is upon the mineral claimant to show by a preponderance of testimony that the land is more valuable for mining than for any other purpose, not that it might possibly be able to develop minerals. The entry for the purpose of putting down the well would be a mere trespass, which could be prevented in the same way that any other trespass can be prevented.

Cattle Guards

There is an electric suburban road operated by the third rail which has

(Continued on Page 286.)

ALL AUTHORITIES AGREE

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Fred L. Sexton, 420 N. Lemon St., Anaheim, Calif.
Lee Hawkins, Moneta, Calif.
Exchange Members may be supplied through the Fruit Growers' Supply Co., Los Angeles.

Chrysanthemum Propagation

By Ernest Braunton

I HAVE some very fine chrysanthemums and would like to know just how to obtain slips from them. Should the slips be planted in their permanent place or is it better to transplant them later? Is it as well, as some do, to merely break up the clumps and set out the small pieces?—Subscriber, Crockett.

Professional chrysanthemum growers, nurserymen and gardeners grow each year from cuttings or slips; never do they depend upon division of old roots. The old roots have made their growth, matured, cured, and become hard and woody, therefore useless. The young plant should develop its own root system and never suffer a check from propagation to blossom. Any check resulting in hardening of the tissues prevents fullest possible development of the plant. Very good garden flowers may, however, be obtained from broken clumps if richly fed.

Time of propagation varies according to climate, conditions, soils, method of treatment and whims of gardeners—from January to April. But the latter half of March, in normal years, is the best two weeks of spring for propagating cuttings. Before that time it is best to keep old clumps from growing rankly and it matters little how much they are neglected so long as they do not perish. The best medium for rooting is a coarse washed sand. Fine sand usually carries some decaying matter which causes fungous growths and damping off. Fine sand should be washed out until it no longer colors the water very much. Propagating sand need carry no plant food for the latter is not needed and often defeats the ends striven for. In fact, plants root more readily in a sterilized medium; therefore wash the sand.

Some professionals propagate under glass, but none are more successful than those who have an ordinary lath house. Around this, from the level of the sand upward a yard wide strip of thin cheese cloth is placed, to prevent direct drafts of air across the plants, though freedom of air is imperative. The top is not covered but strong sunshine is never allowed to fall upon the cuttings. During the hotter hours of sunny days newspapers are used to cover the beds. On cloudy and rainy days no covering is used. Short pegs of wood or common plant labels are stuck in sand to prevent papers from lying heavily on cuttings, for on hot days the papers are sprinkled with a watering pot having a fine "rose" or perforated nozzle. Cuttings are also so sprinkled, but lightly and often. This outline should serve as a guide to the home propagator. Follow it as closely as your amateur equipment will allow.

Get a box six or more inches deep, bore many small holes through bottom to insure good drainage. Place on bottom an inch or two of small stones, very coarse gravel, broken flower pots, chinaware, etc., so rapid drainage of sand above is assured. On top of this place four inches of sand and soak it thoroughly with water. You are now ready for the cuttings. These latter should be terminal growths, tender and succulent, three inches long. They may be broken, by a quick movement, from the old clumps. Professionals usually cut them with a very sharp knife and keep the blade wiped clean. If knife is dull and ends of cuttings are pinched thereby they will rot rather than root. Plant them not more than two inches deep in sand by first making a slit or hole in sand. Never force any cuttings, even hard wood, into sand.

Usually a lath or similar straight edge is used, laid flat upon sand, a slit made in sand by an old table knife, big enough to allow placing of cuttings without forcing. Sand is pressed against first row, the lath laid against it and the second and subsequent rows treated likewise. The rows are the width of lath apart, the cuttings in rows one inch. The sand should be heavily watered at once, clear through, to firmly settle it about cuttings. Before placing in sand, if leaves are large, cut the tops or ends of them off so they will not droop in between cuttings; we must have all air and light possible. Cuttings are often made at night and stood in clean water until morning to soak full. This prevents wilt while handling or during the first day, the most important of all days. You may cover these boxes with glass or very thin, fine cheesecloth. Glass is best if you whitewash it to prevent sunburning of cuttings and slip a little wedge under the frame when temperature is high, but do not raise high enough to allow strong drafts. Keep boxes in sun and guard against sand becoming dry. In three to four weeks they will be rooted, and while you may then plant in permanent position, it is better either to pot, in three inch pots, and hold a month or transplant to boxes or positions where they have room for development and later transplant with small clumps of soil to garden. If treatment outlined, followed closely, does not bring good results we are powerless to aid you.

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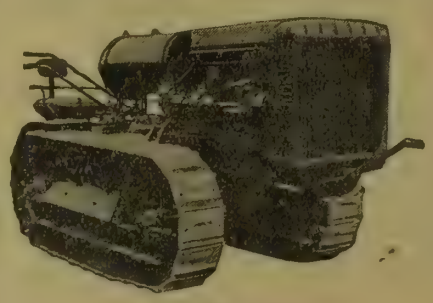
Give us the details and we will show you how you can use economically one of the famous Best Tracklayer Tractors for your plowing, cultivating, harvesting, hauling, etc.

There's no need to tell you of the many years of successful performance back of the Best line. There's no need to tell you of what the Best line—developed on the Pacific Coast—has done for the Pacific Coast farmer.

Interesting as this is, it is ancient history to you, What you want to know is "How can I adopt the Best way to my farming problems?"

That is the question we want to help answer for you. There's no better time than the present in which to put the Best Tracklayer to the test. Plowing time is here and plowing must be started at once and completed promptly. You need Best dependability and stamina and low operating cost, and you need a tractor that will go unimpeded over soft, loose or rough ground.



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Let us tell you all about the points that have made Best Tracklayer reputation, and give you the name and address of our nearest dealer where you can see the Tracklayer. Now is the time.

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BEST TRACKLAYER TRACTORS

USE LIGHT DISCOVERY TO AID PLANT GROWTH

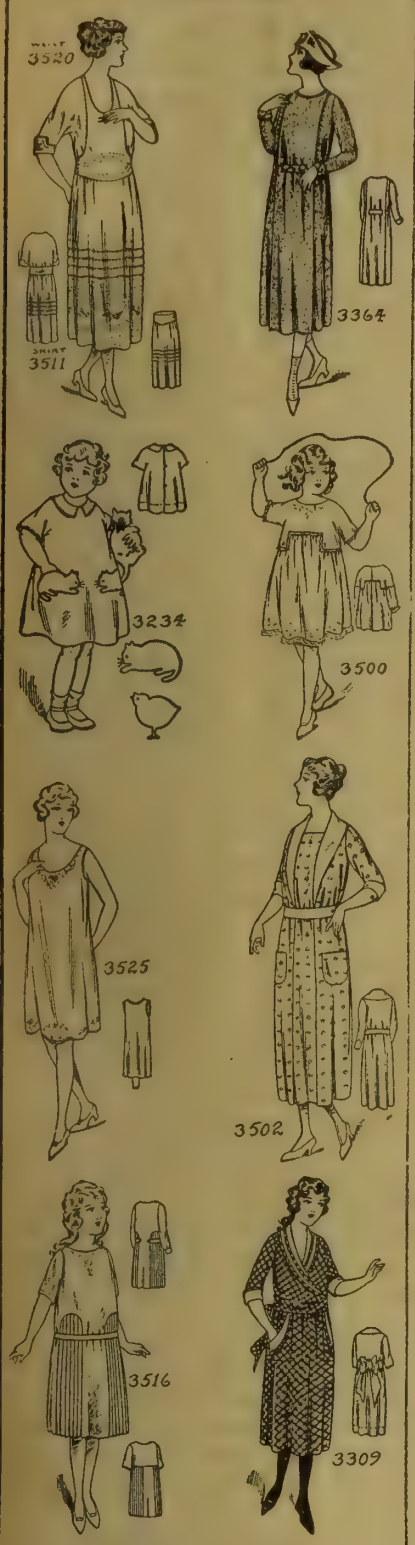
To get poinsettias ready for the market by Christmas is a problem that has worried florists ever since the bright red flowerlike leaves of this beautiful plant took their place as a favorite holiday decoration.

The problem has been reduced to a practical solution through the work of Dr. W. W. Garner, tobacco specialist, and H. H. Allard, plant physiologist of the United States department of agriculture, who discovered the possibility of advancing or retarding the growth of plants by controlling the period of light each day. Where the light period is shortened the plants reach maturity much sooner than when they are given the natural length of day. In the greenhouses on the department's experimental farm at Arlington, Virginia, it has been found possible to bring poinsettias into full form as early as August by shortening the daily exposure to lights.

In fact, department specialists are confident that there is practically no limit to the extent to which the Garner-Allard discovery may be applied in the ordinary florist establishment in bringing various flowers into bloom outside of the customary season. Iris in December and chrysanthemums in the spring are among the accomplishments already attained, and it is the intention of these specialists to bring together a group of flowers, all of different natural seasons, into bloom at the same time. One value of the discovery is that it may be easily applied with only simple and inexpensive additions to the facilities of any greenhouse.

At a time of crisis in the Civil War a politician telegraphed Horace Greeley, "Are there any news?" "Not a new," promptly wired back the great editor, who was a stickler for good English.

The Cultivator Patterns



BE SURE TO SEND SIZE

3520-3511, Ladies' Costume.—Waist 3520 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3511 cut in 7 sizes: 24, 26, 28, 30, 32, 34 and 36 inches waist measure. To make this model for a medium size will require 6¼ yards of 36-inch material. The width of the skirt at the foot is about two yards. TWO separate patterns 10 cents FOR EACH pattern.

3234. A New Play Apron.—Cut in 5 sizes: 1, 2, 3, 4 and 5 years. A 4-year size will require 1½ yard of 36-inch material. Price 10 cents.

3525. Ladies' Envelope Chemise.—Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42, and Extra Large, 44-46 inches bust measure. A Medium size will require 2⅞ yards of 36-inch material. Price 10 cents.

3516. Girls' Dress.—Cut in 4 sizes: 8, 10, 12 and 14 years. A 12-year size will require 4½ yards of 40-inch material. Price 10 cents.

3364. A Youthful Style.—Cut in 3 sizes: 16, 18 and 20 years. Size 18 will require 5 yards of 27-inch material. This dress measures about 1¾ yard at the foot. Price 10 cents.

3500. Girls' Dress.—Cut in 4 sizes: 4, 6, 8 and 10 years. A 6-year size will require 2¾ yards of 36-inch material. Price 10 cents.

3502. Ladies' House Dress.—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38-inch size will require 6¾ yards of 36-inch material. The width of the skkirt at the foot with plaits extended is about 2½ yards. Price 10 cents.

3309. Junior Dress.—Cut in 3 sizes: 12, 14 and 16 years. A 14-year size will require 5¼ yards of 27-inch material. Price 10 cents.

CATALOGUE NOTICE

Send 15c in silver or stamps for our UP-TO-DATE SPRING AND SUMMER 1921 CATALOGUE, containing over 500 designs of Ladies', Misses' and Children's Patterns, a CONCISE AND COMPREHENSIVE ARTICLE ON DRESS-MAKING, ALSO SOME POINTS FOR THE NEEDLE (illustrating 30 of the various simple stitches), all valuable to the home dressmaker.

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PATTERN DEPARTMENT
California Cultivator
Los Angeles

Household Department

McGuffey's Fifth Reader

In the issue of the California Cultivator of February 5 appeared from McGuffey's Eclectic Fifth Reader the old time poem read by "school boys and girls of other days," "Lord Ullin's Daughter," also Walter Scott's "The Tournament"; the next week, the "Last Sigh of the Moor" and a newspaper account (The Edinburgh Review) of "Impeachment of Warren Hastings." In the selections chosen for this week is given proof that California is not the originator of the "Boost Your Own State" slogan, for while California was still within the boundaries of Old Mexico, Hayne of South Carolina and Webster of Massachusetts gave their estimate of their own states in the federal congress. "Faithless Nelly Gray" will also prove a reminder of barefoot days a half a century ago.

Next week the household department will give place to a story written for Cultivator readers and the Eclectic Fifth Reader will be allowed to rest for a few weeks.

LESSON LVII

FAITHLESS NELLY GRAY

Ben Battle was a soldier bold,
And used to war's alarms;
But a cannon-ball took off his legs,
So he laid down his arms.

Now, as they bore him off the field,
Said he, "Let others shoot,
For here I leave my second leg
And the Forty-second foot."

The army surgeons made him limbs;
Said he, "They're only pegs,
But there's as wooden members quite
as represent my legs."

Now Ben, he loved a pretty maid,
Her name was Nelly Gray;
So he went to pay her his devoirs
When he'd devoured his pay.

But when he called on Nelly Gray,
She made him quite a scoff,
And when she saw his wooden legs,
Began to take them off.

"O, Nelly Gray! O, Nelly Gray!
Is this your love so warm?
The love that loves a scarlet coat
Should be more uniform."

Said she, "I loved a soldier once,
For he was blithe and brave;
But I will never have a man
With both legs in the grave.

"Before you had these timber toes,
Your love I did allow,
But then, you know, you stand upon
Another footing now."

"O, false and fickle Nelly Gray,
I know why you refuse:
Though I've no feet—some other man
Is standing in my shoes.

"I wish I ne'er had seen your face;
But, now, a long farewell!
For you will be my death;—alas!
You will not be my Nell!"

Now when he went from Nelly Gray
His heart so heavy got,
And life was such a burden grown,
It made him take a knot.

So, round his melancholy neck
A rope he did entwine,
And for the second time in life
Enlisted in the Line.

One end he tied around a beam
And then removed his pegs,
And, as his legs were off, of course,
He soon was off his legs.

And there he hung till he was dead
As any nail in town:
For though distress had cut him up,
It could not cut him down.

Hood.

LESSON LIII

South Carolina

IF there be one state in the Union, Mr. President, that may challenge comparison with any other, for a uniform, zealous, ardent and uncalculating devotion to the Union, that state is South Carolina. Sir, from the very commencement of the revolution, up to this hour, there is no sacrifice, however great, she has not cheerfully made; no service she has ever hesitated to perform.

2. She has adhered to you in your prosperity; but in your adversity, she has clung to you with more than filial affection. No matter what was the condition of her domestic affairs, though deprived of her resources, divided by parties, or surrounded by difficulties, the call of the country has been to her as the voice of God. Domestic discord ceased at the sound; every man became at once reconciled to his brethren, and the sons of Carolina were all seen, crowding together to the temple, bringing their gifts to the altar of their common country.

3. What, sir, was the conduct of the South, during the revolution? Sir, I honor New England for her conduct in that glorious struggle. But great as is the praise which belongs to her, I think at least equal honor is due to the South. Never was there exhibited, in the history of the world, higher examples of noble daring, dreadful suffering, and heroic endurance, than by the whigs of Carolina, during the revolution. The whole state, from the mountains to the sea, was overrun by an overwhelming force of the enemy. The fruits of industry perished on the spot where they were produced, or were consumed by the foe.

4. "The plains of Carolina" drank up the most precious blood of her citizens. Black, smoking ruins marked the places which had been the habitation of her children. Driven from their homes into the gloomy and almost impenetrable swamps, even there the spirit of liberty survived, and South Carolina, sustained by the example of her Sumpters, and her Marions, proved, by her conduct, that though her soil might be overrun, the spirit of her people was invincible.—Hayne.

LESSON LIV

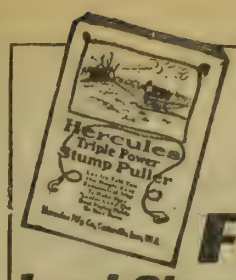
Massachusetts and South Carolina

THE eulogium pronounced on the character of the state of South Carolina, by the honorable gentleman, for her revolutionary and other merits, meets my hearty concurrence. I shall not acknowledge that the honorable member goes before me, in regard for whatever of distinguished talent or distinguished character, South Carolina has produced. I claim part of the honor; I partake in the pride of her great names. I claim them for countrymen, one and all—the Laurenses, the Rutledges, the Pinckneys, the Sumpters, the Marions—Americans all—whose fame is no more to be hemmed in by state lines, than their talents and patriotism were capable of being circumscribed within the same narrow limits.

2. In their day and generation, they served and honored the country, and the whole country, and their renown is of the treasures of the whole country. Him, whose honored name the gentleman himself bears—does he suppose me less capable of gratitude for his patriotism, or sympathy for his suffering, than if his eyes had first opened upon the light in Massachusetts, instead of South Carolina! Sir, does he suppose it in his power to exhibit in Carolina a name so bright as to produce envy in my bosom? No, sir—increased gratification and delight rather. Sir, I thank God that, if I am gifted with little of the spirit which is said to be able to raise mortals to the skies, I have yet none, as I trust, of that other spirit, which would drag angels down.

3. When I shall be found, sir, in my place here in the senate, or elsewhere, to sneer at public merit, because it happened to spring up beyond the little limits of my own state or neighborhood; when I refuse for any such cause, or for any cause, the homage due to American talent, to elevated patriotism, to sincere devotion to liberty and the country; or if I see an uncommon endowment of heaven; if I see extraordinary capacity or virtue in any son of the South; and if, moved by local prejudice, or gangrened by state jealousy, I get up here to abate a tithe of a hair from his just character and just fame, may my tongue cleave to the roof of my mouth.

4. Mr. President, I shall enter on no encomium upon Massachusetts. She



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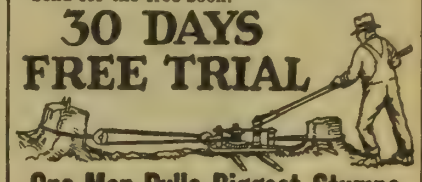

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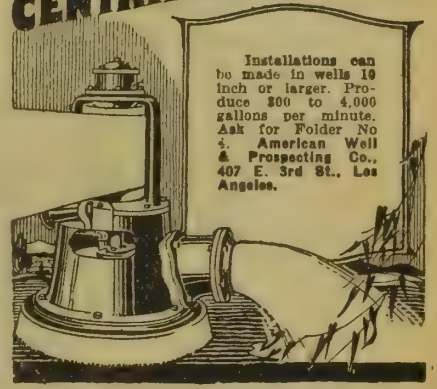

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RHEUMATIC

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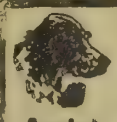

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needs none. There she is; behold her, and judge for yourselves. There is her history; the world knows it by heart. The past, at least, is secure. There is Boston, and Concord, and Lexington, and Bunker-hill; and there they will remain forever. And, sir, where American liberty raised its first voice, and where its youth was nurtured and sustained, there it still lives, in the strength of its manhood, and full of its original spirit. If discord and disunion shall wound it; if party strife and blind ambition shall hawk at and tear it; if folly and madness, if uneasiness under salutary restraint, shall succeed to separate it from that Union, by which alone its existence is made sure, it will stand, in the end, by the side of that cradle in which its infancy was rocked; it will stretch forth its arm with whatever of vigor it may still retain, over the friends who gathered around it; and it will fall at last, if fall it must, amid the proudest monuments of its glory, and on the very spot of its origin.—Webster.

HOUSEHOLD QUERIES

Nut Bread

Would like to have a recipe for a nut loaf, not a cake but more like bread.—Subscriber, Fullerton.

With Baking Powder: Two eggs, ½ cup sugar, 1 tablespoon melted butter, 1½ cups milk, 4 cups sifted flour, 4 teaspoons baking powder, salt to taste, 1 cup chopped nuts. Bake in loaf pan in moderate oven about 45 minuates.

With Yeast: One cup oatmeal or rolled oats, 2 cups boiling water, heaping tablespoon shortening, 1 cup sugar, teaspoon salt. When sufficiently cool add one cup soft yeast and mix enough to knead with wheat flour. Put into one or two loaves, let rise and bake until thoroughly done.

Homemade Fireless Cooker

The Cultivator is a paper that can't be beat. Now, will some one hurry and please tell me how to make a fireless cooker before the weather gets so hot?—Subscriber, Corning.

For the outside container a tightly built wooden box with hinged, tightly fitting cover is probably best. An old trunk could be used, a small barrel, or a large lard tin or a galvanized iron bucket, provided only it is tight and has a closely fitting cover and is large enough in comparison to kettle to be used to allow for at least four inches of packing material on all sides of kettle. The kettle used should have perpendicular sides, so that it can be fitted into its nest smoothly and should have flat tight fitting cover, preferably one that has deep inside rim, fitting well down into kettle to retain heat. One can purchase kettles made for this purpose which have clamps on tops. A six quart kettle is a convenient size. Tinned vessels should not be used as they are apt to rust from the confined moisture; enameled or aluminum vessels are satisfactory. A lining for the nest may be made of strong cardboard of a size to fit easily around kettle used. For packing and insulating material crumpled paper is very satisfactory. Crush single sheets of newspaper between hands, pack in closely, pounding in with heavy wooden stick, for at least four inches deep. Stand lining for nest in center of this layer and pack more crushed paper about it as solidly as possible to the top of the nest lining, and the outside box should lack about four inches of being filled. Make a pad of heavy cotton goods stuffed with crushed paper to solidly fill the box when cover is fastened down.

If one expects to use a heated stove lid or stone beneath the kettle, it will, of course, be necessary to have the nest lining made of metal and allow enough extra depth to take in the stone. A metal lining may be made by tinsmith or a galvanized iron or other metal bucket may be used. A heavy pad of asbestos should also be placed under the bottom of the nest and a sheet or two of asbestos paper placed between lining and packing material. Of course if non-inflammable packing material is used instead of the paper this will not be necessary. Asbestos or mineral wool make the best packing, or ground cork such as is used for packing Malaga grapes is good. Hay or excelsior are also used, but these are more odorous than the paper. Where one uses the inexpensive paper packing one feels quite free to change it as soon as it becomes soiled or smelly. This has been used by many housekeepers and found entirely satisfactory.

HINTS FROM HOUSEKEEPERS

Dampen Cloth With Brush

Being often benefited by items from readers of your paper, I wish to pass along a little convenience that I hit on quite recently. Perhaps some other housewife will be as pleased to benefit by it as I have been.

In pressing woolen goods, seams and so forth, where one has to use a wet cloth over the material and iron and press on that, I always disliked very much the constant dipping of the cloth into the water and wringing out with hands hot and swollen from ironing, and the time it took. It was not pleasant, to say the least. Finally one day it came to me to do this way, and I certainly am glad of the inspiration, as it takes all dislike of the task from me. I lay the cloth smoothly over whatever is to be pressed, then dipping a small brush in the pan of water I quickly dampen the cloth exactly as I want it dampened. If I am pressing seams only it is so easy to press the seams open just right, lay the cloth over and just run the dampened brush down the seam and press on dampened place.—Subscriber, Sherman.

Eat Olives

These suggestions were sent in by Mrs. Stainton for use in last week's Cultivator in honor of Olive Day, February 21, but as all available space in the paper was already filled we were obliged to hold over another week. However, those who have the ripe olive habit—which means practically every Californian—will just as gladly read today and pass on the information to others, for the whole year 1921 may well be celebrated as Olive Year.

* * *

Every home should have an olive tree if possible. One olive tree will supply enough for the average household for a year.

Olive Salad: Equal portions of well seasoned cottage cheese and chopped ripe olives served on lettuce hearts with French dressing is a favorite salad.

Olive Sandwiches: Remove the pits and cut up the olives in a food chopper with a medium cutter. Mix with a little Mayonnaise dressing and spread between thin slices of buttered bread.

Ripe olives chopped and added to any meat or vegetable salad make a delicious addition, a great improvement to a fish loaf, to the stuffing for eggs for the picnic, to creamed chicken, to stuffed tomatoes, and a wholesome addition to the children's lunch box.

Sure Cure for Corns

Take half a lemon and moisten the corn well with it night and morning, and it will soon dry up so you can pick it off.—Mrs, Chas. Cook, Hayward.

Good Way to Pick Ducks or Geese

A good way to pick ducks or geese is to take off while still warm all the feathers you can easily, then dip in boiling water and wrap in cloth for 20 minutes. The rest is easy.—Mrs. R. S. Vliex, Orange.

Four Helpful Hints

I have received help from other recipes printed in this department and I wish to send two which might be new to others.

Nut Cake—2 eggs, ½ cup Crisco, 1 cup brown sugar, ½ cup sour milk, ½ cup nut meats, 1½ cups flour, 1 teaspoon soda, 1 teaspoon vanilla. Put in a few raisins chopped with nuts and sift about one-half of the flour over them.

Plum Pudding—1 cup molasses, 1 cup sour milk, 1 cup chopped suet (fine), 1 cup chopped raisins, ⅛ cup currants, ½ cup almonds (blanched and pounded), 2½ cups flour, ½ teaspoon soda. Salt and season to taste with cinnamon and cloves. Steam three hours.

Milk Gravy—In cooking ham, a de-

licious gravy may be made by pouring rich milk over the ham when it is almost done. Let simmer with ham a few minutes and serve with mashed potatoes or hot biscuits.

Crisp Pie Crust—In making cream or lemon pie the crust may be prevented from becoming soaked by lightly brushing crust with beaten white of egg.—Mrs. Ralph W. Trowbridge, Orland.

YEAST AND LARD SUGGESTIONS

So many Cultivator housewives have responded to request for methods of making yeast starter and sweetening rancid lard that it is not possible to print all the suggestions received, so those that came first to this office are the ones published. We wish, however, to express our appreciation, and that of the inquirers, for the generous and valuable contributions received.

Dry Yeast for Potato Starter

Boil one-fourth package hops one hour, covered with pint and half water. As this boils away add water to keep up the pint and half. Strain while hot over flour, but do not make mixture too thick. When cool add yeast cake, either magic or yeast foam, dissolved in a little lukewarm water. Set in a warm place and when very light thicken with corn meal and roll out with rolling pin to one-fourth inch thickness, then cut with small baking powder lid into cakes. Dry until all moisture is gone. Place in paper bag or glass jar to keep dry, and use one cake as wanted for starter. If Mountain Subscriber cannot get hops and has peach leaves, dry them in season and store away for use.—Mrs. Ellen W. Flint, Kelseyville.

World's Fair Starter

Very good homemade yeast or starter, as no more yeast is used after getting it made. Boil 4 or 5 medium potatoes in water to cover. Strain this potato water through muslin or flour sack and add 2 tablespoons sugar. Let cool, then add 1 cake compressed yeast or 2 cakes magic yeast and let stand two or three days in warm place or till it foams up a little. Now your starter is ready, but it must be renewed before you use it, so stir well and pour out all but about a quart. If you wish to bake tomorrow, boil the potatoes as before, strain potato water, add sugar and cool, then pour in two quart jar with the starter set in warm place. In the morning stir up well and take out all but a scant pint, which is kept as your starter in a cool place till you want to bake again. What you have taken out this time is for your bread sponge. This is called the World's Fair starter.—Mrs. G. A. Kirkle, Modesto.

Bread Starter

Seeing in the queries a request for home made yeast I will reply:

To make a start of liquid yeast I take one peeled potato, boil until thoroughly done. Mash through soup strainer and add the water it was cooked in which should be about a cupful; one level tablespoon of salt, two spoons of sugar. Then add one-half cake of magic yeast that has been soaked in a little warm water. Let this stand until the next day, then repeat this process, only use about half of the first making as a "starter." This time you may add a little more water and after standing 24, or even 12 hours, you can make bread with this. I always save about one-half pint for my next "starter." It requires good potatoes, and one should be careful not to get any of the yeast too hot. Sometimes I grate the potato and scald it until thick like starch, add salt and sugar just the same, also add a half cup of hop tea (not too strong). This strengthens the starter.

To make bread I use one cup of liquid for one loaf of bread. I put in one spoonful of shortening — that should be regulated according to the amount baked. I first sponge my bread, use a spoon, and after it gets light I beat it well. Add more flour, stirring with spoon until it is stiff enough to work on board—until nice and smooth. Grease bowl or pan and let rise well again. I then make into loaves from the vessel it raised in, not adding any more flour. Too much potato makes the dough sticky. I usually bake about three-fourths hour in a moderate oven, sufficient to brown it well.

Hope this will help the inquirer—and others who would like to make light bread.—Mrs. E. A. C.

Keeps Six Weeks in Winter

In answer to request for homemade yeast recipe, I am sending one that I have used for years. Yet it has been known to keep six weeks in winter in the mountains and ten days in summer. Set the bread first time in the morning and if properly cared for will be ready for baking in five hours. Makes splendid bread.

Three cups boiling water, 1 medium sized potato or perhaps a little larger, 2 heaping tablespoons sugar, ¼ teaspoon salt. Put water into kettle and keep it boiling. Grate potato (after it is peeled) and add to boiling water, stirring all the while. Add sugar and salt. Cook about five minutes, stirring carefully so as not to burn. Let cool to lukewarm. Add two yeast cakes which have previously been soaked. The potato after cooking should be like a very thick starch. Put in glass jars and keep in warm place. As soon as it rises to top, shake down. Do not let it rise till it falls. Keep in warm place five or six hours. This is an excellent recipe and not hard to make after once making it. Use one pint for six big loaves of bread, keeping enough for next starter in jar in cold place.—Mrs. A. R. McElhany, Galt.

Simple Dry Yeast

In your paper dated January 29, 1921, I find inquiry for homemade yeast. Will give you what I have found to be very simple and yet very good. To get a starter I boil one medium sized potato. Mash fine. Mix in enough corn meal to make a stiff batter, then when cool, not cold, I mix a large spoonful of my bread batter in and let rise, then knead in enough corn meal to make a stiff dough and let rise again. Now I form little patties like small biscuits, place on a plate or platter and dry in an airy place. These may be kept in any dry place. I would advise making not more than six to ten at one time.—Mrs. Carl Muller, Reedley.

No Salt in Holdover Starter

Cook two or three medium sized potatoes and mash thoroughly. Add ½ cup sugar, ½ teaspoon ginger and enough warm water to fill quart fruit jar, then put in about one-half cake of dry yeast previously soaked, taking care that the water is not hot enough to scald or kill the yeast. Let this stand where it will not get chilled until it works and the potato settles to the bottom. When ready to make the bread enough water can be added to make the required quantity for the batch of bread. Save out one cup of the liquid for a starter for the next time. By leaving out salt until making the bread this process will keep yeast going indefinitely.—Mrs. J. T. Flynn, Redlands.

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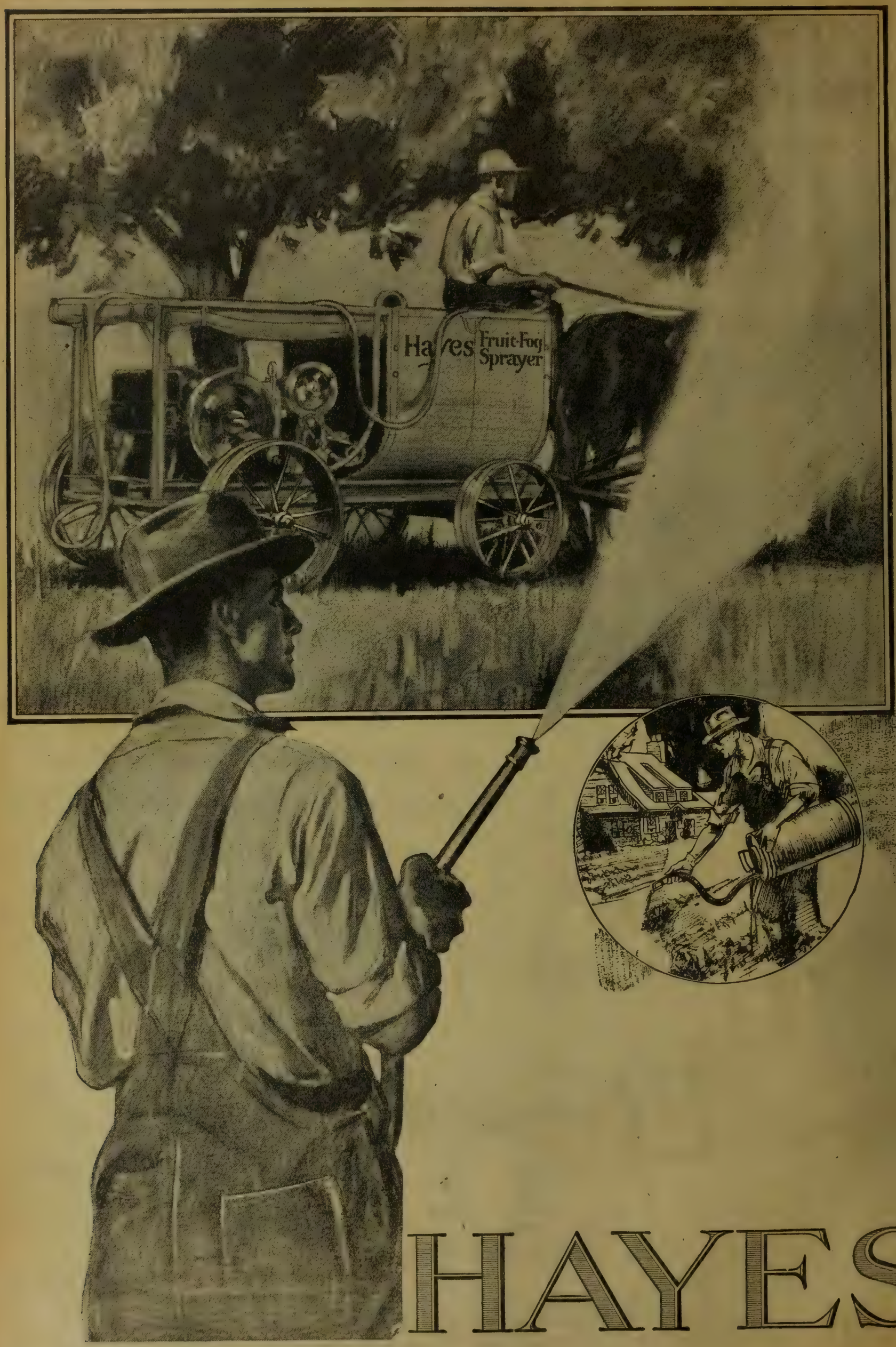

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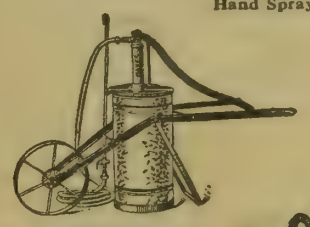

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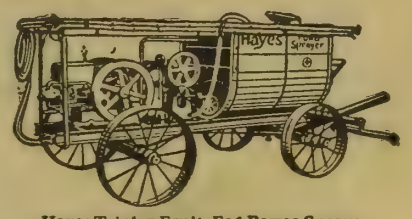

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LEGAL QUERIES

(Continued from Page 279.)

no cattle guards. Cattle cross the tracks, get on the third rail and are killed. Is there a state law requiring the erection of cattle guards or gates? Can suit be commenced to recover the cost of cattle killed?—Subscriber, Cement.

The civil code provides that railroad corporations must make and maintain a good and sufficient fence on both sides of their track and property; that in case they do not maintain such fence and the engine or cars kill the cattle or animals, except where the land of the road runs through public land, they must pay to the owner of such animals the fair market price thereof, unless the damage was caused by the fault of the owner of the animal. Railroad corporations may, when they procure their right of way, pay to the owner of the land and agree to the maintaining of such fence upon cost thereof. Thereafter, if claims of damages arising out of a killing of the animal of such person who may thereafter fail to construct and maintain the fence, the owners of such animals are liable to the railway by reason of damage which may be caused through the non-construction of the fence, unless it is shown that such damage occurred through the negligence of the railroad. Generally considered, it is possible that the suburban railroad company paid the costs of the cattle guards. If they did not, it would seem that they might be negligent. It would be necessary to look the matter up in their contracts of purchase.

Veteran's Tax Exemption

Is an honorably discharged veteran of the World War, now a property owner in California, entitled to tax exemption of $1,000 on property owned by him? Is such law federal and what is the procedure to secure the benefit thereof?—Subscriber, Willits.

Under the California constitution property to the amount of $1,000 of every resident in this state who has served in the army, navy, marine corps or revenue marine service of the United States in time of war and received honorable discharge therefrom, or lacking such amount of property in his own name, then so much of the property of the wife of said person as shall be necessary to equal said amount and also property to the amount of said sum of the widow or widowed mother of every such person, resident in this state, who has so served, and also property to said amount of residents, including widows, fathers and mothers, residents of this state, shall be exempted from execution, provided that this exemption shall not apply to any person owning property to the value of $5,000 or more or where the wife of such person owns property to the value of $5,000 or more, nor to a person who is not a legal resident of the state. The board of equalization is authorized to prescribe the procedure, affidavits and forms required to bring the tax exemption into effect. Each person applying for such exemption shall appear before the county assessor and give all required information and subscribe to such affidavits as may be prescribed by the board. The war with Germany and Austria is expressly recognized as one of the wars within the meaning and intent of said constitutional section.

Trees Obstructing View

I have trees planted on the corner of my land which obstruct the view of motorists. Can I be held responsible in case of accident on the corner?—Subscriber, Cudahy.

Under the motor vehicle act, in the case of intersection of highways or any obstruction around corners or curves in the highway where the driver's view of the road is obstructed, no person shall drive the vehicle at a greater speed than ten miles an hour. This is in addition to the general provision that the driver shall keep a good look out and drive carefully. There would be no possible cause of action against the owner of the property.

Compulsory School Attendance

Does the law require a boy 16 years of age, living two and one-half miles from school house, to attend school?—Subscriber, Napa.

Every parent or other person having the control of a child of the age of eight to 16 years, both inclusive, shall be required to send the child to a full time day school for the full time such school shall be in session, provided that when children reside more than two miles from the school house by the nearest traveled road, such exemption shall be only by a written approval of the county superintendent of schools and notice thereof filed with the board of trustees of the school district.

Note Outlawing

How long is required for a promissory note or open account to outlaw?—Subscriber, Ducor.

An action upon any contract, obligation, or liability founded upon an instrument in writing or an action to recover upon a book account, whether consisting of one or more entries, as upon an account current, may be brought within four years from the date of maturity, provided, however, that when the account stated is based upon one item, the time shall begin to run from the time of said item and for an account of more than one item the account shall begin to run from the time of the last item.

Naturalization

I was born in Canada but have lived in the United States for 17 years and am now 20. Is it necessary to apply for citizenship papers now or shall I wait until I am 21 years of age?—Subscriber, Wasco.

After an alien has reached the age of 18 years he may declare on oath before the clerk of a naturalization court that it is his intent to become a citizen of the United States, so it is optional with the alien as to when he should make this declaration.

Right of Way

A road which has been used by the public for a period of 12 years or more and graded, but never dedicated to the county, passes through my property. Is it within my rights to close the road? Can I force a corporation which has placed power poles to pay for the right of way?—Subscriber, Ducor.

In such cases it is generally best to make a careful examination of the history of the particular road. The general definition of highways is that all roads, streets, alleys, lanes, courts, trails and bridges laid out or erected as such by the public, or if laid out or erected by others, dedicated or abandoned to the public or made such in actions for the partition of real property are public highways. An excellent method for you to test the matter would be to bar the road and then somebody would bring suit to determine the right of passage. The history of the matter would thereupon be thrashed out in court and a judgment rendered. The same would apply to power poles placed on your property. The question as to that point is so indefinite that no answer can be made. An action for trespass can be brought against the corporation placing poles there and for damage for their occupation of the premises. If the corporation could not justify, they either have to remove the poles or pay for them.

Water Rate

On the rear of my premises I have a two room apartment. The tenant procures water from a faucet. The water company insists that I pay double minimum, as the tenant is not under the same roof and the law requires that each household pay a minimum, even though there is only one meter.—Subscriber, Newhall.

There seems to be no general law covering this minimum rate, but it is undoubtedly a rate which has been fixed by the railroad commission. You should write to them at their Los Angeles office for further information.

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750	12	5	9	4	11	580	38.95
1,000	24	6	6	4	11	655	44.65
1,500	36	7	1	5	11	830	57.00
2,000	48	8	1½	5	11	975	66.50
2,500	60	8	4	6	11	1,145	76.95
3,000	71	9	1½	6	11	1,270	87.40
3,000	71	8	5	7	11	1,290	87.40
4,000	95	9	10½	7	11	1,555	110.20
4,000	95	9	2½	8	11	1,580	110.20
5,000	119	10	11	7	11	1,745	124.45
5,000	119	10	3½	8	11	1,790	124.45
6,000	143	11	4	8	11	2,010	140.60
7,000	166	12	1½	8	11	2,160	150.10
8,000	190	12	3	9	11	2,375	165.30
10,000	238	13	7½	9	11	2,770	190.00

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Capacity Gals.	Capacity Bbls. 42 Gals.	Outside Dimensions Diam. ft.	Outside Dimensions Diam. in.	Outside Dimensions Height ft.	Outside Dimensions Height in.	Shipping Wt. Lbs.	Price
10,000	238	13	10½	9	11	4,660	$ 285.00
12,000	285	13	10½	11	11	5,370	327.75
15,000	357	15	6	11	11	6,080	384.75
20,000	476	17	10	11	11	7,280	446.50
25,000	593	18	4	13	11	8,510	522.50
30,000	714	20	2½	13	11	9,800	589.00
40,000	952	23	0	13	11	11,300	705.85
50,000	1190	24	0	15	11	13,400	855.00
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80,000	1904	30	3	15	11	18,000	1,168.50
90,000	2142	30	2	17	11	19,800	1,273.00
100,000	2380	30	0	19	11	21,100	1,396.50

All prices are for tanks complete, ready to erect, K. D., F. O. B., Pittsburg, Cal.

The above tanks are standard sizes. We design and manufacture tanks of all sizes up to 650,000 gallons capacity and tanks of special shapes to meet all requirements.

Complete Instructions for Erection Accompany Each Tank.
If Erected in Accordance With Those Instructions
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Redwood Manufacturers Company

1604 Hobart Building, San Francisco
Los Angeles Office: 308 East Third Street

One of the World's Great Dams

By C. L. Hughes

READERS of the Cultivator will perhaps find something familiar in the title of this article and some may remember it as one of the headlines used in the display advertising of the Rosamaines Rancho dispersal sale in October, 1920, at Riverside.

The line was used in reference to the great registered Holstein cow Gerben Abbekerk Maid 180387, and admitting the accuracy of the slogan of one of the great advertising agencies that "Advertising Is Truth Well Told," there is probably no other group of six words that would tell more of the truth about this great cow.

It was my privilege to be one of the comittee from the California Holstein-Friesian Association called upon to present the claims and merits of the Holstein-Friesian breed to the settlers at the state land settlement at Delhi, last September, and as I was just back from making the preliminary arrangements for the Rosamaines dispersal I had very vividly in mind the greatness of Gerben Abbekerk Maid on account of her accomplishments in the Stalder herd, and used her as an illustration of what a breeder may do through one really great Holstein cow. Those who were present at that meeting may remember that I ventured the prophecy that when the sale was over it would be found that Gerben Abbekerk Maid and her descendants in the sale would realize not far from $50.000 for her owner. Now this article is not designed to prove my powers as a prophet, although it so happens that my estimate was not far wrong, but is intended to show the wonderful possibilities there are in the ownership of an outstanding Holstein cow.

Gerben Abbekerk Maid was bred by A. T. Kinzer, Turlock, and was calved the property of Phil Rutherford of the same place on April 18, 1911. She is sired by Sir Skylark Ormsby Hengerveld, a half brother to Pietertje Maid Ormsby, a bull bred by Malcolm H. Gardner, superintendent of Advanced Registry for the Holstein-Friesian Association of America. Her dam is Shadybrook Gerben Abbekerk Ononis, a cow that was still alive a year or so ago and possibly is yet, owned the last I knew of her by the Lewis Company. San Jose. During the winter of 1913-1914 Gerben Abbekerk Maid was purchased by A. J. Stalder and went to his Rosamaines Rancho to begin her great work as a producer and breeder. The purchase included her young daughter, Stanislaus Abbekerk Maid, and she was in calf when sold to King Pontiac Netherland Segis, the son of King of the Pontiacs, owned for some years by Otto McClure. Her first freshening at her new home was on May 9, 1914, when she dropped the bull King Pontiac Netherland Segis 3d, who later became the leading Rosamaines herd sire, and through him, principally Gerben Abbekerk Maid became the source of a great herd of cattle.

At this freshening she was placed on official test and as a senior four year old made 30.10 pounds butter from 622 pounds milk in seven days. Calving again within 12 months she made as a five year old 34.21 pounds butter from 686 9 pounds milk in seven days, and 132.87 pounds butter from 3190.7 pounds milk in 30 days. Her next calving at seven years she made 34.46 pounds butter from 642.8 pounds milk in seven days, and 138.19 pounds butter from 3037.4 pounds milk in 30 days. None of these records were made under any but ordinary conditions. The writer was present during a part of one of her tests, and she was being milked in the stanchions in the concrete floored milking shed and turned out with the other test cows between milkings. I believe I am correct in stating that all of her records were made under the same conditions as she was never tested again after the new test barn was built at Rosamaines.

When Mr. Stalder decided to disperse his herd last year Gerben Abbekerk Maid had been in the herd between six and seven years. had made the records noted above, had passed her ninth birthday, had nine living sons and daughters, and a host of descendants. Now let us if possible reduce to a dollars and cents basis the worth of this great cow as shown by the records of the Rosamaines dispersal. We find these figures:

Gerben Abbekerk Maid

Her 4 daughters sold for $5675, an average of $1419.

Her 2 sons sold for $3400, an average of $1700.

Her 44 grandaughters sold for $28,845, an average of $655.

Her 17 grandsons sold for $3025, an average of $177.

Her 23 greatgranddaughters sold for $8390, an average of $365.

Her 10 greatgrandsons sold for $1322.50, an average of $132.25.

Thus it will be found that the sale contained an even hundred of her descendants that sold for a total of $50,657.50, quite a tidy little sum.

In addition to the above, the grand old cow herself sold for $1000, and seven of her half sisters by the same sire, all 2 year olds, sold for an average of almost $700. These figures do not include the large number of descendants of Gerben Abbekerk Maid which Mr. Stalder sold at private and public sale during the six years he owned her, and as she was only nine years old when sold it may easily be

(Continued on Page 290)

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Whether you are growing legumes for hay, forage, seed, or green manure, inoculation is precaution against failure, and an assurance of success.
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reliable
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Send for Our CATALOG
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The 1921 Guaranty Sale
"The Pacific Coast Holstein Classic"

The Bulls To Which the 35 Bred Females in this Sale Are Safe in Calf.

KING SEGIS ALCARTRA PRILLY, three times Grand Champion at California State Fair. His daughters now making wonderful records at first calving.

KING SEGIS ALCARTRA ABBEKERK, whose first daughters to freshen average over 22 lbs. butter in 7 days.

K. S. P. J. COUNT, a 30 lb. son of King Segis Pontiac Jannek, the great sire of show ring winners.

SIR AAGGIE DE KOL MEAD, son of Miss Valley Mead De Kol Walker and Sir Aaggie De Kol Acme.

MATADOR SEGIS WALKER, sire of the new world's record junior 2 year old for yearly milk production; half brother to the world's record milk producer Pietertje Segis Prospect; sire of outstanding show ring winners.

CARNATION KING SYLVIA, the $106,000.00 son of May Echo Sylvia.

SIR PIETERTJE ORMSBY MERCEDES 43D, a great long distance son of Sir Pietertje Ormsby Mercedes.

SIR PIETERTJE ORMSBY CANARY, another great long distance son of Sir Pietertje Ormsby Mercedes.

SIR AAGGIE MEAD, son of Sir Aaggie De Kol Acme and the 1215 strictly official yearly record cow Aralia De Kol Mead.

SIR AAGGIE DE KOL ACME 2ND, son of Sir Aaggie De Kol Acme and the 1100 lb. yearly record cow Aralia De Kol 3d.

KING KORNDYKE PONTIAC 20TH, the $12000.00 son of Miss Valley Mead De Kol Walker.

KING KORNDYKE PONTIAC ACME, the $41,000.00 son of King Korndyke Pontiac 20th and Miss Aaggie Acme Burke.

PRINCE WALKER CORNUCOPIA, 36 pound son of Prince Gelsche Walker.

50 REGISTERED HOLSTEIN TOPS

State Fair Grounds, Sacramento, Cal.
Thursday, March 17, 1921

This is the Fourth Annual Holstein Guaranty Sale, an event that has won a high place in Pacific Coast Holstein affairs because of the very high quality of cattle regularly offered, and the very satisfactory results most buyers have secured from cattle bought in previous Guaranty Sales.

The cattle for this offering were selected by H. V. Bridgford, Alex Whaley, G. M. Brown and C. L. Hughes, a Committee appointed by F. L. Morris, President of the California Holstein-Friesian Association, working under instructions different than those of former selections, and we believe the result has added much to the attractiveness of this event.

Within California cattle were selected only from herds owned by members of California Holstein-Friesian Association, a policy that will hereafter be observed in selecting cattle for this event.

No open heifers are included in the sale list, the 43 females in the offering including

Eight Fresh Cows Selling Open.
Twenty Cows and Heifers due to Calve in March, April and May.
Six Cows and Heifers Due to Calve in June and July.
Nine Cows and Heifers Due to Calve in September and October.

In presenting this offering we do so in the firm belief that the new regulations guiding the selection of cattle have resulted in a wonderfully improved opportunity for the buyer, the open cows making a most satisfactory attraction for the owners of high-class herd sires who wish such females for their service, and the safe-in-calf females, which compose so large a percentage of the sale, making the best possible object for investment for the beginning breeder, who will not have long to wait for valuable increase.

Particular attention is called to the reference sires listed at the left, the bulls to which the great females in this sale are safe in calf. Calves by any of them will do credit to any herd.

SEVEN SPLENDID YOUNG BULLS will appear in this sale. Four of them are out of dams with over 1000 lbs. butter in one year; three of them are out of dams with 31, 36, and 39 lb. 7 days records; one is a son of the $106,000 bull Carnation King Sylvia; one has an average of 1043 lbs. butter in one year for six of his seven nearest dams. Every one of them is a real herd sire prospect.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL TUBERCULIN TESTED AND SOLD SUBJECT TO 60 DAY RETEST BY THE BUYER.

IN NEXT WEEK'S ISSUE we will give an outline of the great individuals in this sale. Watch for it, for it is a remarkable offering.

Catalog of Sale Mailed Free on Request. A Postal Will Do.

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

GUERNSEY BULLS

AT BARGAINS

We still have a number of Guernsey bulls of service age. We need the room. A quick reply will bring our list. Bulls that will make wonderful increases in the butter fat production of your grade herds are

For Sale at Farmers' Prices

They will sire grades equal to the ones dairymen have rushed to pay us $300, $400 and $500 for.

We are sold out of grades but we have still more pure bred females than we can care for. They are priced right.

Hollow-Hill Farm

Colton, Cal.

King Korndyke Pontiac Mead

Average of his Dam and Sire's Dam (Both Former World Record Holders)

At Average Age of 4 yrs. 2 mo. 10 dys. Semi-Official, 365 Days { **1062.64 lb. Butter** / **21173.75 lb. Milk**

Official Test, 7 Days { **31.91 lb. Butter** / **615.60 lb. Milk**

His Sire—King Korndyke Pontiac 20th
His Dam—De Kol of Valley Mead 2d
Four of his seven nearest Dams have held World's Records

LOS ANGELES COUNTY FARM **Hondo, Cal.**
3 miles south of Downey on Downey-Long Beach Boulevard

Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

BURR FARM

Box 220, Route 2. East 26th and Downey Road, Los Angeles

MERRITT-BOWERS COMPANY, Tagus Ranch, Tulare, California
have just got in two carloads of registered Shorthorns and Hereford bulls, and have a large assortment of draft stallions of all breeds, work horses and mules, as well as Mammoth Jacks, Duroc-Jersey Hogs and Poland China Hogs for sale, with a guarantee on every animal.

Buy These Shorthorn Bulls

I have for sale at moderate prices 20 well bred, heavy boned red and roan Shorthorn bulls, from 13 to 24 months old, that are just right for top range bulls. Several are Scotch. Also a few yearling heifers. Come and see these bulls, or write for prices.

H. W. Vaughn **Dixon, Cal.**

Four Good Work Mules

Sound, Young and Good Action
Just the Thing for Orchard Use
C. E. BORDEN

P. O. Box 51 **Oceanside, Cal.**

Live Stock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 17, Holstein Guaranty Sale, Sacramento.
April 14—R. F. Guerin, Tulare.
April 21 and 22—Santa Anita Rancho.
May 5—Victory Herd, Carruthers.

Poland Chinas

February 26, Kings County Poland China Breeders Association, Hanford.
February 28, Mrs. Nettie Andrews, Modesto.
March 1, Hugh C. Shinn, Tulare.

Dr. L. J. Anderson, Placerville, until recently field secretary for the California Duroc Breeders Association, recently purchased 20 purebred Ayrshire cows from J. P. Walker, Visalia.

At a recent meeting of the Northern California Wool Growers Association held at Red Bluff plans were discussed for the establishment of a bonded and licensed warehouse for the grading and storage of wool.

R. J. Yates of Orland has sold his entire herd of Poland China hogs to Fred A. Clark, owner of the Capay Rancho. The transaction included more than 100 head of sows and gilts and the several herd boars.

Dr. J. J. Summerfield, Santa Rosa, veteran breeder of Tamworth swine, reports the sale of six choice sows to the Veterans Home, Yountville. The sale included several prominent winners at recent shows.

Carnation Matador Nora, a senior yearling Holstein heifer owned by the Carnation Stock Farms, has established a new world's record for 365 days milk production of 20,885.7 pounds. She is a daughter of Matador Segis Walker.

E. E. McNeil, Fresno, is laying the foundataion for one of the best Poland China herds in the state. He recently bought Giant Prospect, the great young boar shown by Chas. Gatewood at the state fair. In addition to this he has just received a July boar by The Challenger from L. R. McClarnon, Braddyville, Iowa. This is one of the best young boars ever brought to the state. Also a September boar pig sired by Checkers from Jim Bloomendaal, Alton, Iowa.

The San Luis Obispo County Jersey Breeders Association will hold a meeting at San Luis Obispo, February 10. Plans will be discussed for bringing into the county a carload of registered Jerseys. Professor V. C. Bryant, secretary of the California Jersey Breeders Association, will address the meeting. Acting Secretary Warren C. Day says that the members of the local association are determined to make San Luis Obispo the leading Jersey county in the state.

The excellent herd of 37 Guernseys built up by the late Curtis H. Lindley at Santa Cruz has been sold to the Brown Bulb Co. of Capitola near Santa Cruz. The foundation of this herd is largely imported stock and it includes a number of fine individuals. The Brown Bulb Co. makes a specialty of high grade bulbs and it recognizes the value of barnyard fertilizer. The herd will be maintained for this purpose, as well as for the wonderful milk which Guernsey cows produce.

Mansell Korndyke Frances, the 34.10 pound senior three year old Holstein owned by Fred W. Kiesel of Sacramento, has completed a 30 record with 136.14 pounds of butter and 2,461.4 pounds of milk to her credit. Rest Easy Pontiac Veeman, a senior four year old, has 116.46 pounds butter from 2,146.8 pounds milk in 30 days, and Jane Garden Virginia Korndyke, a junior two year old daughter of Prince Gelsche Walker Korndyke, has finished a seven day record of 18.90 pounds of butter from 412.5 pounds of milk.

Miss Dottie Morgan, a young Duroc enthusiast of Bakersfield, has purchased of William V. Mong, Your Duroc Farm, Whittier, two gilts by My Partner and out of Model Juanita 3rd. They are from the litter that was farrowed at the livestock show in Los Angeles last fall. From the same litter the Standard Oil Company recently purchased a very good boar prospect to head their herd of purebred Durocs. Two of their litter mates, My Partner's Top Colonel and Partner's Milk Maid, are being kept and developed by Mr. Mong to place with his show herd for the coming fall circuits.

Geo. Knight, head tester for the Los Angeles Association, states that the increased production of the 3,000 cows in the association for the month of December, 1920, compared to December, 1919, means over $30.000 per month. The average for December, 1920, was 36 pounds per cow compared to 28 pounds a year ago. Twenty-four thousands pounds of fat at $1.30 per pound (Los Angeles whole milk price) equals $31,200. Cups and medals to the value of $1,000 are being offered in the association this year for prizes for the leading herds and cows. Certificates of production will be issued also to all cows making over 400 pounds of fat, and to heifers making 300 pounds of fat.

Adirondac Wietske Dairy Maid, the great 41 pound cow owned by Bridgford Holstein Company, Patterson, will complete her yearly record on February 12 with right around 32,000 pounds milk and 1.300 pounds butter. She is in wonderful physical bloom at the end of her year and is due to calve again in April. Six daughters of the famous three times grand champion bull, King Segis Alcartra Prilly, have freshened in the Bridgford herd and have completed short time records that stamp them as real producers. Among them the senior two year old Bessie Veeman Alcartra made 24.27 pounds butter from 460.5 pounds milk in seven days; the senior two year old Jessie Fobes Segis Prilly made 23.02 pounds butter from 456.8 pounds milk in seven days and 88.75 pounds butter from 2,119.1 pounds milk in 30 days; the junior two year old Louise Alcartra Prilly made 23.88 pounds butter from 547.4 pounds milk in seven days and 89.98 pounds butter from 2,105.2 pounds milk in 30 days; the junior two year old Canary Segis Prilly made 20.45 pounds butter from 401.3 pounds milk in seven days and 79.02 pounds butter from 1,963 pounds milk in 30 days; the senior two year old Miss Alcartra Pontiac Prilly made 18.87 pounds buter from 538.5 pounds milk in seven days; and the senior two year old Sarah Topsy Alcartra made 17.92 pounds butter from 401.05 pounds milk in seven days. Each of these six heifers has milked over 75 pounds her best day and all are being carried on yearly test. Another heifer in the Bridgford herd, Karlray Ormsby Alcartra, has made 19,813 pounds milk and 765 pounds butter in 305 days, the latter a world's record for a junior two year old. She is a daughter of King Segis Alcartra Abbekerk.

Roy M. Hagan, who has been assistant state leader of agricultural club work in this state, has tendered his resignation to the University of California and has accepted the secretaryship of the California Cattlemen's Association. Hagan will succeed the present secretary, D. J. Stolley, about April 1. Mr. Hagan is a graduate of the collee of agriculture and is credited with having organized the first club work undertaken in this state. The position that he leaves will be filled by Frank M. Spurrie, who has been assistant farm director in San Joaquin County.

Bert H. Wilkinson, who has for years been manager and partner in the Falfadale Farm Duroc herd, has assumed charge of the Sierra Vista herd owned by Cash & Kyne of Perris. Wilkinson purchased the boar Great Orion Sensation Jr. as a pig and developed him into one of the great show and breeding boars of the state. At the Sierra Vista Ranch he will have the most modern equipment to work with and a fine foundation herd of Durocs is there to be developed.

A. J. Elliott, Tulare, reports the following recent sales of Poland Chinas: A boar pig sired by Hercules Jr.

to the Bakersfield pig club; boar pig by The Californian to Verne Dotts, Tipton; boar by The Westerner and eight sow pigs to a pig club at Strathmore and four sow pigs to a club at Porterville.

"HOW ARE CATTLE SELLING?"

(Continued from Page 267.)

in my opinion the coming year is going to be particularly advantageous to the men who are about to establish new breeding herds, due to the extraordinary selection they will be afforded in the coming public sales and to the fact that I am absolutely convinced that not many months hence there will be a sharp advance in price levels for the more desirable cattle.

The same underlying principles affect the beef breeds, although perhaps the outstanding weakness of the business of raising beef cattle at the present time is found in the quality of the cattle. Low markets and high costs of production expose the scrub meat animal of nondescript blood just as surely as the Babcock test exposes the scrub dairy cow, and one of the greatest problems of the beef grower, if not the greatest, lies in the improvement of the blood in his herd, that more economical gains may be made and that his cattle may be cashed in shorter growing or feeding periods. Purebred beef bulls have demonstrated thousands of times their ability to sire the sorts that go to market several months earlier and carrying several hundred pounds more weight with better quality than can be the case when operating with scrub blood. This fact has been coming home all too slowly to our cattlemen, but the circle of knowledge is expanding and gathering speed as it expands, and this fact is one of the great sound foundations upon which the breeding of purebred beef cattle rests today in California.

As to the future facing the breeders of registered beef cattle in California, both immediate and remote, it appears particularly attractive to me It seems to be that for some years to come the breeding of registered beef cattle in this state is going to be strictly upon a range bull basis. And to my mind the beef cattle breeding situation in California is in a somewhat curious position at present. On the one hand we have a demand for purebred range bulls that so far exceeds the capacity of production of our registered breeding herds that thousands of such bulls are shipped into California every year from the breeding grounds of the Middle West. On the other hand we have seen during the past three or four years in California the establishment of registered breeding herds of Herefords, Shorthorns and a few Angus upon animals of the very highest breeding and quality, no doubt purchased at prices commensurate with their worth, prices that would hardly seem practical if they must become the sires and dams of range bulls only or of offspring that will produce only range bulls. During this same period it has seemed to me that there have been a disproportionately small number of registered breeding herds founded with good, big dependable breeding cows that might perhaps have what is commonly known as a "plain" pedigree, but headed by bulls with just as much breed character and rich pedigree as it is possible to get. It has seemed to me that the establishment of a large number of such herds is the crying need in California today, for herds of this character will admirably serve two purposes: First, they will be the source of supply for the thousands of range bulls now shipped into the state annually, and will realize for their owners substantial returns on the initial investment in such animals, and second, they will logically absorb most of the very high-class animals produced by the breeders whose herds have been founded strictly upon high-class foundation, and who must have a market for such surplus at much more than range bull price levels in order to realize on their investments.

Following that line of reasoning it would therefore appear that there exists in California today a most attractive promise to the men who will found a herd of registered breeding animals of his very favorite beef breed, laying his foundation upon the sort of females that he may procure at prices within their worth as dams of range bulls, and heading them with the best bull his resources will permit. From such a beginning, with a herd that will return him a regular income, he may from time to time add an outstanding individual or two with fashionable pedigree, and thus in time become the owner of a herd with all the popular requirements as to pedigree. Certainly it is a venture that can hardly fail, with good business methods, to return handsomely even if confined strictly to the production of range bulls, and the sale of surplus females to other breeders operating on a range bull basis.

Such being the present situation in California, there is no sound reason for anything except higher price levels from now on for registered breeding animals of the beef breeds. California breeders have inaugurated an especially clean and high class manner of presenting their cattle at public sale, and the prices so far realized have been substantial and have been based upon actual cash transactions, with no abortive efforts at any time to bring about fictitious averages or high individual prices, consequently there is no water to be squeezed out of the price averages covering the past few years.

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"The Key to Dairy Profits" and *"Jersey Facts"*—two important books, telling how farmers are making real profit today with Jerseys—how anyone can do it anywhere. Whether you are interested in one cow or a hundred, these books will show you how to make money. Free—Write today
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Venadera Herd
Offers some excellent young bulls ready for service. Sired by Japs Perfection Owl. Out of cows with Register of Merit records. Also a few heifer calves.
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Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
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NEVADA HEREFORD RANCH

We always carry a large herd of high-class Herefords and at the present time we are offering:

A splendid lot of young cows with Harris Standard 2nd calves at foot, and many of them rebred

A nice selection of young cows and heifers bred to our herd bulls

A choice collection of open heifers.

A lot of good rugged range bulls. These are the real money making kind, and they are priced to make money for the buyers. We will sell them in car lots or in lots to suit buyers.

We also have some choice young bulls of herd-header caliber that we will sell well worth the money.

We invite your inspection.

John H. Cazier & Sons Co.
Otis Cordell, Herdsman Wells, Nevada

Our ranch is on the main line of both the S. P. and W. P. railroads and only a twenty minutes drive from Wells.

SIERRA VISTA HEREFORDS
One of the largest herds in the West. Built on a Repeater and Fairfax foundation. At present we have to offer 24 choice young bulls ready for service.
Sierra Vista Vineyard Co. Minturn Madera County Cal. On Highway 2 Miles North of Chowchilla

Use Hereford Bulls
The Hereford is the range bull without a peer.
My Herefords have size, bone, constitution and are notably thick fleshed. Visit my ranch and get my prices. Send for free literature.
Mission Hereford Farm
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DIAMOND G HEREFORDS
A few choice young bulls, big, heavy-boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.
H H. Gable Esparto, Cal.

Anxiety Bred Herefords
We are now offering a few choice range bulls of serviceable age. These youngsters are well bred, well grown, thick-fleshed and heavy-boned—just the kind you need. The prices are conservative. Visit our herd.
E. A. Noyes & Son
Sutter Cal.

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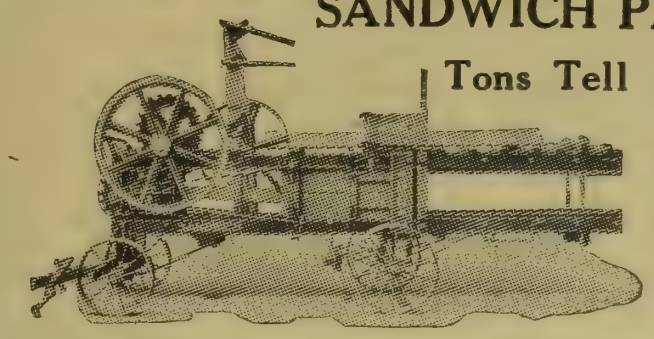

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Farmers, Miners, Builders — people in every kind of business are saving money buying used or renewed pipe from us. We sell every kind of pipe. Send in a list of your requirements today and get our prices. We have saved hundreds of people 33 1-3 to 50 per cent on their pipe bills. Here's a partial list of some of the miles of pipe we have in stock for immediate delivery.
8,000 ft. 6 Inch Riveted 16 Gauge
700 ft. 8 Inch Riveted 16 Gauge
5,000 ft. 12 Inch Riveted 12 Gauge
1,000 ft. 18 Inch Riveted 12 Gauge
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300 ft. 24 Inch Riveted 14 Gauge
500 ft. 36 Inch Riveted 12 Gauge
10,000 ft. light wrought iron 8 Inch pipe with cast iron collars.
All above pipe thoroughly overhauled and inspected and ready for immediate use.
We also have large quantity standard pipe and screw casing, pressure tested and guaranteed.
Don't delay—write for our prices on your pipe requirements today.
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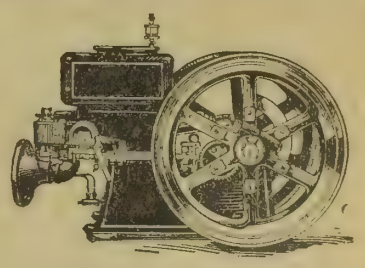

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ONE OF THE WORLD'S GREAT DAMS

(Continued from Page 287.)

understood that many of her descendants included in the sale list were just calves.

Gerben Abbekerk Maid and her daughter, Aralia Maid, were both bought by Robert N. Clapp, who has them at his place, Sycamore Acres, Nuevo, and the grand old matron is due to calve again on April 20, 1921, to the service of Sir Ormsby Skylark Rauwerd, a 34 pound son of Sir Ormsby Skylark. She is said to be in wonderful physical condition, looking fit to continue her remarkable performance in the hands of her new owner.

Gerben Abbekerk Maid is an exceptional cow, but there are many exceptional cows, unknown and unsung. When she fell into the hands of A. J. Stalder she became the property of a man whose accomplishments as a breeder were founded upon absolutely nothing except that rare quality sometimes referred to as horse sense. Rosamaines Rancho was a real farm, first, last and all the time, a place where only the most practical things found place, and the development of one cow, Gerben Abbekerk Maid, into an asset readily cashed into a very substantial sum of money, was only one result of the practical application of common sense.

This is the story of Gerben Abbekerk Maid to date. I wonder how many men are overlooking oportunities in their own herds to develop an asset that would approach but might not equal her performance?

Moral: Horse sense is a good thing to use in the cow business.

THE BEST LINIMENT
OR PAIN KILLER FOR THE HUMAN BODY
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IT HAS NO EQUAL

For—It is penetrating, soothing and healing, and the for all Old Sores. Bruises, or Wounds, Felons, Boils, Human Corns and Bunions. CAUSTIC BALSAM has Body no equal as a Liniment.

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The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

MRS. ANDREWS' SALE OF POLAND CHINAS

The stage is all set ready for the sale of a fine line of Poland Chinas on the ranch of Mrs. Nettie Andrews, Modesto, next Monday. We referred last week to a number of attractive features of this sale, and especially to the fine sows which have been bred to I Am King. The text of the article was correct, but in the heading a mistake was made in referring to it as a "Dispersal Sale." Mrs. Andrews will remain in the Poland China game.

DIAMOND BAR'S GREAT SALE

By Jack Klein

THERE were no tops—they were all tops—in the Diamond Bar's second big sale of Duroc sows. A perfect day and a big crowd were part of the features. The excellent hogs and ready buyers were the balance. There were daughters of such great boars as Pathfinder, Great Pathfinder and Mammoth Sensation Junior, bred to the Diamond Bar boars, Ace of Pathfinders and Mammoth Sensation Jr., and a few to the young boar, Diamond Sensation, to choose from, and they sold well.

Cols. Geo. W. Bell and John Davis were in charge of the sale and it moved along quickly and smoothly, and the average of over $200 was the best on the coast since prices began to fall. The buyers were eager for the animals at the price, and it would have been possible to sell a lot more hogs of the same kind if they had been available.

The offering was very uniform and the honor of topping the sale went to the show gilt, Cherry Duchess 2nd. She is by Ace of Pathfinder and out of a granddaughter of Pathfinder and, with one brother and two sisters, she brought home 16 firsts from the shows last fall. She was first junior gilt and grand champion at Los Angeles. Bidding was snappy and she was finally knocked down to W. P. Hodge of Hinkley for $460. Mr. Hodge purchased her prize winning brother after the Riverside show last fall and knew what he wanted. Nineteen different men took hogs home. Ten of these were new breeders, and of the remaining nine all but one had bought in last year's sale.

The Ace of Pathfinders was the big drawing card and sows bred to him were in demand while his gilts brought excellent prices. He was driven into the ring in the best condition he has shown since being in the West and that added to the popularity of his offspring.

A detailed list of the sales follows:

Critic Rose, Winsor Ranch, $265.
Janetto Wonder, J. P. Walker, $275.
Model Cherry 2d, Osterman & Osterman, $145.
Esther Gano Wonder, C. S. Volle, $120.
Creator's Queen, J. P. Walker, $325.
Model Fern 2d, J. M. Pickarts & Son, $360.
Mary Pathfinder, Osterman & Osterman, $285.
May Pathfinder, Victor Magee, $285.
Nervey Pathfinder, Sierra Vista Stock Ranch $275.
Defender Louise 9th Lawton & Walker $160.
Model Lucy 5th, Walter Greening, $125.
Model Hattie, Walter Greening, $110.
Ruby Wonder Again, Sargent Brothers, $175.
Pathfinder's Irene, Lawton & Walker, $140.
Queen of Col, Sierra Vista Stock Ranch, $140.
Valley Giant 4th, Sierra Vista Stock Ranch, $200.
Golden Millie 1st, E. F. Hopkins, $135.
Rose Orion 2d, Sargent Brothers, $260.
Cherry Rose, C. A. Lowry, $200.
Wonder's Queen, Victor Magee, $295.
Model Lucy 2d Chas. H. Tyler, $125.
Cherry's Rose, G. Allan Goodell, $150.
Maud Pathfinder 2d, W. P. Hodge, $210.
Mammoth Belle, E. F. Hopkins, $165.
Model Lucy 2d, W. P. Hodge, $175.
Model Sensation 2d, L. L. Brentner Jr., $145.
Model Sensation, Howard Berg, $140.
Model Sensation 3d, C. S. Volle, $145.
Lady Uneeda, C. S. Volle, $155.
Uneeda Lady 4th, C. S. Volle, $155.
Miss I Am 5th, Lawton & Walker, $145.
Cherry Duchess 2d W. P. Hodge, $460.
Mammoth Rose, W. H. Dunee, $155.
Esther Pathfinder, Sargent Brothers, $165.
Bess Pathfinder 2d, Sierra Vista Stock Ranch, $250.

J. P. WALKER BUYS GREAT ORION SENSATION JR.

Johnny Walker, owner of the A1 Duroc Ranch of Visalia, was the high man in the bidding for the great herd boar, Great Orion Sensation Jr., at the Falfadale Farm dispersal sale. The price was the very conservative one of $5000.

Great Orion Sensation Jr. is a son of the world's champion boar, Great Orion Sensation, and is himself a great show boar, having been reserve grand champion at the State Fair and grand champion at Los Angeles, Tulare and Riverside. He is a great sire and his get were winners all around the circuit.

The sale day was rainy and not a very large crowd turned out. The sows went at bargain prices and after a dozen were sold it was deemed advisable to stop selling.

J. P. Walker arranged to take the 55 head which were not sold, so the Falfadale Farm herd is no more. Cols. Geo. W. Bell and John Davis very ably conducted the sale. The list follows:

Great Orion Sensation Jr. J. P. Walker, $5,000; Great Orioness, Sierra Vista, $195.
Iowa Maid, J. P. Walker, $130.
Pathfinder Princess, H. R. Hertel, $210.
Miss Great Wonder, Charnock Ranch, $180.
Unnamed gilt, W. H. Dupee, $150.
Unnamed gilt, Sierra Vista, $100.
Unnamed gilt, Victor Magee, $100.
Unnamed gilt, C. M. Pilgrim, $75.
Defender's Princess 2d, C. C. Ellis, $170.
Orion's Defender Princess, C. M. Pilgrim $105.
Orion Lassie 2d, Diamond Bar, $100.
Great Orioness 4th, Victor Magee, $225.

HUGH SHINN TO DISPERSE HERD

Poland China breeders of this state will regret to learn that bad health is causing Hugh C. Shinn, Tulare, to dispose of his Fortuna herd of Poland Chinas. Hugh is one of the best known breeders and showmen on the coast and his retirement will be a distinct loss to the fraternity. His entire show herd that was one of the heaviest winners at Sacramento last year and the carefully selected prospects for this year will all sell at the sales pavilion at the Tulare fair grounds, Tuesday, March 1. The great sire, The Californian, and The Skipper by The Pilot will also find new owners on that date. Any breeder wanting to strengthen his show herd for 1921 will find what he needs in this sale.

BASSETT ROSS AND CRAWSHAW SALE

The Percheron horses sold by M. Bassett, Hanford, Tuesday, February 15, brought a very good range of prices. Most of the young stuff and the grades were bought by local parties. Tagus Ranch, Tulare, bought two four year old stallions at good figures. The top of the sale was $600 for the grand champion, Ithos, purchased by

You CAN Afford a Good Bull!

We know from long experience that many a dairyman thinks he can't afford to buy a good registered Holstein bull, looking only at the immediate investment and not at the final results.

We also know from long experience that when a dairyman has once owned a good registered Holstein bull long enough for his daughters to reach milking age, he is certain to look back and wonder how he could have been so short sighted as to put off buying one for so long.

The greater production that such a bull will breed into an ordinary dairy herd has been proven so many thousands of times that it ought not to be necessary to repeat the facts here, but there is another feature that is of great dollars and cents value—the added value to the animals themselves, sired by such a bull, a value enhanced by their added ability to produce milk and butterfat, and the greater uniformity of type and color fixed by the pure bred sire. To illustrate the added value a pure bred Holstein sire bestows upon his grade offspring, let us cite two instances that are a matter of public sale record in California.

SIR AAGGIE DE KOL ACME 2ND

In producing this bull we bred one of the greatest yearly record bulls of the breed, and the greatness of the yearly records behind him is fully matched by the known transmitting powers of the families he represents.

His sire, SIR AAGGIE DE KOL ACME, is by a son of the great foundation cow Aralia De Kol, the first cow to make over 28,000 lbs. milk in one year. His dam, Aaggie Acme of Riverside 2nd, holds the world's strictly official yearly butter record of 1,331.78 lbs., she is out of Aaggie Acme of Riverside, 1,054.10 lbs. butter in one year at 11½ years of age. Aaggie Acme of Riverside 2nd is also the dam of Miss Aaggie Acme Burke, 1,034.66 lbs. butter from 24,338.9 lbs. milk in one year as a first calf junior 2 year old, that latter a world's record when made, she in turn the dam of the $41,000.00 bull King Korndyke Pontiac Acme. This heifer recently made 35.38 lbs. butter from 726.2 lbs. milk in 7 days as a junior 4 year old.

His dam, ARALIA DE KOL 3d, is by Juliana King of Riverside, who has four daughters above 1,000 lbs. butter in one year, and is out of Aralia De Kol, the noted yearly record foundation cow. Aralia De Kol 3d was an individual of show quality, made 1,100.48 lbs. butter from 24,554.1 lbs. milk in one year at mature age. Her record of 772.94 lbs. butter from 17,509.5 lbs. milk in one year as a junior 2 year old stood as a California record for several years.

Five of the seven nearest dams of SIR AAGGIE DE KOL ACME 2ND average 1,154.21 lbs. butter and 25,056.1 lbs. milk in one year, one of the highest in the world.

All five of these dams have two yearly records, and the average two year production of the five is 2,069.85 lbs. butter and 44,748.6 lbs. milk, and includes one junior 2 year old record, one junior 4 year old record, two eleven year old records, and one twelve year old record.

SIR AAGGIE DE KOL ACME 2ND is an individual of high merit, and has a most promising lot of young daughters, none of which are yet of milking age, but they show every evidence of being capable of carrying on their great inherited production. He heads the choice herd of registered Holsteins owned by

ALEX WHALEY

Tulare California

When Mr. James McGillivray, Sacramento, decided to disperse all of his grade Holsteins at public auction to make room for his rapidly expanding registered herd, he had in the sale eight grade daughters of King Mead of Riverside. These eight cows were sold in pairs at prices from $300 to $350 per head for the entire eight head. There were other cows in the sale that perhaps looked as well, but the fact that they were sired by King Mead of Riverside, and that one of their grade sisters by the same sire had led the Sacramento-Yolo Cow Testing Association, unquestionably were the big factors in bringing the price.

Again, Napa State Hospital, Napa, wished to reduce their herd of young stock, all grade Holsteins, and to accomplish this held a public sale of about 100 head. In the entire sale there were only eight cows in milk, and a very large proportion were unbred heifers and heifer calves. Yet the entire offering averaged over $125 per head, with one grade heifer selling for $300. In this case the seller was able to give the private milk record of practically every dam of the heifers, and in addition the name of the registered Holstein sire.

Happenings like these come regularly, right in your own community, perhaps, where one or several grade cows known to be sired by registered Holstein bulls bring added values because of the fact.

How many $25 to $50 increases in the price per head would it take to pay for the right kind of a registered Holstein bull in your herd? CAN YOU AFFORD NOT TO OWN SUCH A BULL?

We can usually supply you with the right sort of bull to breed greater value into a dairy herd, and our prices have always been considered very reasonable for such quality. Let us hear from you if you are unable to visit our place.

ALSO—Watch this series of announcements. The bulls featured, heading the herds of other breeders, represent our greatest producing families, and cover the length and breadth of California. Perhaps one of them is right in your own community and you can get one of his sons right near your home.

A. W. Morris & Sons Corporation
Woodland, California

George Edwards, Palo Alto.

The sale of Poland Chinas in the afternoon by Messrs. Bassett, Ross and Crawshaw was not so successful. A good crowd was present, but few buyers were on hand. About half of the offering was sold at close to a $50 average. Col. George Bell conducted both sales in a high class manner.

PROPOSED TUBERCULOSIS LEGISLATION

By Dr. J. P. Iverson

THE pure milk law at present in effect in the state of California provides for the compulsory testing of cows in raw milk dairies. Under this act the state veterinarian, now included in the division of animal industry of the state department of agriculture, is charged with the enforcement of this phase of the law, making it necessary to inaugurate a system of tuberculin testing more comprehensive than anything that has previously been undertaken by any state in the Union.

In some other states tuberculin testing was spasmodically undertaken, either with the idea of eradication or for the purpose of educating the people to its presence and extent.

In some other cases appropriations were made that were intended to reimburse the owner in whole or in part for animals killed. These laws seem to have been based upon an insufficient fund of information, therefore have met with failure. In the first place the extent of the disease was probably not realized by the author of the law, and the limitation of the test was not reckoned with. Once the law became operative their efforts were not concentrated on any community but were applied here and there over the state wherever a dairy owner could be found who was in sympathy with the law and was willing to cooperate. Even where such owners were found they soon would be discouraged by the fact that every six months, or oftener, a number of their best cows would be claimed by the test without much apparent progress. This made it increasingly difficult to get the cooperation of their neighbors. The state officials themselves became discouraged and legislators refused to appropriate further funds to eradicate a disease when it would not eradicate and so these laws one by one have died a natural death, and rightly so. It would bankrupt the treasury of any state having any considerable amount of tuberculosis to attempt an eradication on that plan; it would break up the business of the principal dairymen of the state and would result in an inadequate supply of milk and dairy products.

However, all of these laws and their successive failures carried a lesson and our knowledge increased.

Therefore, the provision made for tuberculin testing by the pure milk law, and the provision for disposition of reactors by the regulations adopted for its enforcement, were well advised and probably the first and only workable law having to do with the testing of dairy cattle up to the time of its adoption.

The operation of this law has been successfully accomplished and its purposes largely satisfied. Its operation has shown us several things: First, that tuberculosis exists in the state to a considerable extent. Second, that it is distributed by districts, some sections having few herds unaffected, other sections being as yet little or not at all touched by the disease. This is shown by the following extract from a report by one of our veterinarians:

"I started a test in Southern Tehama County and tested north to the Oregon line. The farther north I went the fewer reactors were found. I believe that in all of Siskiyou County only two, or possibly three, herds were found infected, and in each instance I was able to trace these reactors to outside sources." Third, that there is a demand for eradication of tuberculosis, shown by the fact that literally thousands of applications not specifically required to be tested under the regulations of the law had to be refused owing to lack of funds. Fourth, that may herds may be freed of this disease by intelligent use of the test. Fifth, that it is a reliable index as to the extent of tuberculosis in a given herd or community. Sixth, it has created a demand for unaffected cows to replace reactors in raw milk dairies that cannot at the present time be supplied.

All of this has brought us to the place where further legislation, based on the information now in our possession and intended to meet the demand that has arisen for such a law, should be enacted. The nature of the proposed law will also be determined by the facts previously enumerated.

Under the proposed law a survey of the state will be made to determine those areas relatively free from tuberculosis, whereupon certain districts will be declared free areas. Within these areas all cattle will be tested and reactors removed to without the areas, and if slaughtered, will be done under inspection. In brief, it consists of the application of the accredited herd plan to districts and it is hoped that eventually these districts may be increased in size to include most or all of the state. At any rate it would prevent the further introduction of tuberculosis into those sections of the state now comparatively or altogether free; it would stop such shipments as were recently brought to our attention whereby a number of dairy cows from a section of the state heavily affected and with a history making their tubercular condition certain, were brought into territory heretofore known to contain but few tubercular cattle.

Such a law would enable us to avail ourselves of the service of federal veterinarians to the same number as employed for that purpose by the state for accredited herd work, thereby securing the expenditure of federal funds for the welfare of California that would otherwise be expended in other states. In this connection it is significant that of all important dairy States California is the only one that does not have a specific enabling act providing for accredited herd or similar tuberculosis eradication work.

GLENN COUNTY DUROC SALE

The Glenn County Duroc-Jersey Breeders Consignment Sale was held February 4. On account of rainy weather it was not very well attended, but prices were very satisfactory, an average of $43.50 on 24 head. Everything sold that went through the ring, the top sow bringing $97.50. She was sired by Uneeda Orion B. Most of the stuff went out of the county, R. A. Clark of Corning being the heavy buyer, taking nine head. David Nelson of Redding bought the top sow.—C. D. Bright.

It is reported that the marketing committee of the Pacific Rice Growers has secured a million dollars to lend to growers on their rice crops.

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have secured the services of Mr. B. H. Wilkinson (Bert) as superintendent of the Hog Department, and take great pleasure in making this announcement to the Stockmen of the State.

Mr. Wilkinson needs no introduction to Duroc breeders of California. His wonderful success in the show ring, his absolute honesty and the really great ability he showed in selecting and shaping GREAT ORION SENSATION, JR. have made his name known throughout the State to the men who love the red hog.

We feel that we may confidently ask the patronage of farmers and breeders, as Mr. Wilkinson's known reputation for scrupulous honesty and great ability as a judge of hogs, will assure the public of obtaining real money value.

Our constant ideal is to give the breeder the very best at the least possible price consistent with sound business principles.

Perris, Riverside County, California

He'll Improve Your Herd

Andon Prince Cornucopia, No. 321092

Sire: Segis Pontiac De Kol Burke Gerben, 20 months old, light colored, a sure and quick breeder. A blue ribbon winner, whose two nearest dams average: 31 lbs. butter in 7 days and 938 lbs. in 365 days.

Dam: Victoria Brunaro Johanna. 24.82 lbs. butter, 666.6 lbs. milk in 7 days. Best day's milking 102 lbs. at 4 years of age. This was the highest milk record made by any cow under 5 years of age during the first half of 1920. She is a very typey individual, the "OLD FASHIONED KIND" that weighs around a ton. She will be tested again in April as a 5 year old and if she does not increase her record I guarantee to refund half of your money.

Price $500.00 F. O. B. Fresno.

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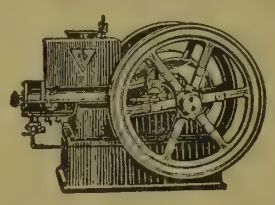
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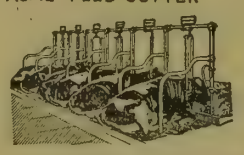
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Give full particulars in first letter as to qualifications, wages expected and experience. Position open March 1.

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The Jas. J. Jeffries Dispersal

As announced briefly in our issue of last week, the Jas. J. Jeffries dispersal of registered Holsteins at Burbank on February 3 attracted the largest crowd that has yet attended a California Holstein sale, over 1,500 persons having attended. The herd was presented in splendid condition by Herdsman Koch and bidding was snappy throughout. The great group of sisters, 11 young cows sired by Allenvail Cornucopia Paul, fulfilled all the claims made for them in the pre-sale announcements and met with widespread favor among buyers. The top of the sale was reached and a new high price for a Holstein female in California at public auction established when one of the great sisters, De Kol Pet Segis, went to Fred Hartsook at $4,500 after a bidding contest with D. G. Maxwell. This great cow is the dam of the grand champion heifer K. S. P. J. Pet Segis, the latter selling for $3,800 to Maxwell. The 38 pound cow, Barron Annabel Lilith, went to Maxwell at $2,100, and was conceded to be one of the real bargains of the sale. Maxwell also secured the 1,140 pound yearly record cow, Maid Tuebie Segis, at $3,300, another bargain. Fred Hartsook materially strengthened the outstanding herd he has assembled, through his purchases in this sale. From the popular standpoint the big event of the day was the selling of the herd sire, King Segis Pontiac Jannek, who finally went to H. Michel, Santa Monica, for $4,300, a sum that was conceded to be far within his value. The offering was absorbed by 23 buyers, with perhaps more than twice that many bidders. Summarizing the sale, we find that the 28 tuberculin tested females of milking age sold for $34,910, an average of $1,246; ten bred heifers sold for $5,280, an average of $528; 15 open heifers and heifer calves sold for $6,065, an average of $404; three young bulls sold for $2,800, an average of $933; one herd bull sold for $4,300; five cows and heifers that reacted to the tuberculin test sold for $1,715, an average of $371; the entire 62 catalogued animals selling for a total of $55,070, an average of $888. At the close of the sale two newly born heifer calves and six small bull calves not catalogued sold for $1,500, making a grand total for the offering of 70 head that sold for $56,570, an average of $808. The sale was managed by California Breeders Sales and Pedigree Company, with C. L. Hughes in the box and Col. Ben A. Rhoades, Los Angeles, on the block. Following is a detailed list of sales:

BULLS

1, King Segis Pontiac Jannek, Sept. 1914, H. Michel, Santa Monica, $4300.
5, K. S. P. J. Paul Lilith, April 1920, J. M. Mayo, Compton, $1000.
8, K. S. P. J. Cornucopia Paul, Nov. 1919, Chas. L. Norvels, $825.
11, K. S. P. J. Show Boy, Feb. 1920, C. W. Anderson, Burbank, $975.
100, K. S. P. J. Lochhaven, W. W. Cochran, Los Angeles, $200.
K. S. P. J. Hengerveld Segis, G. C. Hodgell, Newhall, $55.00.
K. S. P. J. Urmogel Burke, V. Poggi, $200.
K. S. P. J. Fyke Segis, Richard Bros., Wilmington, $305.
K. S. P. J. Urmogel Segis, $95.00.
60½, Unnamed bull calf, W. H. Tindall, Puente, $325.
57½, bull calf, June 28, 1920, A. R. Doctor, $170.

FEMALES

2, Barron Annabell Lilith, Oct. 1912, D. G. Maxwell, Hollywood, $2100.
4, K. S. P. J. Barron Lillabel Lilith, Nov. 1918, D. J. Maxwell, $525.
6, Maud Tuebie Segis, April 1914, D. G. Maxwell, $3300.
7, K. S. P. J. Tuebie Burke, Jan. 1919, J. C. McGrath, Artesia, $425.
9, De Kol Pet Segis, Feb. 1914, Fred Hartsook, Lankershim, $4500.
10, K. S. P. J. Pet Segis, Dec. 1917, D. G. Maxwell, $3800.
12, Queen Canary Segis, May, 1914, Fred Hartsook, $1800.
13, K. S. P. J. Queen, March 1920, J. M. Mayo, Compton, $500.
14, Miss Madrigal Segis, Feb. 1914, H. Michel, Santa Monica, $925.
15, Madrigal Burke Segis, Dec. 1916, T. L. Tally, Los Angeles, $400.
15½, heifer calf, Burr Farm, Los Angeles, $150.
16, K. L. B. D. K. Madrigal Burke, Sept. 1919, A. R. Doctor, Los Angeles, $300.
17, K. S. P. J. Esther Madrigal, Jan. 1920, M. P. Christensen, Norwalk, $375.
18, Canary Pietertje Segis, April 1914, Fred Hartsook, $750.
19, K. S. P. J. Pietertje Girl, May 1919, Chas. L. Norvels, Long Beach, $600.
20, K. S. P. J. Pietertje Canary, April 1920, H. Michel, $425.
21, Miss Madrigal Cornucopia Segis, Feb. 1914, Fred Hartsook, $1275.
22, K. S. P. J. Madrigal, Dec. 1917, A. R. Doctor, $350.
23, K. S. P. J. White Lady, Jan. 1919, Graham and Poggi, Van Nuys, $525.
24, Dolly Canary Segis, March 1914, D. G. Maxwell, $850.
25, K. S. P. J. Dolly, Oct. 1918, D. G. Maxwell, $600.
26, Miss Floria Segis, March 1914, D .G. Maxwell, $800.
27, K. S. P. J. Floria Canary, Dec. 1919, Robt. M. Clapp, Nuevo, $525.
28, K. S. P. J. Floria Canary Segis, Oct. 1920, D. G. Maxwell, $200.
29, Belle Tuebie Segis, Feb. 1914, Fred Hartsook, $2100.
30, Viola Canary Segis, May 1914, Fred Hartsook, $1200.
31, Miss Ramona Segis, May 1914, D. G. Maxwell, $700.
32, Maud De Kol Segis, April 1914, Fred Hartsook, $2000.
33, K. S. P. J. Cornucopia Segis, Sept. 1917, Richard Bros., Wilmington, $400.
34, K. S. P. J. Cornucopia, Jan. 1918, R. W. Jessup, Glendale, $385.
35, Novelty Pauline 2nd, Feb. 1909, Fred Hartsook, $425.
36, K. S. P. J. Novelty Pauline, July 1917, Robt. M. Clapp, $900.
37, K. S. P. J. Plebe Canary, Sept. 1919, Berylwood Stock Farm, Hueneme, $550.
38, Gerben De Kol of Maplelane 2nd, March 1912, R. C. Lydston, Gardena, $400.
39, K. S. P. J. Gerben De Kol, Sept. 1919, Carl Ray, Lankershim, $425.
40, Gerben Canary Belle De Kol, Oct. 1914, D. G. Maxwell, $1450.
41, K. S. P. J. De Kol, April 1919, H. Michel, $550.
42, K. S. P. J. Canary Belle, Sept. 1920, H. Michel, $500.
43, Lockhaven Violetta, Jan. 1913, J. M. Mayo, Compton, $525.
44, K. S. P. J. Eliza Walker, Feb. 1919, Inglewood Union High School, Inglewood, $385.
45, K. S. P. J. Violetta, Dec. 1919, M. P. Christensen, $435.
46, K. L. B. D. K. Lockhaven, July, 1920, R. C. Lydston, $235.
47, K. S. P. J. Snowflake Mercedes, Jan. 1920, H. Michel, $425.
48, Alcartra Lockhaven, Sept. 1916, R. W. Jessup, $375.
49, Maybelle of St. Lawrence 3rd, May 1910, R. C. Lydston, $325.
50, Agnes Urmagel Segis, Feb. 1917, R. W. Jessup, $885.
51, K. L. B. D. K. Agnes Burke, Sept. 1919, Richard Bros., $385.
52, K. S. P. J. Bertie, June 1919, Chas. L. Norvels, $485.
53, Merci Pontiac Artis Lady, July, 1916, T. L. Tally, Los Angeles, $650.
54, K. S. P. J. Artis Lady, March 1920, M. P. Christensen, $435.
55, K. S. P. J. Lady Kayewood, Oct. 1917, Richard Bros., $135.
56, K. S. P. J. Lady Beaverton, Oct. 1918, Graham & Poggi, $255.
57, Careme Belle Canary, Jan. 1914, T. L. Tally, $600.
58, K. S. P. J. Careme Canary, May 1918, T. L. Tally, $425.
59, Arcula Alcartra Spofford, Sept. 1916, T. L. Tally, $700.
60, Juliana Elgin of Rock, May 1914, D. G. Maxwell, $800.
61, Belle Fyke Nudine, Feb. 1917, T. L. Tally, $900.
62, K. L. B. D. K. Aeroplane Belle, Sept. 1919, Carl Ray, $400.
63, Segis Fobes Tritomia, Aug. 1914, C. W. Anderson, Burbank, $375.

THE W. A. THOMPSON DISPERSAL

The W. A. Thompson dispersal of registered Holsteins at Hynes, February 5, brought out a crowd that overflowed the new Rhoades & Rhoades sale pavilion with more than 600 persons in attendance. The cattle were presented in just thrifty condition, the offering largely composed of young things right off the pasture. The top price of $800 was reached twice, the three year old, Mechthilde Sarah Kakenstein, going to D. L. Wright, Pasadena, at that figure, while W. J. Higdon, Tulare, secured Arcula Alcartra Mead, a yearling daughter of King Mead of Riverside, at the same figure. This heifer was resold after the sale to Berylwood Stock Farm, Hueneme, whose manager, J. W. Snodgrass, hurried a bit too fast to reach the sale in time to buy this heifer and ran afoul of a speed cop, finally arriving after the heifer had been sold. Forty-five separate buyers absorbed the offering, most of the cattle staying in Southern California, with a few head purchased for the Hawaiian Islands. Thirty-nine heifer calves and tuberculin tested cows and heifers sold for $13,155, an average of $337; 13 young bulls sold for $1,780, an average of $137; six reactor cows and heifers averaged $217, and a number of unregistered animals brought the total sale up to $17,535. The sale was managed by California Breeders Sales and Pedigree Company, Sacramento, with C. L. Hughes in the box and Col. Ben A. Rhoades, Los Angeles, on the block. Following is a list of individual sales:

1, Gelsche Walker Pondyke, June 1913, S. S. Anslyn, Los Angeles, $200.
2, Unnamed heifer, April 1919, M. C. Tolle, Long Beach, $425.
3, Beauty Snowflake of Sunnyside, June 1910, H. L. Gordon, Artesia, $400.
5, Beauty Snowflake Alcartra, Aug. 1920, J. W. Mayo, Compton, $210.
7, Astera Johanna Pontiac, Dec. 1910, W. J. King, Downey, $200.
8, unnamed heifer, July 1918, G. Gustafson, Hynes, $475.

10, Empress Pontiac Flossie, July 1915, J. F. Murphy, Los Angeles, $235.
13, Pennat Cornucopia Johanna, Aug. 1912, J. F. Murphy, $375.
14, Cornucopia Johanna Morco, Dec. 1919, Chas. C. Hill, $200.
17, unnamed heifer, July 1919, M. C. Tolle, $300.
18, Aralia Alviso De Kol, Nov. 1913, C. A. Parker, Artesia, $205.
23, Bertha Abbekerk De Kol, Jan. 1919, Geo. B. Kellam, Rivera, $235.
24, Lady Artis Phroso, Oct. 1914, Walter D. Parker, Baldwin Park, $200.
25, Beauty Mechtilde Fobes Korndyke, Aug. 1915, J. F. Murphy, $350.
26, Beauty Fobes Alcartra, Oct. 1918, J. B. McGee, Whittier, $310.
28, Pauline Lady Mercedes, March 1911, J. F. Murphy, $300.
29, Pauline Lady Hollywood, July 1919, M. P. Christensen, Norwalk, $400.
33, Susanna De Kol, Jan. 1913, C. A. Parker, $335.
34, Susanna Alcartra Morco, Nov. 1919, F. D. Plavan, Santa Ana, $210.
36, Stratford Bakker Netherland, Aug. 1914, Burr Farm, Los Angeles, $210.
37, Alcartra Bakker Netherland, Sept. 1919, C. V. Harris, Compton, $210.
39, De Kol Colanthus Morco, Jan. 1920, F. D. Plavan, $245.
40, De Kol Colanthus Alcartra, Dec. 1918, D. L. Wright, Pasadena, $510.
43, Arcula Aaggie, Nov. 1916, Mais Bros., Long Beach, $700.
45, Lillian Johanna Aaltje, Oct. 1914, Burr Farm, $710.
47, Juliana Inka of Rock, Oct. 1914, C. J. Roberts, Long Beach, $490.
Juliana Alcartra, Sept. 1919, M. C. Tolle, $250.
49, Mutual De Vries De Kol, March 1915, Raitt Dairy Inc., Santa Ana, $600.
50, Mutual De Vries Alcartra, Jan. 1920, A. B. Spooner, San Luis Obispo, $250.
51, Juliana Ntherland of Rock, Oct. 1913, J. B. McGee, $300.
53, Sita De Kol Princess 2d, March 1914, J. B. McGee, $265.
55, Buckeye De Kol Walker, Jan. 1914, H. H. Finney, Santa Ana, $365.
57, Dorothy Kakenstein Segis, Sept. 1917, Raitt Dairy, Inc., $290.
59, Mechtilde Sarah Kakenstein, Dec. 1917, D. L. Wright, $800.
61, unnamed heifer, April 1919, Mais Bros., $380.
63, unnamed heifer, July 1919, Burr Farm, $700.
65, Arcula Alcartra Mead, May 1919, W. J. Higdon, $800.

Her Comfort is Your Gain

TO neglect any discomfort of the udder or teats is costly. The slightest soreness or abnormal condition makes the cow restless and reduces the flow of milk.

Cuts, Chaps, Scratches, any congestion or inflammation can be quickly cleared up by using Bag Balm, the great healing ointment for cows. Caked Bag is promptly reduced by this softening remedy. A great aid in treating Bunches and Cow Pox.

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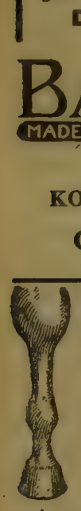

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As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

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Write or Wire for Sales Dates

HIGHEST PRODUCING JERSEY FOR HER AGE IN CALIFORNIA

Raleigh's Gertie's Tulip, starting a year's official test at one year, 11 months of age, produced 9025 pounds of milk and 457 pounds of butterfat, which makes her the Jersey yearling champion of California. When it is known that 457 pounds of butterfat will make 538 pounds of butter it will be seen what a real producer this Jersey cow is, and she is only beginning her career. Her milk production average for the year was practically 25 pounds daily. Her dam is Gertie's Tulip and her sire is Raleigh's Fairy Boy 9th, a descendant of Raleigh's Fairy Boy, the great Jersey show bull which won grand championship at the National Dairy Sow in 1910.

The Jersey yearling record for California was held for the past five years by Jewel of Venadera, owned by Guy H. Miller, record 442 pounds of fat at 1 year 11 months of age. It now goes to Raleigh's Gertie's Tulip.

Guy H. Miller reports the recently completed register of merit records of two cows in the Venadera herd: Olive of Venadera, beginning test at 24 months old. For the year she gave 6333 pounds of milk with an average test of 5.62 per cent of fat, making 356 pounds of butter fat. Olive of Venadera is sired by Majestic Noble Lord and is his first daughter to complete a year's test and qualify for the register of merit. Her dam is Zama of Venadera, Register of Merit test 514 pounds of fat in a year. Zama is one of the nine Register of Merit daughters of Owl of Belleview. Ramona of Venadera, beginning test as a five-year-old, produced in the year 512 pounds of butter fat. Ramona is another of the nine Register of Merit daughters of Owl of Belleview. Her dam is Gazelle of Venadera, Register of Merit test 438 pounds of fat, one of the 14 Register of Merit daughters of Marigold's Exile King. Ramona is dam of Kerma of Venadera, Register of Merit test 342 pounds of fat as a junior three year old. Both Ramona and Olive were milked and fed but twice daily while on test and ran in corral with the herd.

INCOME TAX PRIMER READY

Copies of the Income Tax Primer, recently issued by the bureau of internal revenue, which contains questions and answers relative to the filing of income tax returns, are now available at the office of the collector of internal revenue, Los Angeles and San Francisco. Copies may be obtained only through collectors' offices.

Representatives of the eight dairy units of the state dairy association met at Fresno February 12 and adopted resolutions favoring formation of a collective marketing association.

DISPERSAL SALE OF FORTUNA HERD OF POLAND CHINA HOGS

Tulare, Cal.
Tuesday, March 1st, 1921

10 bred sows, 20 bred gilts, 10 fall gilts, 2 boars. The Californian, by Mc's Big Orange, and The Skipper, by The Pilot, both sell.

The sows and gilts are sired by the leading boars of the country and are bred to the above listed boars. The offering includes my entire show herd and some great young prospects for this year's shows.

The best opportunity of the year for the man interested in better hogs to improve his herd. Buy now when opportunity presents itself. Be sure to attend.

Hugh C. Shinn, Tulare, Cal.
Col. Geo. W. Bell, Auctioneer

Eastman Ranch Poland Chinas

Herd headed by Buster Bob, Grand Champion at the strong Los Angeles Livestock Show. He is the largest junior yearling in the state and is siring some great pigs. Young stock for sale at all times. Satisfaction assured.

H. L. Graham, Mgr. San Fernando, Cal.

McNeil's Big Type Poland Chinas

Herd headed by Giant Prospect and Mc's Challenger. My sow herd is composed of a great lot of choice matrons including Polandale Betty, first prize junior yearling at Sacramento. Correspondence solicited.

CHAS. McNEIL, Route H, Box 166, Fresno, Cal.

Fortuna Herd Poland Chinas

Special prices on gilts sired by The Californian, either open or bred to The Skipper by The Pilot. Two sisters to Orange Lady, first prize senior gilt at Sacramento. Also some choice weanling boar pigs. Satisfaction assured.

Hugh C. Shinn Tulare, Cal.

Johnson's Defender Jr.

Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

H. C. WITHEROW Live Oak, Cal.

Sunny Side Farm

where efficiency is our watchword and the production of extra heavy milking Holsteins and big type Poland Chinas is our specialty. A few choice animals of either breed or sex for sale at all times at reasonable figures. Write for information.

R. F. Guerin Visalia, Cal.

Italian Vineyard Company Big Type Berkshires

We are offering for sale some fine big sows and gilts bred to our great herd boars for early litters. Some very special bargains to farmers and new breeders.

Everyone tuberculin tested and cholera immune.

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When in need of high class auctioneering service I would be glad to have breeders and farmers correspond with me. I have had years of experience, know values and know pedigrees. I am selling for many of the leading breeders of California and am prepared to deliver the same results that have attracted this custom. Terms reasonable. Write, wire or phone.

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POULTRY

Don't Be Too Late Booking 200 Egg strain chick! Customers say: "Pullets raised from your chicks averaged 209 eggs last year"; "114 hens cleared $612 in 12 months"; "Never saw chicks grow faster"; "My 30 pullets laid at 4½ months, cleared $20 January"; "Get more winter eggs from 60 your hens than from 200 formerly." 140,000 electrically hatched. 180-290 egg White, Brown, Buff Leghorns; Andalusians; Reds; Anconas; Barred, White Rocks; Black, White Minorcas (ducklings, turks) often clear customers $5. Over half booked, reasonable. Hundreds satisfied. Customers repeat orders often. Write (rarely home) Profitable Poultry, 19 North Fair Oaks, Pasadena.

Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

BABY CHICKS
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PARCEL POST or EXPRESS
FULL COUNT—SAFE DELIVERY
GUARANTEED Selected heavy laying HOGANIZED
Mcfarlane, Tom Barron, WHITE LEGHORNS, Anconas, Barred Rocks, Rhode Islands, Minorcas, Buff, Brown Leghorns.
ORDER EARLY. Write for prices.
Doke Hatchery, Established 1908
625 So. Spring St., Los Angeles, Calif.

Buy Early Chicks—Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, California.

Don't Make a Hen of Yourself—Charters' Regulator needs filling and trimming only once a week. Frees you of worry, especially last three days of hatch. It has the automatic "light that never fails." Send $12 now for one on 30 day money back trial. Free book. Charters Mfg. Co., 334 Soquel Ave., Santa Cruz, California.

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Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Chicks hatched in Petaluma Electric Incubators are a superior class; strong, vigorous, sturdy, grow rapidly, lay early. Our free catalogue tells the reason. Petaluma Electric Incubator Co., Petaluma, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, California.

Brown Leghorn Hatching Eggs from highest grade of utility matings, trapnested, linebred, vigorous, high producing stock. Sun Crest Poultry Yards, Box 115, Boston Avenue, San Jose, California.

White Leghorn Baby Chicks — Tancred strain. Fourteen years trapnested stock behind them. Never buy eggs on the outside. Henry Tarratt, Corning, California.

Purebred Golden Buff Leghorn mature cockerels, absolutely healthy stock. Mrs. Wm. Mullen, Kneeland, Humboldt County, California.

Hoganized Rhode Island Red Eggs for hatching, $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Baby Chicks—Can book a few more orders S. C. White Leghorns, McFarland strain. Mrs. F. C. Reineking, Inglewood, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Leach, Fallon, Nevada.

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Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made such a remarkable record in the state laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

Baby Chicks—We have 8,000 selected Hoganized hens, all on free range on different ranches, all mated to Tom Barron roosters. We guarantee full count of strong, healthy chicks. Book your orders with us now and avoid disappointment, as orders are coming in fast. 30 years in the business. Lasher's Hatchery, Petaluma, California.

Get Chicks Now and have layers for next winter when eggs are high. Hatches every week. Prompt reliable service. Safe arrival of vigorous chicks from good layers guaranteed. Hatched by electricity. White and Brown Leghorn, R. I. Red, Barred Rock. Reasonable prices. Stubbe Poultry Ranch and Hatchery, Box 67-D, Palo Alto.

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An American bird for Americans. Splendid layers, fine broilers and fryers, beautiful in color, the ideal for the farm, city lot or show room. Blue ribbon winners 1920, in Oakland, Riverside and San Diego shows. Eggs for hatching. January baby chicks for sale. Hillview Poultry Ranch, Chatsworth, California.

For Sale—S. C. White Leghorn chicks from heaviest laying (Hoganized) stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR CO., 438 Seventh St., Petaluma, California.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

White Leghorns—hatching eggs our specialty, produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the West. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R. 1 Box 29, Gardena, California.

Chicks — Eggs — Hoganized White Leghorns, Brown and Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, Calif.

White Leghorn Baby Chix from heavy-laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Price for April, May and June, $14.00 per 100. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

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Baby Chicks hatched from our utility S. C. White Leghorns, a result of many years selecton and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

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Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Barred Rocks That Lay—Records 210, 220. Customers quote 196 and still laying. Eggs $2.50, 15 eggs; chicks 30c, limited number. Mrs. M. A. Warren, P. O. Box 517, San Jose, California.

Baby Chicks—White Leghorns and large breeds. For prices and description address Sunny Stanislaus Hatchery, Riverbank, California.

Baby Chicks: thousands of them. S. C. White Leghorns, also other varieties and breeds. X-L Electric Hatchery, 351 Soquel Ave., Santa Cruz, California.

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Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Minorcas, Black, White and Buff—Utility and Exhibition. None better. Catalog free. Hatching eggs. C. E. Murray, Route No. 1, San Diego, California.

POULTRY

S. C. Light and Dark Brown Leghorns. Winners at Los Angeles Stock Show and Riverside Fair 1920: first prize pen 15 eggs $5.00; second prize pen 15 eggs $4.00; selected matings 15 eggs $2.50; 100 eggs $10.00. Pen 6 (Tormohlen strain) 15 eggs $5. S. C. R. I. Red, choice dark red heavy laying strain, 15 eggs $2.00; 100-$8. Birds Hoganized. Phone 351283. Eva Conklin, 1445 Portola Avenue, Los Angeles, California.

Jersey Black Giants — Our Giants make grand win at Madison Square Garden, the world's greatest Poultry Show. The 18 pound Capon attracted the attention of thousands. 117 prizes; 2 specials; 2 Best Displays, and A. P. A. Award of Merit. All in less than five months. For folder and price of hatching eggs write MARCY FARMS, Box K, Matawan, New Jersey.

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Booking Orders For Eggs from our wonderful utility and prize stock of Bronze turkeys, geese, Pekin ducks, Muscovy ducks, White King pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, guineas. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

White, Light Brown and Dark Brown Leghorn Hatching Eggs from highest class exhibition stock, competitive with any flocks in the United States. Splendid layers. Eggs $3.00 per 15, $15.00 per 100. From best pens, $5.00 per 15. Mahajo Farm, P. O. Box 597, Sacramento, California.

Baby Chicks — Barred Plymouth Rocks and Rhode Island Reds in 25, 50 and 100 lots 20c each. Hatching eggs $2 per 15. We ship by Parcel Post, pay all charges. Write for circular. Hargett & Son, Route 2, Compton, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

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For Sale Reg. Duroc Boars—1 by Imperial Type and Flower Queen farrowed Apr. 15, 1920. 1 by Imperial Type and Princess Pat, farrowed Apr. 27, 1920. 3 by Crescent Prince and Princess Lady, farrowed Apr. 12, 1920. Montana Land Company, So. Bellflower, Los Alamitos.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bred Sows and Gilts and young stock. Pathfinder and Great Wonder I Am breeding. Monthly payments if you wish. Derryfield Farm, Capital National Bank Building, Sacramento.

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For Sale — 6 thoroughbred Duroc pigs. Hadley Ranch Co., R.D. 1, Box 92, Rivera.

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Write for descriptive information prepared by the Elsinore Chamber of Commerce under supervision of Elsinore Farm Center, or come to our office. Best crops are Peaches, Apricots, Oranges, Grapefruit, Walnuts, Almonds, Olives, Grapes and Alfalfa.
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10,000 Valencias; 2,000 Eureka lemons; 3,000 Texas Umbrellas; 3,000 Mission olives; 500 Wonderful Pomegranates; 100,000 sweet, 100,000 sour orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colorado 6352.

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For Sale — Peaches, Cherries and other fruit trees. Full line of shrubbery and roses, also flowering plants. Write City Nurseries, 109A Orange St., Redlands, California.

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Fine Straight Rooted Florida Sour and Sweet SEED BED STOCK, 10 inches to 15 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Punctured Teat

I have a cow that cut her teat a year ago. It healed but left a hole that lets the milk run out. The cow is dry now and I would like to know if the hole would heal up solid if I seared it with a hot iron.—Subscriber, Parker, Arizona.

Yes, the hot iron may cause it to heal solid, but you must use an iron with a small point and must leave it in the opening only long enough to sear the edges. The opening in the skin is surrounded by a thin membrane which must be gotten rid of before the parts will close together. The heat from the iron may do it. A small stitch through the skin to draw the edges together would also help. These openings are not easily closed and if you are not careful you will do too much and make it worse.

Warts on Cow's Teats

I have a cow that has warts on her teats. What will cure it?—Subscriber, Parker, Arizona.

If the warts stick out and are connected with the teat with only a small base, clip them off with shears and touch the spot with a drop of nitric acid. If they are flat then touch them with nitric acid and be careful in handling the acid. Do not get the acid on any other parts nor on your hands or clothing. Use a small swab about the size of a match to apply the acid.

Quittor

I have a mare that cut her front foot in barb wire fence last October. It did not seem bad and she did not limp much for some time. I used peroxide and lime on it. It seemed to heal all right, then started swelling at the side of the foot and she got very lame. Then it broke and blood and thick, yellow pus started out and is still running. One place heals up and another breaks and it keeps her very lame. What is the trouble and how can I cure it?—Subscriber, Tulare.

Quittor is the name given to an abscess just above the hoof. In this case it was probably caused by the wire cut. In healing a small particle of foreign matter may have been enclosed in the wound or the parts may have been bruised before becoming solid enough to withstand a bump. A hard bruise or exposure to extreme cold may cause a quittor in a well foot. They are very hard to heal because the circulation of blood through those parts is limited and because the opening is above the pocket that contains the pus, thus preventing good drainage. You need a strong syringe that holds about an ounce. First syringe the cavity out with warm water that has a little soap in it. Wash this out with clean water and then inject a solution of bichloride of mercury. Get some tablets of the bichloride of mercury from your druggist such as are prepared for dressing wounds. The directions with them will be to use one in a pint of water. In your case use two to the pint of water. After syringing some of this into the pus cavity soak some surgeon's cotton with the solution and lay it over the opening and put on a bandage. Leave this on for two or three days, then repeat the dressing. Do not use any peroxide in the cavity. If it does not heal in two or three weeks substitute tincture of iodine for the bichloride solution. If a veterinarian is handy you had better get him to dress it a few times for you.

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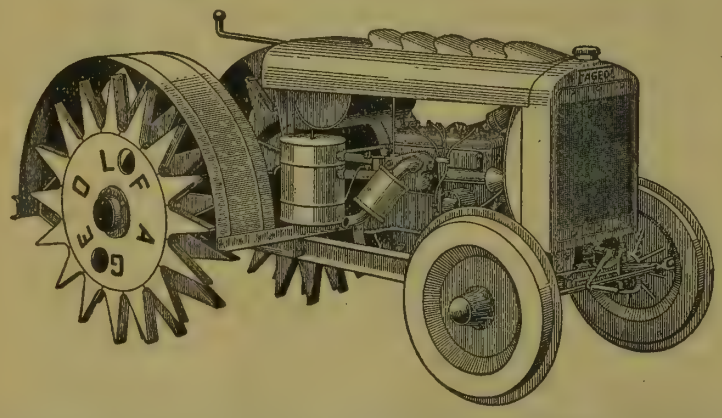

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Meadow Maggots, or Crane Flies

By C. M. Packard and B. G. Thompson

CALIFORNIA ranges, pastures and grain fields are often badly injured during the rainy season by blackish, mud colored worms about half an inch to one inch long. These worms become exceedingly abundant in spots, sometimes as many as 300 to the square foot, and devour all the vegetation or grain in these areas. Injury by them is usually more noticeable in wet winters like the present, but they occur in serious numbers almost every winter in some locality or other, and a few usually can be found every winter throughout the range of this insect. The worms are the young or larval stages of the "crane fly" (Tipula simplex Doane). The adult flies, called by different names in different localities, are the fragile, long legged, two winged insects which look like mosquitoes but are much larger and do not bite.

Habits

The worms are hatched with the first heavy rains of winter just as the grasses and grains are sprouted by these same rains. The eggs from which they hatch were laid late the previous winter and remained dormant in the soil throughout the intervening dry season. At first the effect of their feeding is not noticeable, but as they increase in size their appetites also increase to such an extent that by January it takes about all the available pasture to furnish sufficient food for the multitude in the spots where they are excessively abundant. By the end of January or early February they become full grown, stop feeding, and begin to change to adult flies, or pupate, as we say. They change to the adult form in much the same way as caterpillars turn to butterflies. There is only one generation a year, hence when the worms begin to pupate, in January or February, depending on the season, no further injury from this species need be feared during the remainder of the growing season. The worms pupate just below the surface of the soil and the adults come out in late February or in March. A peculiarity of this species is that the females are wingless, although the males are winged. The females therefore lay their eggs within a few rods of the spot where they emerged from the ground. The eggs are deposited within a day or two after the adults emerge, in depressions in the soil, under the edges of loose stones, under clods, and among grass roots, where they lie dormant throughout the following dry season, to hatch the following winter as soon as they are thoroughly soaked by the first rains. Each female is capable of laying approximately a hundred eggs and as soon as this function is performed they die.

Control

Ordinarily this insect occurs in destructive abundance only in uncultivated range lands or in fields which have been planted on newly broken sod lands where it has had opportunity to breed and multiply undisturbed by cultivation during several preceding seasons. The worms are likely to attack almost any winter planted field crop, especially on newly broken sod land, serious injury to small grains and alfalfa already having been observed. Heretofore the only known method of preventing injury by this species has been more or less continuous cultivation. This method of control, however, is of no avail to save a crop which already has been planted and which is actually being destroyed before one's eyes by the pest. It can only forestall possible injury in future years and cannot be applied at all to large areas of range land where Tipula simplex annually destroys forage valued at thousands of dollars and sometimes actually causes livestock to die for lack of feed.

Close study of the habits of this insect by men working under the United States bureau of entomology has led to the development this year of a cheap, practical and effective method of control which can be applied at once, with immediate effect, when the worms are first observed by the farmer to be injuring his crops or pasture. By application of this method as soon as injury is noticed a large part of the crop or pasture which otherwise would be destroyed, could be saved.

The new control method is simply the use of a poison bran bait in the same way that it has been used so successfully for grasshoppers and cutworms. It was observed by B. G. Thompson of the bureau that the crane fly larvae came out upon the surface of the ground during the night. Since it was already known that they eat the parts of the plants which are above the ground as well as below, these observations immediately suggested to him the possibility that the worms would be attracted by the bran bait. Experiments were tried immediately, with the result that the mortality on the experimental plots was from 70 to 90 per cent of the worms present, as determined by actual counts of the worms in several square feet selected in favorable and unfavorable spots in the poisoned areas.

In our experiments a bait made of bran, Paris green and water, without any molasses or lemons added for flavoring, killed as high a percentage of the worms as the more complicated baits containing all the ingredients used in the regular grasshopper bait. A bait made in the following proportions proved very effective, when spread at the rate of 10 to 20 pounds per acre: Wheat bran, 25 pounds; Paris green, 1 pound; water to make a crumbly mash (about 3 gallons).

The Paris green and dry bran should be mixed thoroughly and water then added gradually and mixed in until an even crumbly mash is obtained. It is possible that further experiments will show that the addition of two quarts of stock molasses to the above formula, and perhaps also lemons, is desirable under certain conditions. The bait made according to the above formula, however, did such good work where tried that it seems a waste of time and expense to add the flavoring unless it is found later that their addition makes the bait more effective. The mash can be mixed in a large box, tub, trough, or on a large canvas spread flat.

When an area of any size is to be covered, the bait can be spread very rapidly and easily by using a grain seeder mounted on a wagon in the usual way. This bait has been spread many times in fields where cattle and sheep were grazing with absolutely no injury to the stock. Precautions should of course be taken not to allow the bait to fall in lumps of any size or to leave quantities of it in places where children or animals can have access to it.

The cost of this poison, applied as recommended above, is about 50 cents per acre, not counting the labor of mixing and spreading. The ingredients can be purchased almost anywhere. The prompt application of this poison should enable farmers to save many times its cost in increased yields of grain and pasture forage. Not only would the crop of the current year be saved, but the number of worms likely to hatch and do damage the following year undoubtedly would be considerably reduced.

STATE FAIRS 1921

North Dakota, Grand Forks, July 18-23.
Iowa, Des Moines, August 24-September 2.
Illinois, Springfield, August 19-27.
Missouri, Sedalia, August 14-20.
Ohio, Columbus, August 25-September 3.
Wisconsin, Milwaukee, August 29-September 4.
Michigan, Detroit, September 2-11.
Minnesota, Hamline, September 3-10.
Nebraska, Lincoln, September 4-9.
West Virginia, Wheeling, September 5-10.
Indiana, Indianapolis, September 5-11.
Montana, Helena, September 12-17.
South Dakota, Huron, September 12-17.
Vermont, White River Junction, September 12-17.
Kentucky, Louisville, September 12-17.

Kansas, Hutchinson, September 17-24.
Tennessee, Nashville, September 17-24.
Colorado, Pueblo, September 26-30.
Oklahoma, Oklahoma City, September 24-October 1.
Alabama, Birmingham, October 3-8.
Utah, Salt Lake City, October 3-8.
Oklahoma, Free State Fair, Muskogee, October 3-8.
Virginia, Richmond, October 3-8.
Texas, Dallas, October 8-22.
North Carolina, Raleigh, October 16-22.
Mississippi, Jackson, October 17-22.
South Carolina, Columbia, October 24-28.
Tri-State Fair, Savannah, Georgia, October 24-29.
Georgia State Fair, Macon, October 27-November 5.
Louisiana, Shreveport, October 27-November 6.

New Discovery May Change Fertilizer Industry

WHAT may prove to be a revolutionary development in the fertilizer industry of the world has been reached by the bureau of soils, United States department of agriculture, which has just solved the problem of extracting phosphoric acid from phosphate rock by heating mixtures of this mineral, sand and coke to a smelting temperature in a fuel fed furnace. The new process has been worked out on an approximately commercial basis at the department's experimental plant at Arlington, Virginia.

The phosphate used for fertilizer in the United States comes largely from the deposits of rock in Florida. There are also large deposits in Tennessee and a number of beds in South Carolina where the rock was first exploited for this purpose. The established method for producing soluble phosphate has consisted in treating the rock with sulphuric acid. In practice, a quantity of sulphuric acid equal to the quantity of rock is used, and the resulting product, which is known as acid phosphate, contains only one-half the percentage of phosphoric acid contained in the rock from which it was derived. Commercial acid phosphate, for instance, made from a 32 per cent rock contains only 16 per cent of phosphoric acid. The elaborate washing and screening process now used in preparing phosphate rock for treatment with sulphuric acid often results in the loss of two-thirds of the rock, and it was with a view to saving this immense waste of phosphate that the new process was evolved.

The United States department of agriculture has been experimenting for some time along the lines of freeing the phosphoric acid by means of a high degree of heat. It was the first to adapt the Cottrell precipitator to the collection of phosphoric acid, the apparatus having been previously devised by Dr. Cottrell to abate the smoke nuisance and to recover sulphuric acid from smelting operations. The first work was done in an electric furnace which was thought to be required to generate the high degree of heat necessary, about 1,600 degrees Centigrade, or 2.900 degrees Fahrenheit. At this temperature mixtures of phosphate rock, sand and coke were reduced to a molten slag which was tapped off at intervals, the phosphoric acid escaping in the form of fumes which were afterwards collected in a liquid or solid form.

It soon became evident that this process would be prohibitively expensive with an electric furnace, except in localities where electric power could be obtained at a very low cost, about $25 per horsepower a year, and the department therefore turned its attention to the possibilities of using crude oil, the cheapest fuel obtainable in the vicinity of the large phosphate rock deposits of Florida. The efforts have recently met with success, and figures kept on the experimental runs at Arlington indicate that phosphoric acid can be extracted more cheaply in an oil burning furnace than by the old sulphuric acid process.

One problem which department scientists have worked out is that of keeping the fuel in direct contact with the rock material until the reaction is well started. For this purpose, and for convenience in handling, the material is briqueted with coke and sand. Briqueting keeps the coke fuel within the mass and retains it until the reaction is well started. Sand or silica is necessary to bring about the chemical reactions, and this sand is largely present as an impurity in the Florida phosphate deposits, together with a clayey ingredient which acts as an excellent binder in making the briquettes. Thus the very impurities which make rock objectionable under the old process are turned into an asset.

The practical value of the new development is indicated by the fact that in the experimental runs at Arlington the department chemists were able to recover a 64 per cent phosphoric acid, as against the 16 per cent product ordinarily obtained by the sulphuric acid process. By passing ammonia gas into this phosphoric acid, solid ammonium phosphate, a very concentrated material containing two valuable fertilizer ingredients, results. This material can stand heavy transportation and handling charges. It is also practicable to mix the phosphoric acid with phosphate rock in such proportions as to give a product containing 50 per cent of soluble phosphoric acid. This product is similar in its properties to ordinary 16 per cent acid phosphate, is convenient to handle, and may be used by an intelligent farmer who has the technical knowledge to reduce the quantity placed upon the soil and to guard against direct contact with seed. It also will permit a material saving in freight to central plants where the product may be diluted or mixed with other ingredients for shorter hauls. The difference between a 50 per cent product and a 16 per cent product means an immense saving in the freight charges and the release of large quantities of rolling stock and vessel tonnage now engaged in the transportation of phosphate and phosphate rock.

While the actual cost of the new process in a large industrial plant is difficult to estimate with accuracy in the work thus far done, even on a small scale, it was found that the fuel consumption was only about 15 per cent of the value of the product, while with the sulphuric acid process the cost of the acid used seldom runs below 22 per cent. This factor, together with the reduction of freight charges, justifies the assumption that the new process will be of the utmost importance to the fertilizer industry and to the farmers who are compelled to use a constantly increasing amount of commercial fertilizer.

EXPOSITION REVIVED

The former management of the Panama-Pacific Exposition is reviving memories of the "Dream City" through a prospectus announcing the publication of an official history of the exposion. The book, or rather books, for there are to be five volumes, is to cost $30. The prospectus contains five of the color plates which will appear in the finished work. Each of the five volumes is to contain 560 pages of text.

THE SECOND-FOOT

"Second-foot," as defined by the United States geological survey, department of the interior, is an abbreviation for cubic foot per second and is the unit for measuring the rate of discharge of water flowing in a stream one foot wide and one foot deep at a rate of 1 foot per second. It is generally used as a fundamental unit in measurements of stream flow.

"Second-feet per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the runoff is distributed uniformly both as regards time and area.

An "acre-foot" is equivalent to 43,560 cubic feet and is the quantity required to cover an acre to a depth of one foot. The term is commonly used in connection with the storage of water for irrigation.

A flow of one second-foot equals 7.48 United States gallons a second, 448.8 gallons a minute, or 646,317 gallons a day. As a California "miner's inch" equals 0.187 gallon a second, there are 40 California miner's inches in one second-foot.

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Orchard Brand Arsenate of Lead Paste is the standard spray for effective and satisfactory control of Codling Moth. It is of maximum concentration and safe to use. It is a soft, creamy paste so manufactured by chemical exactness and mechanical processes as to give the best possible results under orchard conditions.

Orchard Brand Dry Powdered Arsenate of Lead is double the strength of the Paste. It is a finely divided powder that mixes readily with water and remains in good suspension when diluted in the spray tank.

Atomic Sulphur is the best known safe and effective spray material for the control of Powdery Mildew. It may also be combined with Oil sprays and Nicotine to prevent Scab developments when spraying for Thrips control.

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Our Entomologist, Mr. S. W. Foster, will be glad to furnish the best available information regarding the control of the important orchard insect and fungus pests. When writing please give variety and age of trees.

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Los Angeles Markets

Los Angeles, February 23, 1921.

BUTTER

Butter: Creamery extras. Produce Exchange price, 60 cents.

Feb.	16	17	18	19	21	22
'21 ...	54	54	57	57	60	..

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 34 per dozen. Case Count Produce Exchange closing price 32 per dozen; pullets, produce Exchange closing price 31 per dozen.

Dairy Exchange price last week on extras:

Feb.	16	17	18	19	21	22
'21 ...	32	33	33	33	34	..

Manager Stanley of the Poultry Producers of Southern California reports that: Conditions are not as satisfactory as last week. Eastern weather continues favorable to increased production.

POULTRY

Price to producers: Hens, lt., 35; heavy 36; colored, 36; broilers, 55; roasters, 40; old roosters, 20; fryers, 55; ducks, old 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 14@19; old, 9.

LIVESTOCK

Los Angeles, Feb. 21.—Weighed and delivered off cars without food or water:

Hogs, (hard grain), 125 to 175 lbs., 11.50; 175 to 225 lbs., 12.00.

Cattle (on foot, gross weight): Steers, good, 9.50@10.00; medium, 9.00@9.50. Cows, good, 8.00; medium, 7.00@7.50. Calves, 1.25 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 6.00; lambs, 12.00@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, February 22 by to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies heavy, market dull. Stocktons: Burbanks, quality poor, mostly 1.75@2.00; best, 2.25@2.35. Idahos: Russets mostly 1.75@1.90. Local: White Rose mostly 80@90 per lug; 2.25@2.50 per 100 lb. sack. Sweet potatoes: Supplies light, market strong. Best mostly 2.10 @2.35.

Onions: Supplies heavy, market weak. Stockton: White, cold storage, 2.00@2.25; Brown, mostly 90@1.00 cwt. sacked.

February 21, by Los Angeles wholesalers:

Garlic: Local best mostly 12@15 lb.; poorer 8@10.

VEGETABLES

These are the actual prices obtained February 21, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 1.50@2.00; few 2.25.

Beets: Doz., 40@50; sk., 1.75@2.00.

Cabbage: Field cr. best mostly 75@ 1.00; poorer 50.

Carrots: Doz., 30@35; sk., 1.00@1.25.

Cauliflower: Supply moderate, field cr., best, 2.75@3.00.

Celery: Cr., best 2.25@2.75.

Cucumber: Hothouse, best, 2.00@2.50 doz.

Peppers: Bells, 18@22; Chilis, 23@25.

Lettuce: Local field cr. mostly 50@75; best high as 1.00.

Peas: Supplies increasing, market weaker. Imperial Valley, quality good, 15@16 per lb. Local, quality poor; sack sales, 10@12 per lb.; small lots, 12@14 per lb.

Radishes: 15 doz.

Rhubarb: Crimson Winter, best bx., 1.40@1.60.

Spinach: Doz., 25@30.

Squash: Local Hubbard and Banana, lb., 1½@1¾; Italian, per flat, 1.75@2.25.

Tomatoes: Mexican, per lug, original 3.75, repacked lug 4.25, repacked crates, 3.00. Local, best 2.00@2.50.

Turnips: Per dozen, 25@30; sack, 90 @1.10.

DECIDUOUS FRUITS

These are the actual prices obtained February 21, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms Cash on walk.

Apples: Supplies liberal, movement good, market firm. California: Bushel boxes Bellfleurs, fancy 4 tier best 2.35 2.50; ordinary, 2.00@2.10; 4½ tier, 1.85 @2.00; Jonathans fancy 3.00@3.50. Delicious fancy 3.00@3.75. Rome Beauty, fy., 2.75@3.25. Idahos and Utahs: Loose Jonathans. Romes and Arkansas Blacks, best mostly 6@7 per lb. Oregons and Washingtons: Bushel boxes, extra fancy **Jonathans and Spitzenburg mostly 3.00** @3.40.

Pears: Various varieties, 6@10.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 2.00@2.75; special packed brands, 2.50@3.00; Imperial bx., 4.25@5.00; Arizonas, 4.25@4.50.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.50 @2.25, few high as 3.00; loose, bx., 75@ 1.00 lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack large size 2.50@ 3.00; small low as 1.75; special brands mostly 3.00@3.75 according to size and quality, packing house culls, 25@85 box; few large size 1.00. Tangerines, best, 6@8 lb. small, 5.

HONEY

Supplies heavy. Demand slightly improved. Movement slow, market weak, prices lower. Prices and quotations f. o. b. usual terms: White orange blossom, 14@15, some high as 18; White Sage, 12@ 14; White Alfalfa, 12, Light Amber, 7@ 11, Light Amber Sage, 11@12; White Hawaiian 8, Light Amber Hawaiian 6. Beeswax: in l.c.l. sacked 33@35. Shippers expect lower prices, especially on dark honey which is said to compete with sugar. A large crop expected here account of recent rains.

WALNUTS

California Walnut Growers Association's prices: Soft Shell, No. 1, 22½; Soft Shell, No. 2, 16½; Budded, fancy, 26½; Budded, standard, 22½.

GRAIN AND FEEDS

Grain Exch. price bid February 22:
Milo: Carlots, 1.92½; No. 2, Eastern blk, 1.65.
Corn: Bulk, No. 2 Yellow, 1.65.
Bran: Kansas, 32.75.
Barley: 1.35@1.37½.

HAY

Alfalfa Growers of California report under date of February 21:

Receipts during the week were maintained at the normal rate quantitatively, but qualitatively those of high grade were smaller and of the lower grades considerably larger. Prices for the high grades remained on practically the previous level, while the lower grades sold at a widening discount. The milk supply of the cities of the state has for some time shown a steady increase and this growth still continues. Normally this would also mean a much larger consumption on alfalfa hay, which, however, is as yet not as pronounced as it would be if other feeding stuffs were not so abnormally low in price and therefore are temporarily used on a larger scale than usual. Cotton meal, for instance, is at present quoted at $28 per ton as against $70 last summer, and corn is being shipped into the state in large quantities from as far East as Kansas and Nebraska, in spite of the enormously high rates of freight. This abnormal condition can of course not continue for very long, as the prices are absolutely ruinous for the producers. The Eastern markets for corn, oats, etc., have lately stiffened up some and a moderate further advance would undoubtedly stop shipments to here. A newspaper article from Riverside last week quotes the statement of the manager of a large orange grove that "alfalfa at $25 a ton is chapear than stable manure" and that he expects to use 15,000 tons of alfalfa as fertilizer this year.

There were 1,100 tons received on the tracks in Los Angeles the week ending February 12, with 200 tons held over as against 900 tons the week before.

Rabbit Alfalfa	36.00
No. 1 Dairy	24.00
Standard	21.00
Stock	16.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@24.00
Barley	18.00@22.00
Alfalfa	18.00@26.00
Barley straw	8.00@12.00

San Francisco Markets

San Francisco, February 22, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 51½

Dairy Exchange prices extras this week and year ago:

Feb.	15	16	17	18	19	21
'21 ...	51½	52	52½	55	57	58
'20 ...	..	64	65	..	..	..

Rcts. wk. ending Feb. 21, 1,378 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Ore. Y. A.	33
Ore. Trip	34
Cal. Y. A.	33½
Cal. Flats	25

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 37½
Extra Pullets 33½
Undersized 32½

Dairy Exchange prices, extras this week and year ago:

Feb.	15	16	17	18	19	21
'21 ...	37	32½	36	37½	37	37½
'20 ...	..	47½	47	..	..	..

Rcts. wk. ending Feb. 21, 363,603 dozen.

From Portland there were 44 cases of eggs received.

POULTRY

Wholesale prices are:
Hens: Colored, 33@35; White Leghorn, 33@35; strictly young roosters, 38@40; old roosters, 22@25; fryers, 50@55; broilers, 65@68.
Ducks: 30@35.
Squabs: 75@85 per lb.
Turkeys: Dressed, fancy, 50@55; poor quality 42@45 per lb.; live, 43@45.
Geese: 32@35 per lb.
Pigeons: Old, 2.50@3.00 dozen.
Belgian Hares: Live, 25@28.
Jackrabbits: 2.50@3.00 per doz.

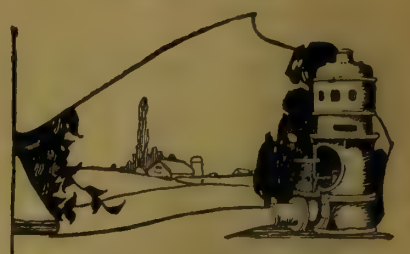
LIVESTOCK

Western Meat Co. prices:
Cattle: Steers, No. 1 8@8½; do, second quality, 7@7½; do, thin, 4@5½.
Cows and Heifers: No. 1, 6½@7; do, second quality, 5@6; do, thin, 3@4.
Calves: Light weight, 8½@9½; medium, 8@9; heavy, 7@8.
Lambs: Milk, 10@11; yearlings, 8½@ 9.
Sheep: Wethers, 6½@7½; ewes, 4 @4½.
Hogs: Hard, fat, grain-fed, weighing 100 to 225 pounds 11; 225 to 300 pounds, 10½; 300 to 400 pounds, 9½.

California Farm Bureau Marketing Association reports:

No. Hogs	Ave.. Wt.	Dock	Price
Turlock, February 15			
67	203	...	$10.50
2	125	...	9.00
8	316	...	9.00
One car, 11 consignors.			
Madera, February 17			
94	164	...	10.60
2	310	...	7.50
One car, 7 consignors.			
Fresno, February 18			
85	204	...	10.70

Byron Jackson Service



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This tomato was raised last year all over the United States and Canada with the greatest satisfaction.

As smooth as an apple and of a magnificent dark red color. Single tomatoes weigh up to 3 lbs. each. The flesh is more solid than that of any other tomato. The fruit contains very little seed and is solidly filled out. This tomato is free of the acid taste, and for dehydrating, catsup, and canning it is the best tomato in existence today.

The DIENER TOMATO is blight-resisting as well as drought-resisting. It will not crack from the rain and will not rot while lying on the ground in wet weather. This tomato will grow in almost any kind of soil and it commences to ripen the first part of August.

It is the greatest novelty in the tomato line, and it will soon crowd out the present varieties from the market by its far superior qualities.

Price of the DIENER TOMATO SEED: Sample pkg., 25c; one-quarter of an acre pkg., 50c; one acre pkg, $1.50.

Our 1921 CATALOGUE, describing our many other novelties in flowers and grains, is free on request.

Richard Diener Co., Inc.
Kentfield, Marin County, Cal.

44	191	...	10.70
15	224	...	10.20
11	143	...	10.20
8	313	...	8.20

Three cars, 22 consignors.
Total for the week 5 cars, 40 consignors, $6,967.41.

POTATOES AND ONIONS

Wholesale prices:
Potatoes: Street prices: River, $1.75@2.25 for No. 1; do, Oregon Burbanks, 2.15@2.25; Salinas, 2.85@3.00; Idaho Gems, 2.15@2.25; sweet potatoes, 5.50@6.00 per 100 lbs.; Louisiana, 6.50@7.00.
Onions: Australian brown, 75@1.00 per cental.
Garlic: New, 7@10 lb.

VEGETABLES

Wholesale selling price:
Artichokes: Doz., 60@1.25.
Beans: 15@22½.
Beets: $1.50@2.00 sk.
Brussel Sprouts: 5@7 lb.
Carrots: $1.00 sk.
Cauliflower: Doz., 75@80.
Cucumbers: Hothouse, small, $4.50 box of 2½ dozen; large, $2.50@2.75 per dozen; English, $2@2.50 per dozen.
Cabbage: Lb., 1.
Celery: Cr., 1.50@2.50; fy. cr., 2.75@3.00.
Egg Plant: Southern, 5@15 per lb.; Florida, 20@25 per lb.
Lettuce: L. A. cr., 1.75@2.00; Imp., 2.50@2.75.
Onions: Green, per lug, 1.00@1.50.
Peas: Lb., Pismo, 14@17.
Parsnips: Sk., 1.75@2.00.
Peppers: Bells, Southern, 5@10; Florida, 20@22½; Chili, 10@15.
Rhubarb: 2.50@2.75 L. A. bx.
Spinach: Cr. 2.00@2.50.
Squash: Italian, nominal; cream, 60@75 per lug; Hubbard squash, 1.00@1.25 per sack; marrowfat and pumpkin, 1.00 sack.
@5.00 per L. A. lug.
Tomatoes: Southern, 1.00@2.00; fancy, 3.00@3.50; hothouse, 35@40 per lb.; Mexican, repacked, 3.00@3.25 per crate, 4.00@5.00 per L. A. lug; Florida, 10.00@11.00 per crate.
Turnips: Sk., 75@85.

FRESH FRUITS

Apples: Bellflours, nominal; Newtowns, 3½ tier, 2.50@3.00; do, 4 tier, 2.25@2.50; size; Arkansas Black, fancy, 3.00@3.50; do, choice, 2.25@2.50; Golden Ortley, 2.25@3.00; Rome Beauty, fancy, large, 2.50@3.50; small, 1.75@2.50; Missouri Pippins, 1.25@2.00; Ben Davis, 1.75@2.50; do, small, 1.25@1.50; Winesaps, 3.00@3.50.
Avocados: California, doz., 3.00@10.00; Pago Pago, doz., 6.00@8.00.
Bananas: Lb., 9@10.
Pineapples: 4.50@6.00 doz.

CITRUS

Navel oranges, 2.25@4.50; large, 4.75; lemons, 2.00@3.50 per box; lemonettes, 1.50@2.00; grapefruit, new crop, 2.00@3.50; limes, 1.00@1.50; tangerines, 2.50@3.75 per half orange box.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 19 lb.; Sunmaid, seeded, 36 15-oz. pkgs., 22 lb.; seedless Sultanas, 25-lb. bxs. 21 lb.; Thompson seedless, 25 lb. bxs., 22 lb.; do, 48 15-oz. bxs., 23 lb.; 3-cr. L. M., 25-lb bxs. 22 lb.; 2-cr. do. 21 lb.; 1-lb. cluster, 20-lb. bxs., 5.50 box.
Apricots: Fancy, 25 lb. boxes, 28 lb.; extra choice, do, 22 lb.; choice, do, 20 lb.; standard, do. 17 lb.
Peaches: Blue Ribbon brand, 48 11 oz to cs, $10 cs; Blue Ribbon brand, 24 2 lb bxs to cs, $11; fancy, 25 lb. bxs, 19c; extra choice, 25 lb. bxs, 17c; choice, 25 lb bxs, 15c.
Pears: Fancy, 25 lb. bxs., 20; extra choice, 25 lb. bxs., 15; choice, 25 lb. bxs., 12.
Figs: Fancy black, 25 lb. bxs., 12 lb.; extra choice, do., 9 lb.; choice do, 8 lb.; fancy white, do, 15 lb.; extra choice, white, do, 12 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4 layer, 10 lb., 2.00 box; choice 4 layer, 10 lb. boxes, 1.75 box.
Prunes: 30-40s, 25 lb. bxs., 15 lb.; 40-50s, do, 12 lb.; 50-60s, do, 10 lb.; 60-70s, do, 8½ lb.; 70-80s, do, 7 lb.; 80-90s, do, 6 lb.; 90-100s, do, 5 lb.
Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8 lb.; choice, do, 7 lb.

NUTS

Peanuts: Japanese, 8.
Pecans, 25.
Almonds: California Almond Growers Exchange quote:

Nonpareil	26
I. X. L.	26
Neplus	25
Drake	18
Languedoc	17
Hard Shell	12

Citrus Markets

Los Angeles, February 23, 1921.

Oranges are not commanding prices which are entirely satisfactory to the grower. Large number of small sizes are being turned over to peddlers at prices which leave but little to the grower. When f. o. b. California sales are made they are around $1.50, while 150's and larger will hold around $3.00@$3.50.

Lemons have sagged again and some sales have been made which left nothing whatever for the grower. Growers are becoming discouraged and desperately tired of guaranteeing freight charges which are so excessive as to leave no chance whatever for the growers' profit.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 7,027 cars; lemons, 1,827; total, 8,854. To same date last season: Oranges, 7,446; lemons, 1,688; total, 9,134. From Central California to date, this season: Oranges, 4,023; lemons, 88; total, 4,111. To same date last season: Oranges, 3,449; lemons, 216; total, 3,665. From Northern California to date this season: Oranges, 305; lemons, 4; total, 309. To same date last season: Oranges, 261; lemons, 22; total, 283.

AT THE AUCTIONS

Boston: 16 or., 2 lem. Nav. 2.80-4.10, lem. 2.95-3.65.
Pittsburg: 5 or., 1 lem. Nav. 3.10-4.20, lem. 2.10-2.55.
Philadelphia: 4 or., 2 lem. Nav. 2.45-3.75, lem. 2.70-3.65.
St. Louis: 4 or., 1 lem. Nav. 2.70-4.20, lem. 2.60-2.95.
Baltimore: 1 or., 1 lem. Nav. 2.75-3.55, lem. 2.50.
Cincinnati: 1 or., 1 lem. Nav. 3.00-3.20, lem. 2.75-3.35.

ELEVENTH NATIONAL ORANGE SHOW

(Continued from Page 274.)

Class No. 14-D

Tray of 12 Washington Navels — 1, Stewart Citrus Association, Upland, $10; 2, Old Baldy Citrus Fruit Association, Upland, $5; 3, Upland Heights Orange Association, $3.

Tray of 12 Lemons—1, Upland Lemon Growers Association, Upland, $10; 2, American Fruit Growers, Corona, $5.

Class No. 15

Cluster of Oranges—1, C. F. Riggs, Upland, certificate; 2, Old Baldy Citrus Association, Upland, certificate; 3, Orange County Associated Chambers of Commerce, certificate.

Cluster of Grapefruit—1, Orange County Associated Chambers of Commerce, certificate.

Class No. 16

Largest Orange—1, A. W. Comstock, San Bernardino, certificate; 2, M. A. Comstock, San Bernardino, certificate.

Largest Grapefruit—1, L. V. Brown, Highgrove, certificate; 2, William Roddick, Highland, certificate; 3, Orange County Associated Chambers of Commerce, certificate.

Class No. 18

12 Samples Orange Marmalade—No first award made; 2, Hushman family, San Gabriel, $10.

Class No. 19

General Display by Schools—1, San Bernardino High School, $25; 2, Redlands High School, $15; 3, Riverside city schools, $10.

Class No. 20

General Display Non-Commercial Organizations—1, Rialto Woman's Club, $25; 2, Bloomington Woman's Club, $15; 3, Highland Woman's Club, $10.

Class No. 21

General Display by Individual—1, Mrs. J. W. Aldridge, San Bernardino, $15; 2, Mrs. R. F. Garner, San Bernardino, $10; 3, Mrs. J. D. Reynolds, San Bernardino, $5.

For unique and meritorious display of citrus by-products the following special prizes were awarded: Corona Gift Shop, Corona, $5; Ernest Schaaf, Miami, Florida, $5; Mexican students from Ramona School, $5; Barstow Union High School, Barstow, $5; Parent-Teachers Association, Base Line School, $10; Home Departments, San Bernardino Farm Bureau, $25; ladies of Polk County, Florida, $10; Mrs. Retta V. Hadden, San Bernardino, $5; Chaffee Union High School, Ontario, $10; San Bernardino Woman's Club, $10.

"Pioneer" Blue Flame
100 to 1,000 Chick Brooder

Makes blue flame gas from common coal oil, no wick, very economical to use.

LARGEST HOVER OF ITS kind on the market, solid brass sight feeds, needle valves, extra well made in exery detail. Send today for free circular. MADE ALSO TO OPERATE ON

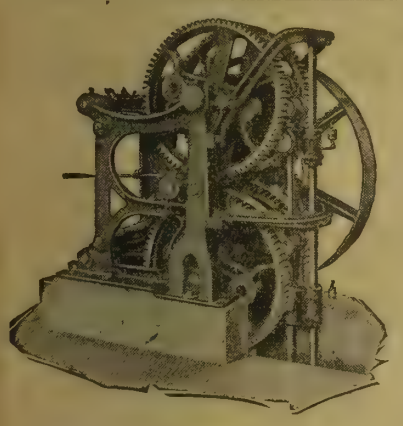
GAS and ELECTRICTY

One size only, 54 inch, $25 crated ready to ship.

PIONEER INCUBATORS

72 eggs to 540 eggs, used by 60 Western Hatcheries. Send for free 48 page catalog today.

PIONEER INCUBATOR CO.
444 North Andrews Blvd.
Los Angeles Cal.



The Pomona Duplex Plunger Deep Well Pump

in operation was one of the leading exhibits at the National Tractor Show and the Riverside Fair. Look for it at the Orange Show at San Bernardino February 18th to 28th. The most Reliable, Durable and Economical system for deep wells and lifts above ground. Ask for descriptive circulars.

Manufactured by the
POMONA MFG. CO.
POMONA, CAL.

Tulare County Reports Excellent Results From Use of AGRI GYPSUM

READ WHAT A USER OF 200 TONS SAYS:

Tia Sallita Orchard Co.
K. E. Johnson Orchard
Ernestine B. Young Orchard
Arthur G. Tasheira Orchard
H. Spens-Black Orchard
Wobber Brothers Co. Orchard

Lindsay, Calif., Feb. 12, 1921.

United States Gypsum Co.,
902 Citizens National Bank Building.
Los Angeles, Calif.
Dear Sirs:

Referring to your letter of February 4th, as to my use of Gypsum—I have used it on citrus orchards at intervals for ten years and last season used over 200 tons of your AGRI Gypsum on foothill and valley orchards of various soils and conditions. I believe the benefits derived have been excellent in every case and especially so on the heavy foothill soils.

Sincerely,
McKee Mhoon.

Grove owners, ranchers, gardeners and others are testifying to the splendid results through the use of AGRI GYPSUM. It supplies the elements generally deficient in California soils.

Many tests are recorded where applications of gypsum increased alfalfa crop production 300 to 400 per cent. It is highly beneficial to oranges, barley, potatoes, truck and other crops with heavy foliage.

Ask your dealer for AGRI GYPSUM and you will be sure of the product ground fine to do the most good with the least amount used. If your dealer cannot supply you, write

UNITED STATES GYPSUM CO.
"World's Largest Producers of Gypsum Products"
Citizens National Bank Bldg. Los Angeles

Agri GYPSUM
US

Wonderful New Hay Crop
SUDAN GRASS

First Introduced into the U. S. in 1909 from the Sudan in Africa. Tests by the department of agriculture have proved it to be of the greatest value in the Southern and Western states, where rainfall is deficient.

Culture—Sudan Grass is strictly an annual. It may be drilled or broadcasted. If drilled 8 to 12 lbs. per acre is ample; for broadcasting 15 to 25 lbs. should be used. It grows 8 to 10 feet high and yields from 3 to 8 tons per acre. You are sure of two cuttings, and if irrigated three or four cuttings.

Sudan Grass for Pasture—During the months of August, September and October all other grasses are dry, then is the time Sudan is most valuable for fall pasture, and by having it fenced in small fields it will yield food for six times as much stock as any other forage will without irrigation. For milk cows and hogs, there is no better and more abundant pasture than Sudan Grass. It will solve the hay proposition as nothing else can or will do in this climate. A good silage and balanced ration. This seed was grown on our own farm, and is free from Johnson Grass.

Price Per Pound:
10 lb. lots, 20c 100 lb. lots, 15c
250 lb. lots, 12c 500 lb. lots, 12c
1000 lb. lots, 10c

Bowman's Hardware and Implement Company
721 J. Street Sacramento, Cal.

LUITWIELER PUMPING ENGINE CO.
707 No. Main Street
Los Angeles

We Are Pioneer Builders of Pumping Machinery
Therefore Our Experience Is Valuable To You

ALFALFA WEEVIL WARNING

The recent jump of the alfalfa weevil from the Rocky Mountain states to Malheur County, Oregon, and to Washoe County, Nevada, only 20 miles from the California line, but seems to emphasize the necessity of extreme watchfulness on the part of California agriculturists to prevent its introduction or to stamp it out in case it should become established in this state.

This pest is a most dangerous one, and an outbreak in California would be a serious blow to our alfalfa, dairy and livestock industries. In the Rocky Mountain states it takes about half the first crop and the second crop is eliminated entirely, the larvae, after the first crop is removed, dropping down on the ground and feeding on the young shoots as fast as they appear above the surface, with the result that the field remains bare and brown. In California, with our milder climate, it is easily possible that even the later crops, too, would be taken. Control is very difficult and expensive, consisting of dragging the fields with a spring-tooth harrow or brush drag, cultivation with a disk and spraying the alfalfa fields with arsenate of lead.

The state department of agriculture has taken every precaution to prevent the introduction of this insect into California through rigid quarantines. In addition we have made frequent and careful inspection of the alfalfa fields adjoining railways coming direct from infested areas, where it is presumed it would most likely put in an appearance first.

The adult weevils are small brownish snout beetles about one quarter of an inch in length. Eggs are small and yellow and laid in clusters within the hollow of the stem through a puncture in the side. The larvae, appearing in the fields from April to November, are about one-half inch in length when full grown, grass green in color with a lighter longitudinal stripe down the back. They feed on the leaves, leaving the ribs untouched to a large extent.

All inspectors, stock men, dairy men and alfalfa growers are requested to be on the lookout for this pest in their fields and to send any supicious insects to Pest Control Service, State Department of Agriculture, Sacramento, for examination.

BEET GROWERS PLAN NATIONAL ASSOCIATION

Beet growers from nine states, Ohio, Michigan, Indiana, Illinois, Wisconsin, Iowa, Nebraska, Colorado and Utah, were represented in the conference called by J. R. Howard in Chicago on January 17 and 18. C. H. Gustafson, new head of the American Farm Bureau Federation cooperative marketing department, was chosen chairman of the meeting and James Clemmens, Kansasville, Wis., secretary. The plan of organization adopted by the United States Beet Growers' Federation was recommended to the American Farm Bureau Federation as a plan for organizing a national sugar beet growers' association.

A nationally uniform contract was recommended as follows: "The price per net ton of beets shall be based on the average seaboard net price of beet sugar during the year beginning March 1, 1921, said average price being arrived at by adding together the prices of beet sugar as quoted and reported by Willett Gray, New York, for each working day of said year, and dividing such total by the number of said working days. Initial payment will be made on the 15th day of each month for beets delivered during the previous month and will be as high as sugar prices warrant. Further payments will be made from time to time as the net selling price of sugar may justify. The final payment will be made on March 15, 1921.

INTERCROPPING WITH COTTON IN ORCHARDS AND VINEYARDS

Cotton as an interplanted crop is finding much favor in the San Joaquin Valley. It seems to be especially well adapted for use in first year vineyards or in young orchards. In Circular 164, issued by the United States department of agriculture, a representative of the bureau of plant industry reports that a Kern County farmer planted cotton between young apricot trees which were making their third year's growth. From about two acres of orchard land he harvested nearly $500 worth of cotton in 1918. The cotton plants occupied only 1.27 acres of the entire plat. In this instance the farmer was enabled to pay the upkeep costs of his orchard with the proceeds from his cotton and to pocket a good profit in addition.

Another farmer in the same county set out 12 acres of grapevines and interplanted with two rows of Pima (long staple cotton) placed between each two rows of the vines. He obtained a yield of nearly a bale to an acre. At the end of the season his vines were in an excellent condition, only one being lost in the entire lot. Specialists say the practice is a profitable one; the cotton is as good as when grown alone, and the young grapevines are equal in every way to those grown without an intercrop.

COMING EVENTS

Eleventh National Orange Show, San Bernardino, February 18-28. General Manager, F. M. Renfro.
California State Beekeepers Association, Oakland, March 2-5. Secretary, A. B. Shaffner, 4232 West First St., Los Angeles.
Mendocino County Fair, Ukiah, August 7-13.
Napa County Fair, Napa, August 11-13.
Humboldt County Fair, Ferndale, August 14-21.
North of the Bay Counties Fair, Santa Rosa, August 24-28.
Yuba County Fair, Marysville, August 24-28.
California State Fair, Sacramento, September 3-11.
San Joaquin Valley Livestock Show, Stockton, September 12-17.
Tulare County Fair, Tulare, Septemper 12-17.
Glenn County Fair, Orland, September 19-24.
Kings County Fair, Hanford, September 20-25.
Fresno District Fair, Fresno, September 26 to October 1.
Arbuckle Almond Show, Arbuckle, September 28 to October 1.
Ventura County Fair, Ventura, October 2-8.
Shasta County Fair, Anderson, October 2-8.
Siskiyou County Fair, Yreka, October 9-15.
Southern California Fair, Riverside, October 8-16.
Los Angeles Livestock Show, Los Angeles, October 16-25.
California Horse Breeders' Association, Los Angeles, October 30 to November 5.

MARIOUT BEST BARLEY FOR BUTTE

The best barley to plant from now on is Mariout, declares H. E. Drobish, Butte County agent, who says Mariout barley will mature in from two to three weeks' less time than will common barley. For spring planting it has been clearly demonstrated in Butte County that Mariout barley will outyield common barley.

Last year in the farm bureau demonstations on over 20 farms in the county, Mariout barley yielded on an average of from 40 per cent to 50 per cent more per acre than did common barley. Careful checks were kept in each case. The increase in yield was especially marked in those planted after January 1.

A Tractor that meets every requirement of orchard work

CATERPILLAR
Reg. U.S. Pat. Off.

5-TON ORCHARD TRACTOR

Here, in the famous 5-Ton "Caterpillar" Tractor, is an orchard tractor that solves your particular power problems — fully meets your special needs.

It has power — big power — and that's your foremost essential. With the 5-Ton you can plow or subsoil deep, finish up your work quickly, keep a safe distance away from the trees.

And the 5-Ton's power is compact power—the tractor is narrow, low-down, has clean, smooth lines, with nothing projecting to knock off fruit or catch low-hanging limbs. "Caterpillar" 5-Ton Tractors' wide range of speeds —1½, 3 and 5¾ miles per hour —gives it splendid versatility, makes it adaptable to a wide range of work. The 5-Ton turns short, pivoting on either track.

Most important of all are the factors of long life, low upkeep cost, low operating expense, in which the "Caterpillar" 5-Ton Tractor holds a position of superiority not even approached by any other orchard tractor—a position established by its achievements, on two continents, in every kind of work, under every conceivable condition.

Investigate this Tractor now. Every day that you wait delays your profiting by this Tractor's ability to decrease your orchard costs.

There's only one Caterpillar Holt builds it

The Holt Manufacturing Company

Stockton, California Peoria, Illinois

Los Angeles, Cal. *Spokane, Wash.* *San Francisco, Cal.*

Hatching With Hens

By Jean A. Koethen

THE hen mother is like the little girl in Longfellow's rhyme:

When she was good she was very, very good,
And when she was bad she was horrid.

The best hen is the perfect hatcher; no incubator is her equal. The worst hen is worse than any incubator. Between these two extremes there are many grades and varieties, some better, some worse. I have had hens that killed two-thirds of the germs and chicks before the hatch was complete, and others that could almost hatch a china door knob.

Because of this uncertainty—or perhaps you would call it temperament—in hen psychology it is a good plan to set two or more hens at the same time. Then, if one proves too temperamental it may be possible, after testing out on the seventh or eighth day, to let her go and give all the fertile eggs to the other. Again, at the end of the hatch the broods may be doubled, for one hen can easily care for from 15 to 20 chicks if she is properly protected, and a good hen will more successfully hover 20 than a poor one six.

The first step in hen hatching is to get your hen. When a hen shows a disposition to stay on the nest, leave her alone for two or three days. Some hens settle down much more quickly than others. There are some that can be moved from the nest in which they have been laying to that in which they are to sit at any time of the day or night, and others that can never be moved without a long and violent struggle to accustom them to the new nest. As a rule the older hens settle down more quickly. A young hen is flighty and must be coaxed and humored.

It is usually safer to move the prospective sitter to the new nest after dark. Sometimes this precaution seems to have little effect, but as a rule the hen will quiet down more quickly in the dark. If the eggs are ready, it is entirely unnecessary to break the hen to the new nest before they are put under her. My own plan is to have the eggs in the nest when the hen is moved. She is put on them and covered so closely that she cannot readily stand up, allowing, of course, abundant ventilation, and here she is left two whole days. The third morning I remove the cover, having first placed grain and water beside the box, and she is free to get off when she pleases, but I keep my eye on her, and when she has been off ten minutes or thereabouts, steer her back to the nest and cover her again. The second time she is let off she can usually find her way back, but I watch and make sure she does not stay off too long.

My experience with sitting hens has perhaps been different from that of poultry writers who insist the hen must be so accustomed to the nest that she will return to it after eating before the eggs are given her. A hen knows the difference, I believe, between a real clutch of eggs under her breast and a sample two or three, and will settle down when she feels the real thing. Being a hen, however, she is slow in learning new places and must be watched until she has adjusted herself to the new surroundings.

Dust the Hen

No hen should be set without a thorough dusting with some good insect powder, and a second dusting before the eggs begin to pip is a safe precaution. Not all hens are lousy, but all may be.

We have been told that hens should be set on the ground. Theoretically, I suppose, the moisture of Mother Earth has value, but a hen is more easily controlled in a box, and moist earth can be put in the box under the nest litter if it is desired. I used to be more particular about dirt in the bottom of my sitting boxes than I am now, but I could never see that anything was gained by putting it in, except that it made a good, firm foundation for the straw or hay. Whether dirt is used or not, the nest should be deep and well rounded so that the hen can support herself without resting her weight on the eggs. She must be comfortable or she will become restless and break the eggs.

Regular Meals

After the first two days the sitter should leave the nest every day to eat and dust. If she does not get off of her own accord she must be taken off. One of the first hens I ever set nearly starved because I did not understand this. I thought she would get off if she wished to and congratulated myself on her remarkable fidelity to her maternal duties. When at last, on the advice of a neighbor, I took her off, she could not stand and could hardly eat.

Not only is the regular daily meal necessary to the strength and heat of the hen, but a short airing is just as necessary to the germ. The close sitter is not the best sitter. As the period of incubation draws toward its close the eggs need more and more airing and the hen will be seen remaining off the nest for longer and longer periods.

The first week of incubation the germ is easily killed by chilling, but during the last week the eggs may be left uncovered for a number of hours without harm. Instances are on record where hens have apparently been off all night, and still the eggs hatch. A hen will rarely desert her nest if she is kept free from mites and lice, but if she does the eggs need not be wasted. Keep them as warm as possible till another hen can be found to cover them. If no other hen is available, and hatching time is near a fair hatch may sometimes be achieved by wrapping in flannel and keeping them in the sun or in a warm place in the house.

Testing Out

Eggs that are under hens should be tested the seventh or eighth day and the fourteenth and fifteenth in order to remove all infertiles and all dead germs. At the first testing all clear eggs are removed while they are still fit for use. At the second testing germs that have died after the first testing are removed. If they are left to rot they may be the cause of the death of chicks that are nearly ready to pip the shell. Oxygen is so necessary to the strength of the chick that sulphur dioxide fumes from a single rotten egg may work considerable harm.

A great many amateur poultry people are very careless about testing out, reasoning, no doubt, that the clear egg may as well remain under the hen as anywhere else. They forget that the more eggs a hen is obliged to cover the greater the likelihood that one may be chilled. They also forget that an egg is worth a nickel more or less. A clear egg that has been under a hen a week is as good for cooking as a cold storage egg, and if one is not too fastidious, may be used on the table. The yolk may run a little, otherwise it is hardly stale.

Beware of Mites

The sitter has no greater enemy than the little red mite (dermanyssus gallinae). They are a terrible plague to the hen that is able to move around and dust herself, but to the sitter whose instinct binds her to the nest they are torture and death. They suck her blood, and she is helpless to resist them. In January and February, if the weather is normally cool, clean boxes and litter are the only precautions necessary to keep mites away, but when the warm spring days come special care must be employed. Soaking the box with kerosene will keep mites out, but if the kerosene touches an egg it is fatal to the germ. Tobacco leaves or stems or dust in the nest litter, or any louse powder containing tobacco, is death to mites. The wise caretaker will examine the nest from time to time when the hen is off, not only for broken eggs but for lice. If tiny black specks are seen moving about on the eggs there is nothing to be done but to wash the eggs in warm water and prepare a new nest that is mite proof. To permit a hen to die from mite infestation is cruelty that deserves the attention of the S. P. C. A.

Dr. LeGear says

"Your chicks need help the first few weeks."

Save your chicks! The first few weeks is a critical period. Build up their vitality to resist diarrhoea, bowel trouble and leg weakness. Do this with Dr. LeGear's Poultry Prescription. It has saved the lives of millions of chicks.

It also helps to make hens lay and keeps poultry vigorous and healthy.

Get it from your dealer today. Satisfaction guaranteed or money back

35c, 70c, $1.40 pkgs. 25 lb. Pails $3.50

There is a Dr. LeGear Remedy for every curable ailment of stock and poultry. All guaranteed.

Dr. L. D. LeGear Medicine Co.
St. Louis, Mo.

At the first signs of Diarrhoea, use Dr. LeGear's Chick Diarrhoea Tablets.

Dr. L. D. LeGear, V. S.
In Surgeon's Robe
Graduate Ontario Veterinary College, 1892
20 years Veterinary practice. Noted authority on ailments of Stock or Poultry.

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An Egg in February Worth Two in May

Egg prices are still high—and will remain high until the usual spring lowering of prices. So help your hens lay NOW as steadily as they do in springtime—have lots of eggs to sell *at winter prices.* It's easy! Add

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to any good ration. Then watch your birds start filling the empty nests.

One egg *now* is worth two in May. And Pratts Poultry Regulator surely coaxes the eggs along. Thousands of poultrymen have proved that during the 50 years this wonderful egg-tonic has been on the market. Test it on your flock. Do it *now.* The longer you delay, the more you lose. You risk nothing because—

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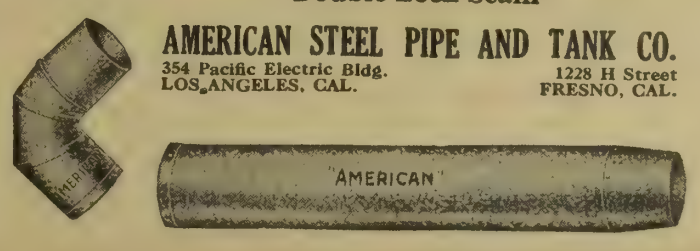

LET your chick babies be buttermilk babies this year and watch 'em thrive and grow. Start them right, start them on Globe "A-1" Baby Chick Mash, **the buttermilk baby chick mash.**

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AFTER THE CHICKS ARE OLDER

After your chicks are about 6 weeks old change the ration to Globe "A-1" Growing Chick Mash (containing dry buttermilk) and when the pullets are 5 months old begin to feed Globe "A-1 Laying Mash (containing dry buttermilk) and get ready for the full egg basket.

Nutritious hearts of grain, meatine, selected ground grains and plenty of pure dry buttermilk—that's Globe "A-1" Baby Chick Mash—why shouldn't the chicks grow well on it?

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Poultry Queries

Conducted by J. A. Koethen

Wyandotte Weights

Will you please give me the standard weights of Wyandottes?—Subscriber, Ducor.

Standard weight for Wyandotte cock is 8½ pounds; cockerel, 7½; hen, 6½; pullet, 5½.

Moistening Duck Eggs

Please tell me if duck eggs have to be dipped into water daily while incubated by hens.—Subscriber, Bakersfield.

It is not necessary to moisten duck eggs at all when they are under hens, but most people do sprinkle them occasionally with warm water. A hen will often bring off a good hatch without any moisture except that from her own body and the outside air, but it is safer, especially if the weather is dry, to sprinkle, say, once a week the first three weeks and two or three times the last week.

Cottonseed Meal

Will you please tell me if cottonseed meal is good for chickens, and has it any effect on the egg? Subscriber, Glendale, Arizona.

According to the latest feed letter from the poultry division, either cottonseed meal or cocoanut or soy bean or linseed meal may be used in the mash, ten pounds of the meal to 200 pounds mash. They are all similar in their effect, which is to add considerable vegetable protein. Linseed and soy bean meal are preferred, but cottonseed may be used if more convenient.

Cement Floor

Is a cement floor in a poultry house a good idea in Southern California, and how will chickens thrive on it?—G. T. H., Compton.

A cement floor is considered the very best, and some of the most up-to-date ranches have them. It is not too cold if covered with sand. Generally a layer of straw is spread on top of the sand and removed when it becomes filthy.

Venetian Red

What effect will Venetian red have on laying hens? I have been told that keeping it in the drinking water keeps them healthy and increases egg production.—L. E. P., Burbank.

I have a dim recolection of having seen Venetian red prescribed for some poultry disease, but do not remember what nor why. The way to keep hens healthy is to keep them and their quarters clean and feed plenty of green feed. The way to increase egg production is to keep their vigor up to the highest notch and provide all materials for egg manufacture.

Roup

Will you kindly answer the following questions in your magazine: How can I tell if my chickens have cold and roup? Can I cure it? If so, how? What shall I do if many of the flock are affected? What is the cause of roup?—Subscriber, Norwalk.

There is material in these questions for a detailed discussion which I shall try to give soon. Briefly, we call a running at the nostril or rattling in the throat a cold, while a thick, nasty-smelling discharge or swellings under the eyes or eyes sticky or swollen shut indicate roup. The difference is more in degree than in character. The simplest treatment is dipping the head of the affected bird in warmish water to which a few crystals of potassium permanganate have been added. Before dipping massage the nostrils in order to loosen the secretion and open the swellings under the eyes. Then dip the head under while you count ten or longer if the bird will stand it. Repeat this treatment morning and night, preparing the solution fresh each time. The above is a treatment, but not a cure, for the only cure is removing the cause, and the cause of roup is dampness and filth in houses and runs. More often than not, lack of ventilation is the real cause, for if a flock is shut up at night in a tightly closed house the moisture from their bodies makes the air damp. Every chicken house should have an open front and the birds should not be crowded. If houses and yards are kept dry and clean and roosting quarters well ventilated there will be very little roup in any flock. If there are many cases it is almost proof positive that sanitary conditions are bad, and the first thing to do is to clean up. Hens that roost in trees never have roup. It is only artificial and unsanitary methods of housing that produce it.

Vent Gleet

Our 22 hens are having something like piles. Is it caused by excessive laying, and what is the remedy?—Subscriber, Puente.

I wish you had described the disease more fully. "Something like piles" might mean several different things. My first suspicion is that they have vent gleet, which is an infectious disease, and usually, if not always, spread in a flock by the male bird. Here is Dr. Salmon's description of vent gleet: "The first symptom observed is the frequent passage of excrement which is voided in small quantities almost as rapidly as it reaches the cloaca. Often the bird endeavors to drop excrement when the cloaca is entirely empty. If an examination is made the mucous membrane is found in the early stages to be red, dry, swollen and hot. In a day or two a discharge makes its appearance. It is at first thin and watery but soon becomes white, purulent and offensive. This discharge collects upon the skin and feathers, obstructs the passage and irritates the parts with which it comes in contact. The soiled skin becomes red and inflamed, it may be abraded by friction or by the bird picking at it, and thus sores or ulcers are started which may become quite troublesome." To treat, isolate affected birds and give 30 grains Epsom salts. Twice a day inject first a four per cent solution of cocaine and immediately afterward a solution of nitrate of silver four grains to the ounce. The fifth day commence a small copaiba capsule daily and inject acetate of lead, one dram to the pint. Feed low and dust sore places outside with iodoform. The hands must be washed thoroughly after handring a bird with this disease, for it is very infectious. If the condition of your birds does not answer the above description it may be they have inflammation of the oviduct, but it hardly seems likely that more than one or two in a flock would have this trouble, which comes from the breaking of an egg in the passage, or from severe straining in laying.

DODDER

The federal department of agriculture has issued in Farmers Bulletin 1161, "Dodder," a most complete treatise on this pest. The bulletin is filled with illustrations and descriptive text regardng the pest. The summary is:

Dodder is a parasitic plant, infesting clover and alfalfa chiefly. It is a bad weed in Europe, though conditions in the United States are not as favorable as in Europe for damage by dodder; hence the appearance of the pest on the farm should not occasion undue alarm. Nevertheless, dodder may cause a great deal of damage, and it should not be allowed to grow unmolested.

Dodder is usually introduced on the farm by impure seed. Other means are infested hay; moving objects, such as animals and wagons; irrigation water carrying seeds and pieces of stem; and viable dodder seeds contained in stable manure.

Dodder seed, with the exception of that of large-seeded dodder, may be cleaned from impure clover and alfalfa seed by screening. It is practically impossible to remove large-seeded dodder by screening. The seeds of field dodder are also difficult to remove entirely from clover and alfalfa seed.

During the first season of infestation in clover or alfalfa, dodder usu

ally occurs in small scattered areas. Such infested areas should be either mowed or removed before the dodder matures seed or else burned in the field. If seed has formed, burning is the only remedy, since it kills not only the plants but also any seeds of dodder which may be lying on the soil surface.

If the infestation is so great that patch treatment is impracticable, the crop may be either plowed under or utilized for hay and the aftermath closely grazed to prevent seed from forming. Sheep are especially useful in grazing dodder. If dodder seed has formed and the crop has been very seriously damaged, the safest method is to cut the crop, allow it to dry, and burn it in the field.

Dodder does not attack cereals; consequently oats, wheat, etc., should be incorporated in the rotation following the infestation of the soil with dodder seeds. A tilled crop, such as corn, will cleanse the soil of most of the dodder seeds. In place of clover or alfalfa, other legumes, such as soy beans, velvet beans and cowpeas may be grown, since dodder never damages any of these crops. The seeds of dodder in the soil may remain viable for a period of five years or longer.

A number of cultivated crops besides clover and alfalfa are subject to dodder infestation; the most important of these are sugar beets, onions and flax.

CALIFORNIA EGG CONTEST

During the ten day period from February 1 to 11 the 540 contesting hens in the California farm bureau egg laying contest laid 3677 eggs, or an average production per day of 68 per cent. At this time last year the 1919-20 contestants were laying 47.5 per cent, or 21 per cent less. Three pens for the last ten days go over the highest mark made at any time during last year's contest and five pens tie highest record made during last year. Eight pens average better than 80 per cent for the ten days and 23 pens go better than 75 per cent.

High records for the ten days are: Hanson's Poultry Farm, 85 eggs; D. B. Walls, 81; Hollywood Farm, 81; W. A. Ford, 80; Warren Wood, 80; C. E. Hyde, 80; George Brenneke, 80; Oregon Agricultural College (barred rock), 80; Alex Stewart, 79; S. L. Gibson, 79; Mrs. H. C. Kliensmith, 79; George Gray, 78; D. B. Walls, 78; La Rita Trapnest Farm, 78; Santa Barbara Poultry Ranch, 78; Fuller & MacCallister, 78; S. L. Gibson, 77; Ed Crewson, 77; Warren Wood, 76; W. H. Marshall, 76; La Rita Trapnest Farm, 76; Bellows Bros., 75; Hampton & Louches, 75.

POISE IS A MATTER OF SELF CONTROL

Poise is power. The man who is not master of himself under all conditions cannot feel the assurance, the power, which is the right of every human being to experience. He is never sure of himself, and the man who is never sure of himself is never wholly at ease. He is not even well bred, for good breeding implies self control under all circumstances.

There is, perhaps, no other thing which is so conducive to one's physical and mental comfort, efficiency, happiness and success as a calm mind. When the mind is unbalanced by anger, excitement, worry, fear or nervousness, the entire body is thrown out of harmony. All the functions are deranged; the man or woman is not normal, and is, therefore, whatever the situation, at a complete disadvantage, wholly unable to contend with it.—Orison Swett Marden.

ON THE JOB

You belong to the Society for Prevention of Cruelty to Animals, don't you?" asked the caller.

"Yes. I'm one of the officers," replied the man at home.

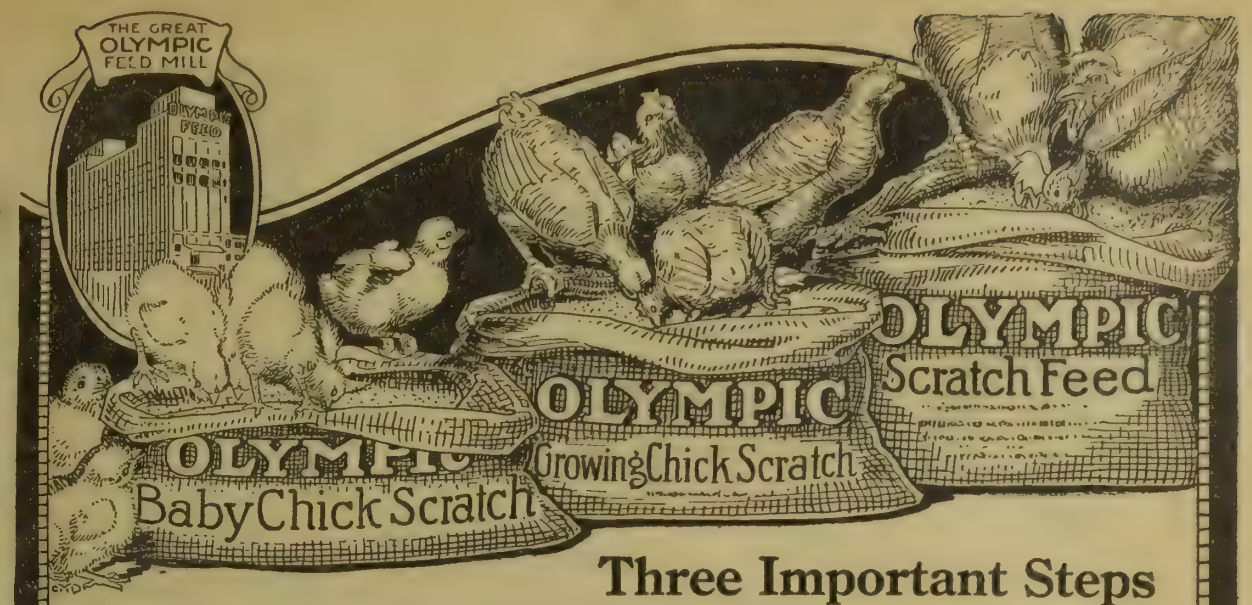
"Well, here's a song I dedicated to your society. I'd like to sing it to you."

"All right. Wait until I put the cat out of the room."—Yonkers Statesman.

THE REVERSE

Kate—She asked that question just out of idle curiosity, don't you think?

Laura—No; busy curiosity. Her curiosity is never idle.—Stray Stories.



Three Important Steps

THE most critical time in the lives of young chicks is the first few weeks. Their undeveloped systems are yet unable to throw off injurious irritants, so great care must be taken in their feed and feeding.

But OLYMPIC Baby Chick Scratch is milled expressly to assist OLYMPIC Chick Mash with *Dried Buttermilk* during the first few weeks' critical feeding. Selected from strength-giving, energy-building grains and entirely free from dust, these tiny, easily handled particles appeal to the chick's appetite, as do the bright colors attract their eyes. After three weeks, when the Mash is changed to OLYMPIC Growing Mash with *Dried Buttermilk*, the chicks graduate to OLYMPIC Growing Chick Scratch, made from the same wholesome ingredients but ground just coarse enough to tempt growing chicks until about eight weeks old. Then they are able to handle the larger grains of OLYMPIC Scratch Feed, changing the mash to OLYMPIC Egg Mash, with *Dried Buttermilk*.

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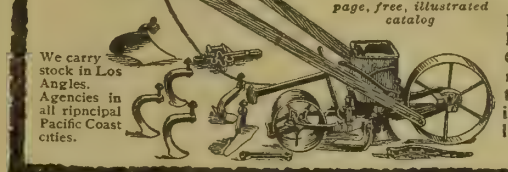

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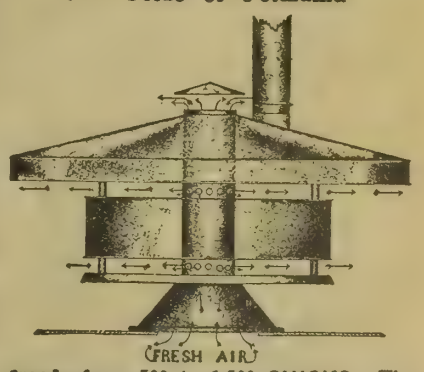

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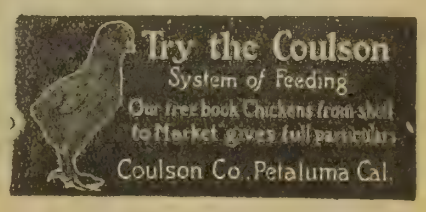
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This hen means well enough. Chances are, she has the best intentions in the world. She is quite willing to own up to the fact that she is your debtor. You feed her. You take good care of her. [Perhaps you've raised her from chickhood.] And you devote your time to her physical welfare. In return for all that, you have every right in the poultry world to expect enough eggs to pay a healthy interest on your investment. But then—

Remember that even the best-intentioned hen won't "pay in full" unless the feed you give her contains the elements necessary for egg-building. Nature provides each laying hen with just so many eggs in embryo. And if you leave it to Mrs. Biddy she is apt to take six or seven years to produce her full quota of eggs. And, incidentally, she is apt to leave *you* high and dry in the process.

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — March 5, 1921 — No. 10

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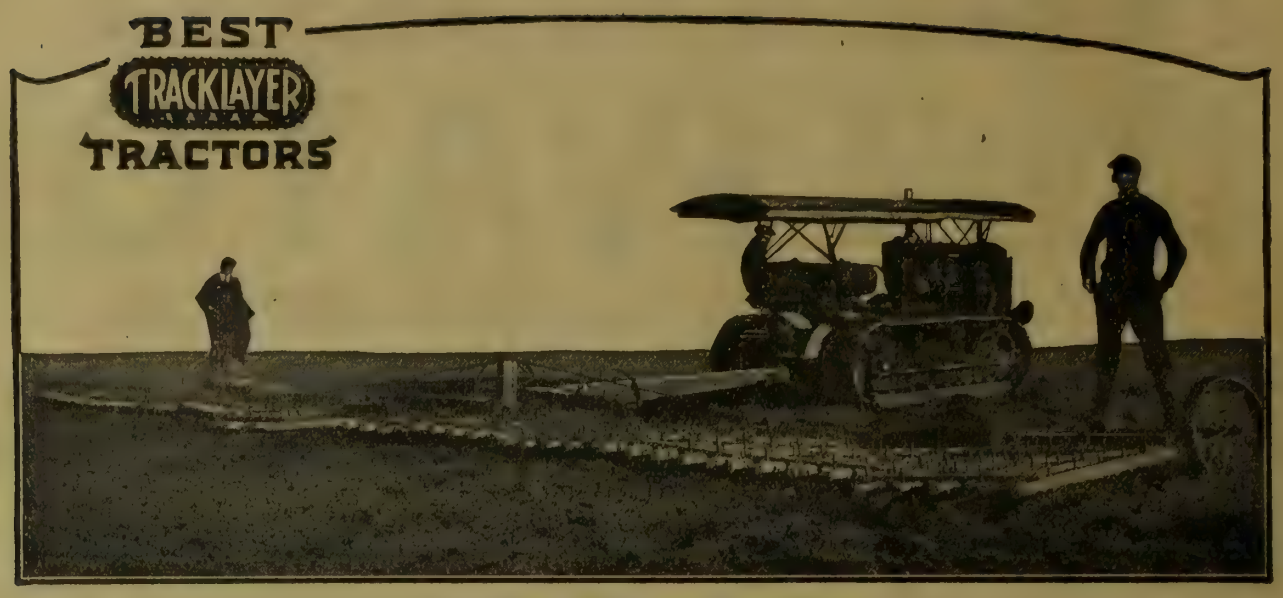
Where Cooperators are Saving Money

Upper picture shows cooling floor at the big cooperative cannery at Ontario. This is one of the canneries of the California Growers Association. Lower picture shows housing plan at the Ontario house. Also see San Dimas Housing article with illustrations on third page.



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SAN LEANDRO, - CALIFORNIA

California Cultivator

Vol. LVI, No. 10 | Los Angeles, March 5, 1921 | One Dollar Yearly

Labor Housing Problem Being Solved

By C. B. Messenger

THE days of the blanket man have not gone entirely; there are still many sections where housing conditions are not ideal; but the last half dozen years have noted wonderful advancement in housing and giving to laborers in California fields and orchards better living conditions. This is securing a more permanent and home loving type of labor and is vastly more satisfactory to both employer and employe. It is costing the farmer some money to fit up these homes, but a period of a very few years will probably show net gain.

Within the past two or three years a number of these little colonies have been established which may be considered as models. Some of them have been referred to, and illustrated articles regarding them given in our columns. One, known as the San Dimas Mexican Settlement, has been built by members of the San Dimas Lemon Association, of which T. R. Hobbs is manager, and the San Dimas Orange Growers Association, E. M. Wheeler, manager, and J. E. McFadden, assistant manager.

For many years these associations have felt the need of more dependable supply of day labor, for labor employed year in and year out. Heretofore, a lull in the packing season, with only occasional day's work, resulted in the Mexican family packing up and moving away to the nearest job.

Something over a year ago the two associations decided to unite and make a home settlement for this class of labor. A tract of land comprising about seven and a half acres was cut up into lots of about 40 by 80, each lot neatly fenced. On each of these lots a concrete four room cottage was built, or at least on 36 of them, each cottage representing an investment of $1,300. In addition there have been built two good sized bunk houses, each containing 14 rooms.

Exactly the same plan is followed in every one of the 36 houses; a tiny concrete front porch, living room, kitchen, two bedrooms, shower bath. Each kitchen has running water with good combined sink and laundry tray. The sewage for the settlement is handled in a series of cesspools. The floors are of concrete, ceilings of one of the ordinary wall boards. Finish is in natural yellow pine. There are screen doors and windows and casement sash.

Under certain regulations a small number of poultry may be kept. Other animals are not permitted about the house, but in the barranca or "wash" crossing one corner of the settlement long low sheds have been built and there milk goats, cows and horses may be stabled.

The rental for these houses has been fixed at $11 per month. Such rental would not satisfy the landlord who is making a business of renting cottages, but owing to the permanency of these buildings it has been determined to fix this amount of rental with the idea that in a period of two years the cottages will pay themselves out through a loan made with one of California's popular building and loan associations.

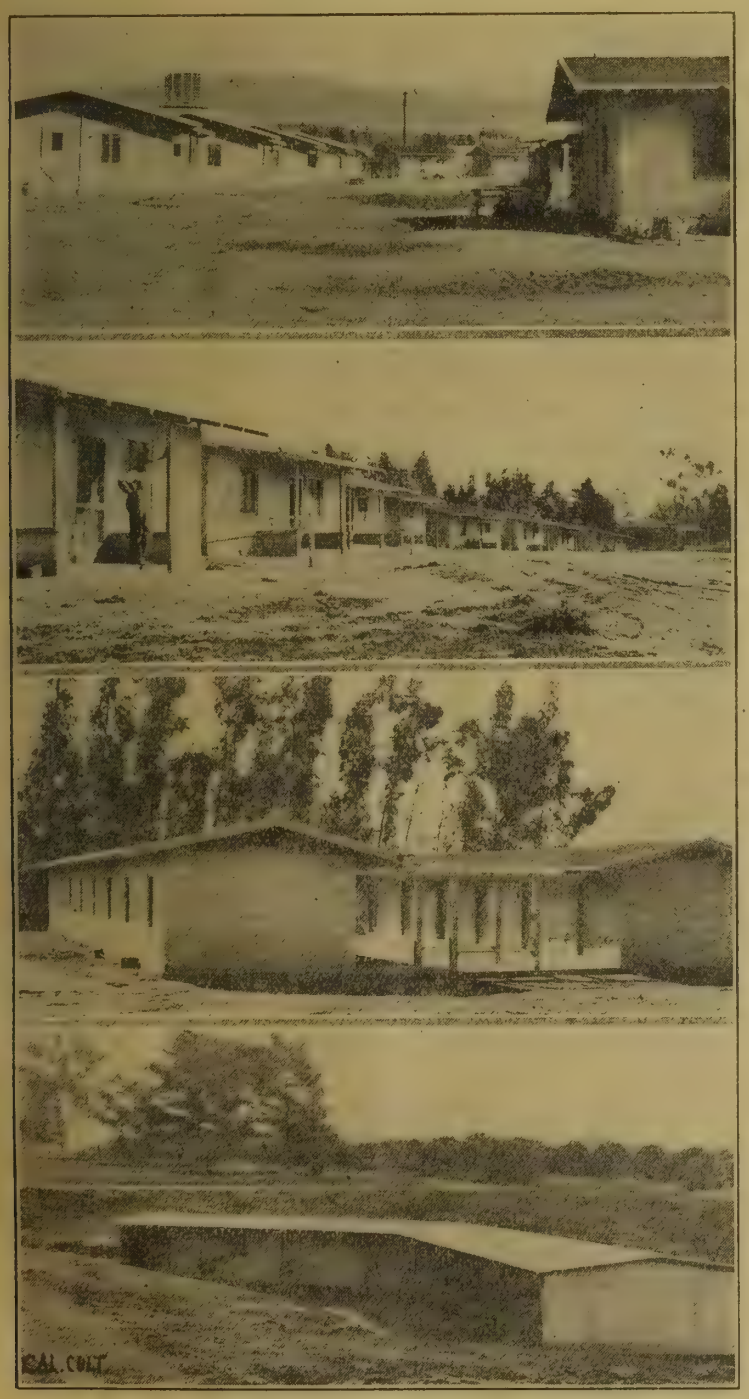
As fast as the cottages were finished, they were filled; the demand still continues, and many times the present capacity would not meet the demand. However, the labor supply for the two packing houses and the orchards connected with them has been stabilized.

The state housing commission has ruled that four grownups and four children is the limit for houses of this size, and this presents a difficulty to the management, requiring constant watching, for many have been the cases where the herding instinct has been allowed full sway and the cottages overfilled. Connected with the settlement is a clinic in charge of graduate nurse, and under direction of the public schools near by Americanization training is given. Pomona is supporting an interdenominational mission which affords religious training. There are no set rules as to sanitation or cleanliness, but the nurse has been in charge of this feature of the work and satisfactory results have been secured.

About $50,000 is invested in the entire settlement and owing to the economical and permanent construction $11 per month will not only pay out but allow reasonable interest rate. Greatest economy is secured in the management because of entire matter being handled by bookkeepers of the two associations, whose offices are just across the highway from the settlement.

Another and larger settlement, which was once described in the Cultivator, is that on the Limoneira Ranch at Santa Paula. Others are located at College Heights, Claremont, and at Uplands, where both orange and lemon growers combined in building 40 cottages. About the same number have been built by the packing houses at La Verne. These, however, are of hollow tile. Another is at Glendora where a very attractive "bungalow court" has been constructed. Others are located at Covina for the Orange Growers Association. These cottages are better built and are intended for American help.

Illustrations on this page give very correct idea of these little cottages.



The San Dimas Citrus Workers' Plan of Housing

Upper picture shows diagonal lay of the street giving sunshine on four sides of every cottage in the row some time during the day. Second from the top, view along another street, showing attractive nature of the cottages. Third from the top, single men's sleeping quarters. Court is open at both ends. These quarters are supplied with shower baths and reading or lounging room. Bottom picture shows animal quarters where the goats, cows, horses and pigs are maintained.

March in the Vegetable Garden

Northern California

By A. R. Gould

THERE should be great activity from now on in this department and our planting list will continue to be extensive, as we have to sow many of our principal crops. Steady rains have been very helpful and have put the ground in excellent shape, and where the plots were prepared early as we advised a month or two ago, by deep trenching, they will be ready now for sowing. The careful gardener will keep records and the garden notebook should contain a complete record of dates of sowing, location of plots and results. Crop rotation is very important, and by keeping a record of your operations you may easily carry out a system of rotation. It is never advisable, for instance, to grow potatoes year after year on the same ground, or tomatoes, as the spores of fungus diseases which attack them remain hidden in the ground for some time and will be a source of trouble.

Beans

There is yet a chance that we may have more frosts, and it will not be prudent to sow the more tender varieties of beans. However, the Canadian Wonder, a very fine flavored string bean, is hardy, and a sowing may be made in rows placed two feet apart. The Broad beans sown last fall will soon be ready to pick.

Peas

The earlier varieties will by now be several inches above the ground and will need constant cultivation between the rows and a close watch kept for aphis. They may be destroyed by spraying with "Black Leaf 40." Successive sowings of peas may still be made of the following varieties: Little Marvel, a dwarf type with very well filled pods; Stratagem and Yorkshire Hero, both good main crop varieties and semi-dwarf.

Potatoes

Secure your seed tubers at once

(Continued on Page 318.)

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

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Combined with California Cultivator 1914
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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard — D. F. Reichard
J. W. Mills — J. B. Neff
Fred M. Reed — Louis B. Stanton
G. E. Gordon — M. E. Bemis
A. R. Gould — E. L. Koethen

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Saturday March 5, 1921

OUR ADVERTISERS RELIABLE

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If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

If the grower ever grew good fruit he should grow better this year, and if he never grew fruit which was simply an A-1, perfectly formed, highly flavored, first-class article before in his life, he wants to study the game and learn cultivation, irrigation, pruning, thinning, spraying, and every other step that makes for a perfect product.

* * *

We talked just the other day with a cannery manager. It was J. A. Campbell, manager of the California Growers Association string of canneries. Mr. Campbell is just back from the East. He has been asking the big buyers and jobbers; "What are we going to do about it?" And they have said: "Grow and pack the highest grade product possible. There is always demand for top-notch stuff."

* * *

Mr. Campbell then remarked: "Had you ever thought that in addition to being more attractive and more salable, the higher quality large fruit is likewise vastly cheaper in the handling. Take, for instance, a box of apricots, large, fine canning fruit. It costs only half as much to cut it as it does the box of tiny undersized stuff. The filler of the can is likewise handicapped, that is, if the small stuff is worth packing at all. Again, the greater weight of fruit goes into the can of small fruit. This may be considered at first thought favorable to the buyer, but, as a matter of fact, so far as his preferences are concerned, he will take a lesser quantity of fine large size fruit.

* * *

It costs money to spray and to thin fruit; it pays.

* * *

There is a hot time under the old dome at Sacramento. Since the days of corporation domination there has never been such a lobby under control of what is apparently one directing head. Likewise, there is another lobby, or, we prefer to call it, committee, representing the farmers, and that organization is doing some wonderfully effective work.

* * *

That agricultural legislative committee has stuck close to its program of watching legislation inimical to agriculture and securing legislation beneficial to agriculture.

* * *

This committee has stuck strictly to its text, and it is, "Agriculture." For a long time it considered the "King bill" as not exactly within the province of an agricultural committee. That bill has to do with taxation, with raising the revenues required for the state from the corporations. It has become an established principle in this state that county and municipal needs shall be met by an ad valorem tax but that state revenues shall be derived by taxation on the gross income of the corporation.

* * *

The heated discussion which has been stirred up by this taxation matter has reached such a stage that it appeared that appropriations which are necessary to continue agricultural prosperity were being jeopardized. A special meeting of the agricultural committee was called and there were long and detailed hearings with the state budget board, the board of control, committees of state bankers associations, and other representatives of corporations, and the fact was established to the satisfaction of the committee that in cutting $24,000,000 from the proposed budget which had been done by the budget committee, it was reduced to its minimum.

* * *

With the minimum of the budget established, it seemed to be simply a question of whether the plan for taxation should be changed entirely and the state tax placed back on an ad valorem basis or left, where it has been for the past few years, on the corporations. On this point there could be but one decision by the committee, and after long and detailed hearings "The agricultural legislative committee endorsed the King Revenue and Taxation Bill by a vote of nine to two with three members not voting but explaining their position as favoring economy and opposing ad valorem tax."

* * *

We will all join with the three not voting in favoring economy, including without question, the nine, but the welfare of the state is at stake and we realize that the state has never advanced as rapidly as during the past two years, and if this is to be continued, it must be granted that the tax budget must increase.

* * *

The discussions of radical changes in the college of agriculture will continue another two years. The public hearing called for February 25 in the assembly chamber resulted in a mass meeting. The chamber was packed and the crowd remained until after midnight to hear the discussion which revolved around the regents' plan to give the first two years of agricultural training at Davis or elsewhere and the final two years at Berkeley. Opponents of this plan asked that the college be moved entirely from Berkeley to Davis, but all parties agreed that an excellent plan would be to appoint a strong committee, at least one-half of which should be farmers, to make a careful investigation of this whole matter during the next two years and report to the next legislature.

* * *

There are several bills which have been presented to the legislature, dealing with irrigation and drainage. These matters are somewhat technical, so the agricultural legislative committee has asked Professor W. W. Weir of the University of California to analyze the measures pertaining to drainage, and Professor Frank Adams of the United States department of agriculture and University of California to analyze the bills pertaining to irrigation.

* * *

A great many bills have come before former legislatures, and some have been passed by them, which were in very poor form and some contained serious errors. An example of this is the pure seed bill passed by the last legislature, but which was necessarily vetoed because of the technical error of having two appropriations within one bill. To eliminate these errors so that bills are in proper form and to be sure that no dangerous clauses are contained in any agricultural bills the agricultural legislative committee has obtained the services of an attorney of wide experience in agricultural legislation.

* * *

In the pruning down of the budget so as to bring within reach of the income it is possible that appropriations for livestock shows, one to be held in San Francisco and one in Los Angeles, may be jeopardized. Senator Rush has introduced a bill appropriating $200,000 for shows in these two great centers.

* * *

The work of Secretary Wilson of the agricultural legislation committee has been most efficient and of great value to the committee and to agricultural interests. This committee has acted practically as a clearing house for a mass of material intended to prove beneficial to the producing interests. Through efficient work these various bills have been harmonized and errors or wrong construction eliminated. Some of California's keenest minds have been drawn to this committee work and they have served well, paid their own expenses and received a salary consisting of oodles of good will and entire absence of mazuma. The advantage comes in not having income tax complications.

ORANGE SHOW

San Bernardino flung the bunting to the breezes, paraded, brass banded, orated and placed King Orange on his throne with much feasting and toasting. Honored guests were Princes Lemon, Citron, Pomelo, Lime and a host of the Citrus By-Products family.

It was a good show and thousands enjoyed it.

The citrus experiment station made a most striking exhibit of varieties. There were some scores of them, many unknown to most of us and of little probable value, but continued in the station grounds for educational or possibly breeding value. It was surprising to note the large variety of limes, some of which have proven hardy and have promise as possible future profit makers in California orchards. This state is not a commercial producer of the lime and while this fruit has no great field in the market it yet has sufficient demand that if a type adapted to this state can be developed it would justify limited culture.

The orchard appliance and equipment feature of the show was fine, though by no means equal to the gambling doll baby stuff.

IT IS CONSTITUTIONAL

Dispatches from Washington announce:

"The farm loan act, designed to assist agricultural development by providing readily accessible credits to farmers through federal land banks, was declared valid today by the supreme court," and Commissioner Lobdell remarks:

"This removes every shadow of question as to the legality of the banks or their bonds," and one C. W. Smith, a stockholder in the Kansas City Title and Trust Company, may now trot home and tell the various land mortgage concerns, who were deeply concerned lest the farmer should have a fair show, how it happened.

The best of it is that it was practically a unanimous decision on the part of the supreme court. It upholds the authority of the government and confirms its power to designate its fiscal agencies, a power which has been conceded congress since the days of Chief Justice Marshall.

The farm loan board succeeded in advancing to 75,000 farmers nearly $200,000,000 before the big mortgage concerns awoke to the fact that real justice was being given to food producers. The 75,000 who had been granted the loans were entirely safe in their position, but the 179,000 with applications filed with the loan banks for nearly $650,000,000 more of loans were prevented from securing their money. Now let the farm loan association get action as quickly as possible and the loan banks provide the money.

FARM BUREAU RECOMMENDS

Farmers are better organized than ever and are presenting things more forcefully to the powers that be at Washington than ever before. The farm bureau, especially, is proving sufficiently powerful to gain at least some attention. It has succeeded in bringing before legislators and, in fact, the entire country, farming questions, and it is to be hoped that some definite action will result. Besides the emergency tariff and some other live questions which it has taken a hand in, it recommends the following five points for consideration by the next congress:

Regulatory power over farmers' cooperative marketing associations should be in the hands of the United States department of agriculture rather than the federal trade commission.

The farmers' cooperative marketing movement must not be hindered by the provisions of the Sherman law, enacted to control trusts and not with any intent to curb cooperation for the benefit of the public at large.

The federal reserve bank act should be amended so as to provide preferential rates for loans for productive purposes over loans for speculative purposes.

The warehousing act should be extended so as to serve the needs of both individuals and cooperative associations, and there should be based upon it a rural credits plan which will enable the farmer, individually or collectively, to market his crops in an orderly fashion.

The federal land bank system should be extended to provide farmers with personal credit, for such purposes as buying improved seed, livestock, machinery and equipment, on the same general plan as real estate loans are now provided.

Second Annual Stockmen's Week

By R. P. Royce

THE second annual Stockmen's Week, held at the university farm, Davis, February 22-25, was attended by several hundred livestock breeders and operators, including men interested in beef cattle, dairy cattle and swine. If the attendance failed to come up to the expectations of those responsible for the event, it was demonstrated beyond doubt that there is a real need for such an annual get-together meeting and that the idea back of the plan is susceptible of great development, and that eventually, with proper support, this annual week can be made an institution of influence. Such a week of meetings and activities can be made to bring the different breeders into closer contact with one another; will acquaint the livestock interests of this state with the work of the college and at the same time acquaint the workers in the college with the problems of the livestock industry to the end that all branches of the industry will progress to the greatest degree.

The dominant note of the entire series of meetings and sales was the necessity for the use of a better class of sires in the upbuilding of our herds and flocks and for the adoption of proven methods of progressive management. Speaker after speaker who knew from experience stressed the point that with changing conditions one of the main problems of California agriculture is the allotment of a more important role to livestock in our scheme of operation. Notwithstanding a feeling of uncertainty on the part of livestock producers as to just what the future holds in store for them, a feeling that was manifested in the various sales of cattle and hogs held during the week, many men found sufficient inspiration in the meetings to become owners of a better class of livestock. That fact alone justifies the effort made by the university authorities in arranging the details of the event.

The week was started Tuesday morning with that veteran livestock supporter, Senator Benjamin F. Rush, president of the California Shorthorn Breeders Association, presiding. Dean H. E. Van Norman of the university farm school welcomed the stockmen and extended the freedom of the institution to them with the injunction that they feel entirely at home. Professor R. F. Miller, acting head of the animal husbandry division, discussed

(Continued on Page 324.)

Quality Fruit and Quality Pack Will Save the Day

By C. B. Messenger

THESE are the days when everybody is talking about the return to normalcy. We aren't perfectly sure just what normalcy means, for it is not yet in the dictionary, but it has a sound which is something like what we want to express as to the period through which we are now passing in the disposal of our fruit crops, especially that portion which has been put in tin cans. These are not by any means in a class by themselves, for practically every production of the state is suffering during the return to normal — or what may seem like abnormal—conditions. But there are some features of the canned fruit trade which are different. In common with practically all other products, however, this condition obtains, that only about half of last year's output has left canneries and warehouses of the state. In normal years it was considered that on the first of January at least one-third of the last season's crop should be in the hands of the consumer or retailer, another third in the hands of jobber and large wholesaler and the remainder in the hands of producer or canner.

Now what are we going to do about it?

Nothing can be simpler than the answer. "Sell the fruit and pack some more." All that this situation needs, we believe, is a bit of patience, some cool heads, and more cooperation, and maybe a few incidentals such as reducing prices over those named last fall, lowering freight rates, making greater use of water transportation, and doing a lot of advertising.

Note that we have given to the human factor the three fundamentals in the present campaign. As a rule, patience and cool headedness we have. The cooperation is getting along pretty well, thank you, but it must be borne in mind that cooperation is being tested as never before. Cooperation that results in entirely satisfactory closing of the season will live and take care of itself, but cooperation that has to endure the ebb as well as the flood tide must depend on these two preceding factors and use a whole lot of common sense and be willing to take the lean years with the fat years.

The fruit growers have organized two large cooperative canning associations in California. The California Growers Association, Inc., has headquarters at Los Angeles and a membership of over 600, maintaining canneries at Ontario, Riverside, Hemet, Fallbrook and Elsinore. The officers of this associaiton are: Benton Ballou, president; F. A. Anderson, vice-president; J. O. Mills, secretary-treasurer; J. A. Campbell, general manager. The California Cooperative Canneries, the other large association, has headquarters and its largest packing plant at San Jose. Its officers are S. E. Johnson, president; Albert Haentze, secretary-treasurer; Vernon Campbell, vice-president and general manager.

Both of these associations have been canning fruit for members for several years. The year 1919 was an exceptionally successful one. Last season's fruit crop was fine in quality and large in quantity. It was canned and, as noted above, much of it is still in California. The condition this has created has caused R. G. Spencer, organization manager of the California Cooperative Canneries, to write:

"We should consider it one of our first duties to give the growers exact information regarding market conditions as they affect their business. With this thought in mind we are opening a campaign throughout the Northern and Central California fruit districts. We want the growers of canning fruits to know just what condition the industry is in, what the future promises, and what can be done to solve the problems which are presented.

"Measured by present conditions the future is anything but bright. Cannery warehouses throughout the state are filled with the unsold fruit packed during the past season. This fruit was purchased from the growers at the highest prices ever paid. It was packed in syrup made from sugar costing as high as 25 cents per pound, with the average price for the season in the neighborhood of 20 cents. The wages paid under the regulations of the state welfare commission were advanced over previous years. In fact, practically every item of cost was at the highest point, making the total cost of the finished product far beyond any figures heretofore known.

"The prices of canned fruits and vegetables weakened and added to the lack of confidence on the part of buyers. Finally buying practically stopped and for the past several months the energies of the cannery sales forces have been largely devoted to the problem of accomplishing delivery of orders already secured. Buyers cancelled orders or rejected shipments without compunction.

"As a result of these chaotic conditions estimates of the surplus unsold stocks vary from 5,000,000 to 5,500,000 cases, equal to a whole season's output before the war."

These words were written some time ago and conditions today are not so serious. The best of it is that the growers are aware of the situation and are prepared to meet it with determination and still stick together in disposing of the fruit on hand and packing next season's fruit. We have asked J. A. Campbell of the California Growers Association to give suggestions as to the outlook and procedure during the next few months. Mr. Campbell writes:

"The growers of canning fruit are facing a very serious situation in connection with the marketing of their fruit during the coming season and should be brought to realize the true condition of the foreign and domestic markets so that they can meet the situation intelligently.

"The canned goods market today is in a very demoralized condition and sales are being made at such heavy discounts that it means enormous losses for the canners, a number of whom will not be able to continue in business. There will be a great many thousands of cases of canned fruit, which were packed during the season of 1920, that will be carried over and must be marketed along with the coming pack.

"The foreign countries which were the largest consumers of California fruits, both canned and dried, have been beggared by the war, and their people are buying only the bare necessities of life. The change in these conditions will naturally be slow, and until the foreign trade can again be revived we must depend almost wholly upon our domestic market.

"With the prospect of a heavy crop it is very likely that there will be hundreds of tons of canning fruit that will go on the ground. It is very evident that there will be practically no market for a poor grade of fruit, and the grower should exert every effort to produce as high a quality as possible to insure a market for his crop.

"Two or three months ago very few retail stores could be found where there was any effort made to reduce the price of California canned fruits to meet the idea of the consuming public; consequently our canned goods were not moving in any quantity. This condition is undergoing a change, and the reductions in price made by the canners make it possible for the retailers to feature California fruits at a very low price, which is having the effect of increasing consumption.

"Our foreign trade is practically nil, and we need not delude ourselves that conditions will improve very rapidly. We are facing the necessity of depending almost wholly upon the domestic market for the consumption of our canning fruits. Prices must necessarily be low to encourage the use of canned fruits as a staple article of food instead of a luxury.

"I do not wish to appear pessimistic, but we need not blind ourselves to the true conditions. There are over 2,000,000 unemployed men in the United States at the present time, and wages are being reduced throughout the whole country. The buying power of the rural population is most seriously affected by the stagnation of the cotton and grain markets and the great decline in price of all farm products. To meet this condition it is evident that prices must be in harmony with the ideas of a conservative buying public, and every effort must be made to stimulate the use of our fruits as a staple article of diet. Canners and packers will sell very close to their costs of production and costs will be cut as low as possible. Not only will the prices offered to the grower for his fruit be low, but the careful packer will only receive such fruit as can be handled economically and at a profit. The grower cannot expect to market a poor grade of fruit when there is an ample supply of high grade fruit to supply the needs of the packers. For example, peaches of good quality running 100 to the box cost less to grade, cut, and pack than peaches running 200 to the box. The large peaches of good quality will make 45 cases of canned peaches per ton, while the fruit of small size, costing almost twice as much to handle, will make about 30 cases of an inferior quality of fruit per ton.

"With market conditions such as we are facing there is no question as to which quality of fruit will find a market and which will be left in the orchards. The wise grower is the one who does not neglect his orchard but properly prunes and sprays his trees and thins his fruit in order to produce quality. This is a year for quality, not quantity."

Agricultural News Notes of the Pacific Coast

Northern California

Olive Day was well celebrated all over the state.

The Biggs rice mill will be moved to Willows, Glenn County.

There is considerable agitation in Mono County to protect home water resources.

The Owens Valley Pear Growers Association is signing up a number of new members.

Asparagus shippers of the Sacramento delta are ready to open their campaign in earnest.

Several ranchers near Santa Rosa have signed contracts to plant pickling cucumbers for $75 a ton.

It is expected that favorable weather conditions will permit of threshing operations in the Colusa County rice elds.

A free market for farmers of Yuba County will be established at Marysville under direction of the farm bureau.

Slight frost in the northern end of the Sacramento Valley is reported to have done no damage to the almond bloom.

A bill has been proposed in the state legislature by Bishop of San Diego providing a department of state police.

Organization of the cherry growers of the Sacramento Valley is being urged in order to better market conditions.

The Paradise farm center of the Butte County farm bureau held its annual meeting February 12 with attendance of 150.

Sacramento County almond growers are trying to find some profitable use for almond hulls other than use of the ashes as fertilizer.

E. A. Kirk, formerly secretary of the Glenn County farm bureau, has been appointed secretary of the Orland chamber of commerce.

Officials of the Prune and Apricot Growers Association deny that 1920 prunes are being sold in the East on a basis of 50 per cent lower than opening prices.

From now on the Sonoma County Fair will be known as the North of the Bay Counties Fair. J. Francis O'Connor has been elected president of the fair association.

A county wide squirrel drive is planned for all districts of Contra Costa County under the direction of the farm bureau, the campaign to be followed up consistently throughout the year.

The west side of the Goose Lake Valley in Modoc County reports marketing more than $200,000 worth of wheat during the past few weeks at a price to the grower ranging from $2.35 to $2.40 per bushel.

Farmers of Glenn County have appointed a committee to consider plans for erecting a grain elevator. A. H. Quatman is chairman of the committee. Other members are E. R. Tweede, J. L. Fulton, O. L. Raper, D. A. Shelloe and Ernest Eibe.

The Pacific Rice Growers Association is urging growers not to abandon the industry in spite of the discouraging conditions of last year. Growers are advised to plant earlier in the season in order to get the rice harvested before bad weather.

Central California

350,000 head of sheep will be clipped in Kern County this year.

Retail prices of milk at Modesto have been lowered to 14 cents, beginning March 1.

Sheep shearers of the San Joaquin Valley have agreed to work for 15 cents a head and board.

Sheep clipping has started in Kern County; approximately 350,000 head of sheep are ready for shearing.

The annual meeting of the Stanislaus County Fig Growers Association was held at the Ceres high school February 12.

The Merced County farm bureau has heartily endorsed the new contracts sent out by the California Associated Raisin Company.

Helm, Fresno County, hopes to be the location of one of the grain elevators of the California Farm Bureau Elevator Company.

Growers committees have been organized throughout the raisin growing section to secure quicker signing up of the raisin contract.

State Forester G. M. Homans was in Tulare recently and discussed with those interested tree planting along the Tulare-Visalia highway.

The Merced County farm bureau has appointed a committee of fruit growers to discuss with growers in other counties a uniform wage scale.

A committee of five from the Kern County farm bureau has been making a tour of Los Angeles County, studying irrigation methods as followed there.

The marketing department of the Tulare County farm bureau has arranged to receive and ship veal calves on a basis similar to that used in handling hogs.

President Barrows of the state university is reported expressing himself to Fresno people as in favor of establishing a branch of the state university in that section.

Farm management schools have been held under the auspices of the Kings County farm bureau. The use of farm account books is a main feature recommended.

Farm center meetings will be held in Kern County at: Weed Patch, March 7; McFarland, 11; Delano, 14; Old River, 15; Wasco, 16; Rio Bravo, 17; Edison-Fairfax, 18.

The farm bureau announces that four and possibly five grain elevators will be secured for Stanislaus County. Patterson, Westly, Hickman and Montpelier are the four assured locations with chance of another at Hughson.

Members of the Civic Commercial Club of Bakersfield are planning to meet the acute housing need by subscribing to a non-profit organization which will build and sell houses to homeseekers who are unable to finance themselves.

The San Joaquin Valley won first prize in both the feature display and commercial pack at the San Bernardino National Orange Show this season for the first time in 11 years. The first prize for feature display was awarded to the Fresno County chamber of commerce. The first prize for commercial display of oranges was awarded to the American Fruit Growers of Lindsay.

Souhern California

The Orange Show at San Bernardino had a big attendance.

Imperial Valley shipped out nearly 3,000 carloads of lettuce last year.

C. M. Brown of Redlands is making test of shipping oranges in bushel baskets.

The Whittier Walnut Growers Association now has in its membership 2174 acres.

The Associated Chambers of Commerce of Imperial County met at Niland, February 25.

Burbank, Los Angeles County, has authorized a bond issue of $120,000 for installation of a sanitary sewer system.

Reports of 1920 shipments show the southern orange producing district of Orange County practically all in Valencias.

The Garden Grove Citrus Association of Orange County has closed its packing house until the Valencia season opens.

Effort is being made by the Orange County farm bureau to secure establishment of a fertilizer testing laboratory at Santa Ana.

Members of the San Joaquin League of Municipalities last week visited Los Angeles to discuss development of water power sites.

At the recent annual meeting of the Whittier Walnut Growers Association A. H. Dunlap was chosen president and C. I. Thill secretary.

There is a movement in Victor Valley of San Bernardino County to organize a fruit association and erect cannery and by-products plant.

Horticultural Commissioner Waite of Imperial County condemned a shipment of oranges carrying scale. The shipment came from the coast.

At the annual meeting of the Whittier Walnut Growers Association the secretary reported handling of a crop valued at $456,033.42 the past season.

At the annual meeting of the Orange County farm bureau directors W. M. Belding was reelected president and Dr. J. R. Schofield, secretary-treasurer.

A rodent control campaign is planned for Imperial Valley. Superintendent of Rodent Control Jacobson has spent several weeks going over the ground.

C. G. Tanner of Morro has been appointed deputy county horticultural commissioner of San Luis Obispo and will have entire charge of rodent control work in that county.

The chamber of commerce of Anaheim is raising funds to finance the California Valencia Orange Show to be held at Anaheim, May 17-21. It is proposed to make this an annual event.

The Van Nuys district of the San Fernando Valley has a walnut tree of the Chase variety which produced 212 pounds of select nuts at the age of nine years. It is in an orchard owned by Manager Kibbie of the Lankershim walnut house.

A quarantine to protect the citrus industry against citrus black fly has been announced by the U. S. horticultural board. It becomes effective April 1, and regulates entrance of fruits and vegetables from the West Indies and many oriental points.

The Coast and General

Canadian producers are fighting against the high freight rates.

A new cow testing association has been organized in Columbia County, Oregon.

Southern Arizona and New Mexico ranges are still suffering from drouth conditions.

The annual wool clip of the Yakima Valley of Washington is about 2,000,000 pounds.

Grangers of Hood River County, Oregon, are subscribing capital for a cooperative store.

There is much interest throughout the Southwest in proposal to harness the power of the Colorado River.

The Kittitas County Pure Seed Growers Association of Washington is sowing certified seed of wheat and oats.

Breeders of Duroc-Jerseys held a Duroc Day with sale and show at the Oregon state fair grounds at Salem on February 3.

The report of the Washington state reclamation board shows over 3,000,000 acres of land now susceptible to reclamation.

Western New York estimates 2500 carloads of cabbage yet unsold. Some sales have been made at $8 and $9 per ton for best Danish.

Beekeepers of Hoquiam County, Washington, have organized with W. L. Cox of Elma as president and G. A. Gillette as secretary.

Prune growers of Clarke County, Washington, organized a pool, 410 growers signing up. It has sold 200,000 pounds of prunes.

Airplane patrols of the national forests are credited with saving $35,000,000 worth of standing timber from forest fires during last season.

The Northwest potato market shows the lowest level in years. Army awards were made last week at 69 cents per hundred. Onions went at one cent per pound.

The first annual farmers institute of Benton, Franklin and Walla Walla Counties was held at Pasco, Washington, recently with an attendance of over 200.

The weather bureau at Flagstaff reports snow on the mountains very much below normal, only the higher northern slopes being covered to a shallow depth.

The Puyallup and Sumner Fruit Growers Association, Washington, declared a dividend for 1920 of over $150,000. The association expects to build a jam plant.

The first straight carload of garlic from Washington state was recently shipped to New Orleans. Most of the garlic was raised in the Tualatin and Beaverton districts.

The Eugene Fruit Growers Association at Eugene, Oregon, made sales of fruit and vegetables during 1920 amounting to $700,000. Besides this it has in storage $500,000 worth of canned goods.

The Washington Beekeepers Association has asked the legislature to pass a law requiring that before trees are sprayed with arsenic sprays, all nectar bearing blossoms under the trees, such as alfalfa blossoms, shall be cut.

Spray Pears

PEAR growers and shippers recently met at the state department of agriculture to discuss plans for the year in connection with the spray schedules. Committees were appointed for the following purposes: To urge appropriation by congress of $10,000 for investigation by the department; to arrange for the extension of such cooperation as was necessary by growers and shippers to A. J. Ackerman, the government specialist now studying the question, and to draw up a circular of information to be sent to all pear growers, giving the best advice at present obtainable on the question of avoiding spray residue, pending results from the work of the department. The latter committee met again on Friday, February 18, to prepare the circular. This recommendation is given by Harry S. Smith. The department further gives details of work:

Equipment

Use only power spray machines supplying at least 200 pounds or preferably 250 pounds pressure. The machines must furnish ample agitation to keep all the ingredients thoroughly mixed at all times and prevent the spray becoming more concentrated in the bottom of the tank. Use good nozzles, preferably large Eddy chamber type with small openings in the disks. Disks wear out rapidly and should be changed often. If spray guns are used keep them so regulated as to give out only a fine mist spray. Use ten pounds paste or five pounds powdered arsenate of lead to 200 gallons.

Time of Application

Calyx Sprays.—If possible begin first spray as soon as half of the petals have fallen. Go over the orchard a second time not later than seven to ten days after the beginning of the first application.

First Cover Sprays.—First cover spray should begin four weeks from the time of beginning the first calyx spray. Go over the orchard a second time not later than seven to ten days after the beginning of the cover spray.

Second Cover Sprays.—Go over the orchard again with a light spray finishing not later than four weeks before picking time.

Picking

If at time of picking a conspicuous amount of spray residue shows up, be careful that it is removed before packing.

General Considerations

It is believed that spray residue difficulties can be eliminated by using care in spraying. Use standard brands of lead arsenate, see that you have good pressure, the proper type of nozzle and a good agitator in your tank. Pay particular attention to the calyx spray. The possibility of eliminating the later sprays, which have caused the trouble, will depend on how thoroughly the worm is controlled by the early sprays.

In all the cover sprays the greatest possible care should be exercised to give a complete, uniform coating on all the fruit and foliage, but not to allow any excessive dripping or splotching. This necessitates the use of nozzles with very small openings in the disks and very high pressure in the pumps to produce a fog like spray. The trees must of course be sprayed from all sides, and on large old pear trees better results will be obtained if the inside of the tree is sprayed first. Therefore the operators should be instructed to get the nozzle or spray gun inside the spread of the branches before it is opened. Then spray as well as possible all of the fruit and foliage on the inner part of the trees, after which the outer and remaining portion may be sprayed more advantageously by going completely around each tree. The desirable thing to do is to spray each pear and each leaf from every possible angle.

The use of so-called spreaders is at best of doubtful value. It is believed that forcing the spray under high pressure through nozzles with small openings in the disks will give better results. Thorough, careful spraying as outlined herein should control codling moth and not leave objectionable residue on fruit when shipped.

Orange Growers Restive

Central California orange growers are not satisfied with the results secured from shipping of the holiday fruits going to market largely in late November and through the month of December.

Tulare County fruits are early in coloring and also early in season and contain large content of sugar, hence the greater bulk of California holiday fruit goes from that section. This year Florida did some especially heavy shipping, and as Central California fruit is controlled by the exchange to the extent of only about 60 per cent, it left the distribution in the various markets in a most chaotic condition, Florida shipping as it pleased, some fruit through its exchange, some through independents, California shipping almost half and half through the exchange and independent shippers. This resulted, as may be imagined, in glutted markets in some sections and markets without sufficient fruit in others. Central California growers are now demanding more intelligent handling of the situation, and there is 100 per cent cooperation in the making of this demand, but beyond that only confusion, for outsiders are saying "Let us form one great association similar to the raisin growers," while exchange members are saying "Why destroy the old, which has been efficient so far as the growers would allow it to be, for the sake of erecting a new organization?"

Meetings have been held and a committee of independents and exchange members has been appointed. The committee consists of the following men: W. A. Bohland, King G. Gillette, A. N. Ashley, J. W. Irwin, McKee Mhoon, Basil Prior, Chas. Burr, C. K. Towt, Walter Cairns and C. O. Cowles.

Reporting the situation and the feeling of the growers, the Lindsay Gazette says:

"The growers' complaint in this regard as it was brought out at the meeting Tuesday is that all other agencies, including the packer, the railroad, the broker, the picker, and all his other creditors, come out with 100 per cent for their part of the transaction. After all deductions are made, he must meekly take what is handed to him, whether the figures be red or black.

"He does take it meekly. He had protested in a way, as was evidenced by the interest before the meeting Tuesday, but after the meeting was over it can be said that at least a large proportion present have long been reconciled to the powers that be. Whether anything will result from the gathering on Tuesday depends, of course, upon the committee named by Mr. Eckert. State aid and the cooperation of big men should be solicited."

The crux of the whole situation is expressed in this, that expenses and commissions are guaranteed to the railroads, commission men and others, and there is nobody left to guarantee the producer. He has to carry his own and others' risks.

PRUNE PACKING PLANT IN NEW YORK

The California Prune and Apricot Growers, Inc., will establish a prune packing plant in New York City where part of the fruit for the New York market and for export business out of New York will be packed, according to announcement by H. G. Coykendall, general manager of the association, who has just returned from a month's trip in the East.

By the operation of this New York packing plant unprocessed prunes will

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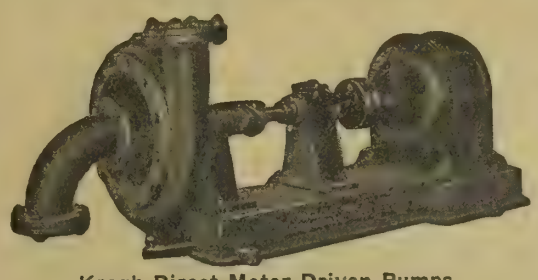

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be shipped through the Panama Canal and when packed in New York they will be fresher and cleaner than any fruit which can now be put in that market. It is impossible to ship processed prunes through the Panama Canal because the added moisture which the fruit absorbs during the trip causes the fruit to mold.

The association's plant in New York will also save the grower members of the California Prune and Apricot Growers, Inc., thousands of dollars a year now lost through freight charges.

Through the efforts of the association a 60 cent steamer rate on unprocessed prunes has been obtained and an exceptionally low rate on box shook which will save the growers about $1.35 on every hundred pounds of fruit.

All the machinery for this packing plant will be bought in California and shipped East and a complete packing crew will be made up here and will go East to operate the plant.

Commenting on market conditions in the East, Coykendall said that outside growers who have turned their stocks over to independent packers to ship East on a consignment basis have not only lost thousands of dollars themselves but are responsible for the weak condition of the market today.

Stocks of these cheap prunes are becoming very scarce in the large Eastern jobbing centers, according to Coykendall, who said he expected them all to be pretty well cleaned up within the next three weeks or a month. Just as soon as this clean up occurs Coykendall feels sure that prunes will bring better prices than have been quoted since the first of the year.

California Citrus Institute

THE third California citrus institute at San Bernardino last Friday and Saturday failed to bring out the liberal attendance it should have had. The discussions were intensely practical. The institute is supposed to be made up of citrus people with desire to investigate the scientific end of citrus growing problems and, in fact, that is the real aim of the organization, yet it showed most excellent judgment in the practical turn given to the discussions of this meeting.

President Barrett proved an excellent presiding officer. Things moved from the start and the program was strictly adhered to. Fumigation questions filled the forenoon of the first day, traction power discussion the afternoon, while Saturday was given up to practical orchard methods and to cooperative marketing methods.

Prof. H. J. Quayle considered himself only a thin piece of meat in the fumigation sandwich. Preceding him was an address by J. A. Prizer, a careful discussion with many figures to clarify, or possibly confuse, on "Fumigation versus Spraying." Mr. Prizer is superintendent of the Merryman Fruit Company at Exeter and wished it understood that his discussion had to do only with central San Joaquin Valley's problem in control of thrips and soft gray scale. Following Prof. Quayle came Harry S. Smith of the state insectary, treating upon biological control of insect pests, so Prof. Quayle rather took the position that his discussion on fumigation would prove of little interest after Mr. Prizer's clean-up with sprays and Mr. Smith's clean-up with natural beneficial insect enemies. However, Mr. Prizer did not stick exclusively to sprays, neither did Harry Smith succeed in cleaning up all orchards with his millions of Aphycus lounsburyi, hence there was room for the meat of the sandwich.

As noted in his discussion, Mr. Prizer did not stick exclusively to sprays, in fact, made most fair comparison of these two methods of control. As fumigation is not practical with thrips, which is a perplexing pest in Central California, some spraying is found essential, hence effort has been made to combine a spray which will prove effective with both scale and the thrips. Mr. Prizer, however, reached the conclusion that to accomplish the same results as can be accomplished with thoroughgoing fumigation the expense is fully as great.

We hope to quote more fully from all of these papers, especially to give the new schedule intended to fit the conditions created by the gas tight tent, which Prof. Quayle and Hugh Knight have worked out in conjunction with Goodyear and other fabric people.

The afternoon session was given up entirely to traction power use in citrus groves. W. H. Fleet, manager of Rancho Sespe, read from the most carefully prepared manuscript we have yet seen touching upon tractor use in orchards. It was elucidated by liberal series of charts and tables made possible by the careful bookkeeping methods at the great Rancho Sespe. Mr. Fleet showed wherein certain types of work required in a well kept orchard could be done economically only by tractor employment; again, in smaller areas, or where light surface work was desired, horses were preferred. The conclusion was: Employ the tractor where its work results in better soil conditions. This can only be determined by careful observation or, better, by careful bookkeeping in connection with the observation of soil requirements. Mr. Fleet was followed by C. A. Griffith, manager of the Azusa Citrus Fruit Company, and his conclusions were practically the same.

J. A. Dennis touched upon tractor use from a different standpoint, in the small citrus orchard through cooperative ownership and operation. Mr. Dennis is manager of one such association, which has a number of orchard tractors which have proven entirely satisfactory to the San Dimas orchardists.

Saturday was by-products, transportation and marketing day, with liberal attention in the afternoon to topworking of citrus trees.

Every one of the addresses given at this institute is worthy of place in the columns of the Cultivator, but already this week the paper is overfilled. Another week we hope to give at least portions of these addresses.

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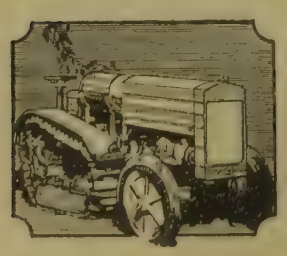

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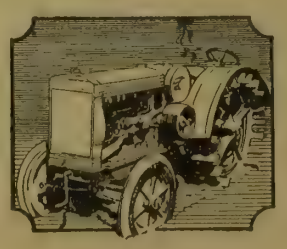

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AVOCADO DIRECTORS MEET

At the February meeting of the board of directors of the California Avocado Association great regret was expressed that the scarcity of ripe fruits at the present time and the high prices are tempting many growers to market their fruits while still quite immature. There are more avocado trees bearing this year than ever before and there has been some apprehension in the minds of growers as to whether there would be a market for all of the fruit. But there is a much greater demand for the fruits this year. The fruit dealers are beginning to awaken to the fact that the avocado is going to be a factor worth their consideration and are making plans for the distribution of such surplus as is not absorbed by our local markets. An active educational campaign in California is being planned by the avocado association, which will require the cooperation of the growers and will be one of the points to be discussed at the annual meeting.

An excellent program is being planned for the annual meeting, including an experience meeting and an unusually large exhibit of fruits. The increasing membership promises a large and interesting gathering.—R. Agnes McNally, Secretary.

CELERY

Shipments of celery from the El Monte district of Los Angeles County have been going forward quite rapidly for the past two weeks and at the present rate the available stock will soon be cleaned up. Owing to the long dry spell in the fall, followed by sudden heavy rainfall, much of the El Monte celery this year shows deep growth cracks at the base of the stalks, presumably caused by a sudden growth of the heart after the outer branches had matured.

Blight has been well controlled where patches were sprayed more than four times, but those which were not properly cared for evidence considerable injury from blight on the leaves. On the whole, however, the quality of the El Monte celery being shipped this year is equal to that of past seasons.

Growers are securing little more than the cost of production this season, which seems to indicate that under prevailing freight rates the acreage will be somewhat reduced next year.

Some of the finest celery being shipped from the Los Angeles district at the present time is coming from the district around Watts where a considerable acreage has been planted this year on new soil. Celery moving from the new district around San Diego is of exceptionally fancy quality and compares favorably with the best stock grown in the northern part of the state. Growers in the vicinity of San Diego use fertilizer extensively and blanch the stalks by wrapping

with paper instead of banking with dirt. Under these methods it is hard to see where on the present market and under existing freight rates the growers will be able to make any money.

CAULIFLOWER

The cauliflower season in Southern California is rapidly closing and supplies of any kind are very scarce. The best quality is now being shipped from the Fruitland district and the market continues strong under an active demand from Eastern cities. Broccoli is moving from the Colma section in the northern part of the state, but not in heavy enough volume to affect the demand for Southern California stock. Cauliflower is being grown this season for shipment a little later, in at least two entirely new districts, and it is not at all unlikely that the future will see cauliflower successfully shipped from various parts of the state. This is one crop moving from California which during the winter months meets with no competition from other producing areas in the United States and has always been a fairly profitable crop for the growers.

LETTUCE

Practically no straight cars of lettuce are now being shipped from the Los Angeles district for the reason that supplies are scarce and the quality ordinary as compared with that moving from the Imperial Valley. Repeated frosts and hot, dry winds have seriously affected the quality of Los Angeles lettuce in the past few weeks.

Shipments from the Imperial Valley are still going forward under a fairly steady market and it now appears that practically the entire acreage planted in the valley will be shipped in spite of the existing high freight rates. This does not indicate a profitable deal for the growers, however and, as a matter of fact, they are receiving in many cases less than the actual cost of production. It is either a case of taking a chance on making a little profit or plowing the lettuce under, and usually the growers prefer to take a chance. Shippers in some cases had large acreages under contract and large supplies of shook on hand, so that they, too, are forced to make the best of conditions as they are. There is practically no doubt but that the acreage planted to lettuce next season, if the high freight rates continue, will be considerably less than this year.

The quality of the Imperial Valley lettuce now rolling forward is in general very good, but the stock all season has been running small in size and, as in the case of oranges this year, the small sizes are being discounted.

Peas in the valley are reported to have been seriously damaged by recent frosts, and where the vines were frosted the production will be greatly reduced. Tomatoes in the Imperial Valley will probably begin to move in carlots the latter part of April. Anthentic reports have been received to the effect that recent heavy winds did not do as much damage to the cantaloupes as had been feared at first, and with favorable weather conditions from now on the indications point to earlier shipments of melons from the valley than last year.

Citrus Freight Rates

By R. W. Hodgson

TESTIFYING to the intense interest which citrus growers have in freight rates as affecting their present unsatisfactory returns, nearly 100 citrus growers of the Alhambra-San Gabriel district attended last week a special mass meeting called under the auspices of the Alhambra farm bureau center.

The principal speaker of the evening was Assistant General Manager Dezell of the California Fruit Growers Exchange, who is in charge of the activities of the organization with respect to alleviation of the freight rate situation. He traced briefly the history of the freight rate situation, narrating how in 1897 the $1.25 per hundred pound rate was officially established, in 1902, modified, giving a winter relief rate for lemons of $1. In 1906, after hearings before the interstate commerce commission, the railroads decreased the orange rate from $1.25 to $1.15, leaving the rate for lemons at $1. In 1909, after the passage of the Payne-Aldrich tariff by which lemons received 1½ cent protection, a movement toward increase of freight rates on lemons was made by the railroads, but on taking the matter up again with the interstate commerce commission the $1 lemon rate and $1.15 orange rate were established, although protested by the railroads on account of the generally known fact that the actual weight of the boxes was in excess of the estimated weight on which the rate was made.

With the taking over of the railroads by the government there were put into effect a number of charges which during recent months have become so pyramided as to constitute one of the most serious factors in the citrus fruit situation. The first of these, coming early in 1918, was the allowance to the railroads of the increase in estimated weights which added somewhat to the freight rates borne by the orange package but which was gotten around in the case of the lemons by a small decrease in the size of the box.

Other items allowed were extra demurrage charges, diversion charges and track storage. In June, 1918 there was allowed a flat increase in rate of 25 per cent, to which was added a war tax of three per cent. But the climax came in August, 1920, with a straight increase of 33 1/3 per cent in freight rates. The result is that today it costs $1.55 to ship a box of oranges to the Eastern market as against 82.8 cents prior to the war, an increase of 87 per cent; with lemons it costs $1.44 as against 84 cents prior to the war, an increase of 72 per cent. A protest was made months ago to the interstate commerce commission, but without satisfaction. The matter was then taken up directly with the railroads, but without relief. The exchange is at the present time preparing to take the matter up again with the interstate commerce commission.

Interesting developments of recent months directly affecting the freight rate situation brought out by Mr. Dezell include the successful shipment by water via the Panama Canal of several thousand boxes of lemons and oranges and the recent reduction in water transportation rates from $1.05 to 70 cents per hundred. It was stated that it is now possible to ship a box of lemons to Philadelphia or other Eastern seaports at a saving of practically 60 cents per box over the freight rates by rail.

It was estimated by Mr. Dezell that half the lemon crop might satisfactorily be shipped under ventilation by water. Experimental shipments of oranges are planned and several thousand boxes of citrus fruits are being shipped direct to Holland.

Mr. Dezell was followed by Farm Adviser Robert W. Hodgson of Los Angeles County, who spoke on the advantages of nation wide organization in agriculture, drawing attention particularly to the outstanding achievements of the American Farm Bureau Federation during the past year and announcing a national gathering of fruit growers at Chicago, April 5, called by the American Farm Bureau Federation for action on such matters as freight rates and tariff.

EAT ORANGES—PLENTY OF THEM

Oranges are now at their very best, sweet, juicy, wholesome. No spring tonic can equal the benefits derived by having oranges in some form on the table every day—or three times a day.

Real Californians don't need a reminder to eat oranges, but just as a hint, let us refer to some simple ways of using.

Orange Juice

Straight orange juice pressed out and served in glasses at breakfast, lunch or dinner will take the place of coffee, even to the confirmed coffee drinker. Some like it better with a little water and sugar added, or a dash of grapefruit or lemon juice.

Delicious Salad

Peel, quarter, remove skin from quarters, arrange on salad plate, add little lemon juice, salt, black or cayenne pepper. Nothing better with heavy meal.

Sliced for Dessert

Peel, removing all white inner rind, slice thinly, sprinkle liberally with granulated or powdered sugar, let stand at least an hour before serving. A good old fashioned way is to add liberal sprinkling of freshly grated cocoanut.

Slice in same way with bananas or pineapple, or both.

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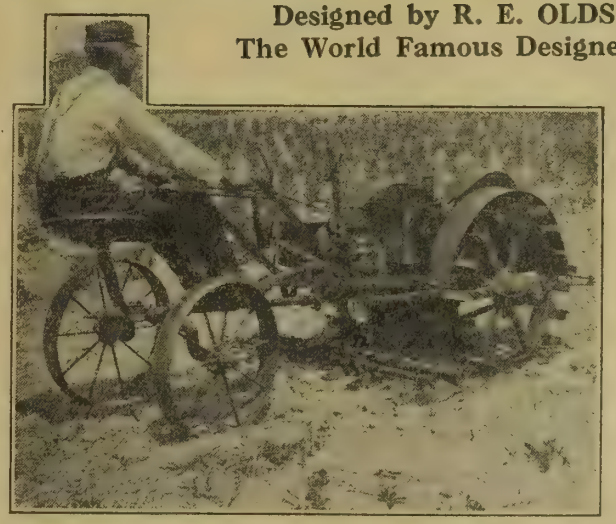

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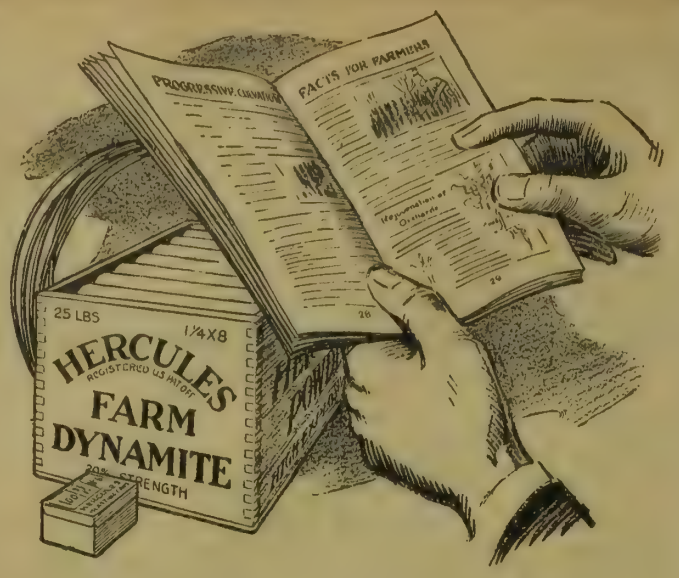

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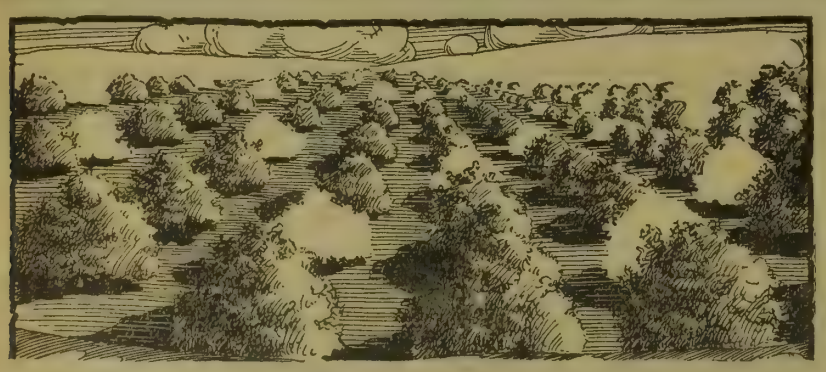

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STARTING TREES FROM SEED

Perhaps the cheapest and frequently the best way to start a forest plantation is to collect seed from hardwood trees and grow seedlings,, say forest specialists of the United States Department of Agriculture in Farmers' Bulletin 1123, "Growing and Planting Hardwood Seedlings on the Farm," just published by the department. The collected seed will be fresh and the seedlings grown from it should be thoroughly acclimated as far as climate is concerned.

Middle aged trees growing in the open where they have been permitted to develop broad, spreading crowns ordinarily produce seed in greater abundance than trees growing in a dense forest. The fruit of some hardwood trees requires special treatment to separate the seed from the fleshy covering, pod or hull before they are planted.

The best time to sow seed, either in the nursery or in the permanent planting site, is soon after it is ripe, but when this is not possible the seed must be stored until spring. If this is done the seed must not be allowed to dry out excessively, because this impairs its power to germinate. Seed should be stored in a cold place.

The bulletin deals larely with Eastern conditions, but two illustrations of California eucalyptus and some of the text have to do with California conditions.

WALNUTS UP

The California Walnut Growers' Association announces "Coast stocks of all grades, both 1919 and 1920 Association walnuts entirely exhausted with exception of three cars 1920 No. 2s not to be offered till next fall." Consigned stocks are practically all exhausted. New York and other large market centers are already marking up No. 1s and Fancy Budded a cent a pound. This will mean that the grower profits little directly, but presumably the general situation is such that the trade will have a good taste in its mouth for new walnuts next fall. The association is advising the jobbers to stock up while it is possible to secure first class goods.

All foreign walnuts in Eastern markets are also well cleaned up and the price on foreign walnuts has been steadily advancing within the past few weeks. It is a certainty that there will not be a pound of California walnuts carried over into fall and the new crop is sure to come into the cleanest market ever known.

CORRESPONDENCE COURSE IN APRICOTS

"Apricot Culture" is the title of a new correspondence course now ready for distribution by the University of California. The subject matter has been written with the cooperation of specialists well posted in the different phases of apricot growing, and it is expected that the course will fill a long felt want for concise, interesting and reliable information on this important California industry. Circular No. 113 describes the plan for enrolling and will be sent free upon request to the Director of the Agricultural Experiment Station, College of Agriculture, Berkeley, California.

NURSERYMEN HAVE HOUSE ORGAN

The executive committee of the California Association of Nurserymen is now issuing a quarterly bulletin to members, detailing such information and suggestions as in their judgment possess an interest and an importance to the welfare of the commercial plant business, and dealing with transactions of the association through its governing officials. The bulletin is also designed as a free forum in which members are invited to discuss in a brief and businesslike way any problems and practices affecting the nursery business. The committee consists of Fred H. Howard, chairman, J. E. Bergtholdt, J. D. Meriwether, E. B. Washburn, Max J. Crow.

CHECKS ILLICIT GRAPEFRUIT TRAFFIC

On January 25 the California department of agriculture received a wire from Commissioner Kellogg reporting that a certain cigar company at Tampa, Florida, was soliciting orders for Florida grapefruit to be delivered in California. A wire was then dispatched to Wilmon Newell, commissioner of horticulture of Florida, asking that assistance be given in having the said company cancel its California orders. On January 31 the entire transaction had been completed and the cigar company had cancelled its orders and promised to discontinue soliciting orders in California. This furnishes an excellent example of the quick action that can be obtained in matters of this nature when a good working understanding exists between the states so concerned.—D. B. Mackie.

HOME CURING OF OLIVES

It is certainly to be regretted that olive growers are to be prevented from marketing home cured olives. This simply means the uprooting of thousands of olive trees in scattered sections where there is insufficient quantity for delivery to packers at great distances. The Cultivator still hopes that this ruling of the state board of health may be modified. It is possible that for the present it is the only safe ruling to be made. However, we wrote the board of health and asked as to whether there had ever been known a case of poisoning from eating home cured olives which are not subjected to high temperatures and have the following answer:

"It has been demonstrated by the scientists that the bacillus botulinus will grow in bulk olives. It is not our desire to work a hardship on the small producer of home cured olives, but in the interests of public health we feel that it is unsafe to exempt home cured olives. Our advice to the small grower is that he should procure an inexpensive sterilizer and sterilize his pack before placing the same upon the market. In fact, the large producer who has sterilizers has in many cases expressed a willingness to assist the small producer in the sterilization of his product. Consequently, we do not feel that any exceptions can be made in reference to the home packed olives."

The Cultivator has asserted that there is no known case of such poisoning. We regret that we do not have more definite answer in this particular from the board of health. That the botulinus "will" grow in bulk olives may be demonstrable in the laboratory. We do not think this is justification for the drastic ruling which has been made.

HIGHER PRODUCING TREES

The importance of using carefully selected buds for propagation is now so generaly recognized that we cease to have arguments as to using only selected buds and consider only ways and means. This work is made possible and effective through the extended investigations conducted by A. D. Shamel of the federal department of agriculture. Mr. Shamel has devoted his time to the behavior of citrus trees, or of buds from trees of known performance, and has made such graphic demonstrations with such buds as compared with others selected at random that the most casual observer has recognized the value of those particular trees.

The recognition of the difference in performance of selected and non-selected buds has caused not only citrus growers but nurserymen and others to unite in organizations whose energies are given to securing buds from trees of known performance. This work will mean much to the future of the California fruit growing industry, more, we believe, than its warmest friends are insisting upon today. Citrus organizations have gathered a fund of information as to trees of known performance and have secured a list of experts who are capable of topworking old and established but undesirable trees. This work is often so indifferently done that some orchardists have decided that rather than topwork they will uproot and plant new stock from dependable nurserymen.

But in any case the buds being selected today are making for a richer California.

The Cloverdale center of the Sonoma County farm bureau has elected C. E. Humbert, director; Carl Haehl, secretary-treasurer.

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TERRACE YOUR BARRANCA

By Helen Chaffee Temple

BARRANCAS of some shape or size stretch themselves lazily across an otherwise trim, pleasing landscape. And we all have 'em. True it is that barrances are necessities, but it is also true that most of them are twice as large as need be, many of them cutting deeper and deeper into the land as the years go by.

J. A. Harrison purchased a bit of the most desirable land in Ventura County. A barranca was included in his purchase. It was just an ordinary ugly barranca with all the failings of other barrancas to the eyes of the world at large. To the eyes of Mr. and Mrs. Harrison the barranca was not ugly. They visioned a future day when it should be transformed into a thing of beauty and usefulness. And today, after several years of loving labor, their vision is a vision no longer; it is an actuality. Rome was not built in a day. Nothing worth while is built in a short time. If we want something worth while we must work for it slowly and carefully. The beauty and usefulness of the Harrison barranca was made possible by spare time work.

Mr. Harrison is one of the foremost apiarists of Southern California. When he was not at work with his bees he worked with the barranca, cutting steps into the sides. It was painstaking work, but both sides were finally built into terraces. Then lemon trees were set out. They thrived unusually well, being so protected from all wind and frost. Then a carpet of ice plant (mesembryanthemum crystallinum) was planted to trail over the terraces and edges. The actual bed of the barranca is kept clear of debris. The water does not cut in during the "running season" owing to the roots of the growing things. And now the fruits of their labors are realized in the unusually large crops of lemons taken from the young trees. The trees are irrigated with pipes and hose connected from the domestic water supply. This barranca is situated on the Ventura boulevard, where hundreds of eyes turn toward it as one of the most beautiful spots in the county.

A rancher in the Mound district has a large barranca at the back of his ranch. It is a large overgrown child of nature. Needless to say it acted as most overgrown children. It took more and more of this rancher's land until he made a few rough terraces and planted gum trees on them. The barranca now furnishes an adequate fuel supply each year for the use of two families.

Another barranca, that spread over a large portion of a small poultry ranch, was terraced and used for chicken runs. The chickens, being fed with self feeders and watered with perpetual fountains, saved the usual amount of "stepping up and down." The bottom terrace or step, however, was planted to kale and chard, being irrigated from the supply of water running from the fountains. Several gum trees grow near the bottom of the barranca, their roots standing guard against erosion.

HOLLYHOCK RUST

One deterrent to growing hollyhocks is the unsightly foliage and loss of foliage caused by the rust, Puccinia malvaceaerum. This is very bad in California for it is easily carried over from season to season by the native mallow, Malva parviflora. Therefore keep mallows from the garden, though it is a common volunteer cover crop in orchards. If disease appears, pick off affected leaves, which will be the lower ones, and spray lower two-thirds of plant with Bordeaux mixture. Hollyhocks need a deeper and better drained soil than any other herbaceous garden plant, for they have a long, heavy tap root which should have free entrance as deeply as it wishes to go. If this soil bed is provided there is little danger of serious trouble from the rust, for vigorous plants are but lightly affected or not at all.

Onion growers of the Coachella Valley are somewhat concerned as to prospects of shortage in supply of onion crates because of shutting down of Eastern factories.

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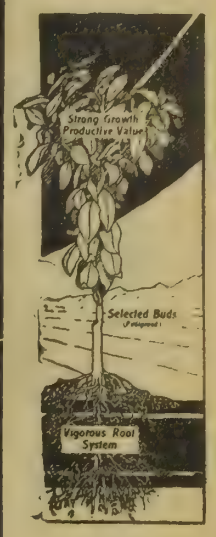

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Federal Farm Loan

How and where could we get in touch with an agent of government farm loans? Have ranch of 340 acres. level land and good buildings, etc.—Subscriber, Hemet.

Unfortunately, at this moment it is impossible to arrange for a federal farm loan. We have word from the Berkeley bank that very few loans are being made and they are loans practically all to those who have made applications some time ago. The first step in securing a farm loan through the federal land bank is to joint a local farm loan association. The appraisers of that association then take up the matter of the valuation of the land on which the loan is desired. An expert of the bank verifies this appraisement and the application then comes before the land bank. Unfortunately, all of these steps have taken much time and where one wishes the money at once it might be impossible to wait. The entire matter is in an embarrassing position because the big land mortgage institutions are finding the federal land bank is making serious inroads on their business and have carried the matter into the courts as to the constitutionality of the law making these banks possible.

(Since this was put in type the supreme court has ruled that the act is constitutional and it is probable that the banks will soon extend loans.)

Rebudding Lemon Trees

A subscriber wishes to know as to the effect on oranges if budded onto lemon trees. The question was referred to R. M. Teague, who answers:

It is feasible to bud lemons over into oranges, but in certain locations and under certain conditions it does not prove a profitable investment. Some experts advise against it, Shamel, Milliken and others. A lemon trunk seems more susceptible to gum disease than the orange. However, if we had a lemon orchard in a sheltered location and in a fairly healthy condition we would not hesitate to rebud it to oranges. A lemon tree is one of the easiest of the citrus varieties to take buds in the process of rebudding. Mr. Shamel and Mr. Milliken made a trip north some time ago throughout the San Joaquin Valley on the particular subject of rebudding lemons to oranges, and our impression is that they advised the bulk of the planters it would be wiser to interset than to rebud, as in this way they would secure up-to-date pedigreed trees on selected stocks.

What Is Phylloxera

In the California Cultivator of February 5, 1921, the pest known as phylloxera is treated on page 163 by Fred K. Howard. I have read the article with great interest, but I am sorry to state that Mr. Howard failed completely to give any introduction to the insect. He makes no mention of what it is like or how we are to know it. He says nothing about its specific injury to the vines nor how we may know how our grapes are infested with it.—Subscriber, Hayward.

If the Hayward inquirer will read the article on phylloxera again I am sure he will find a very good description of the insect under the subtitle, "What Is Phylloxera?" It was not the intention of the writer to enter a technical discussion of this insect, but a few further facts along the lines suggested would prove of value to one who wishes to know whether or not the insect is present in his vineyard. The attacks of the insect on the roots cause small swellings which permit very rapid rotting, so the small feeders and many of the larger roots are destroyed as rapidly as they can grow. The result of this root injury is a short, stubby growth, much as one would expect on alkali land or in some cases on extremely sandy soil; however, the appearance of phylloxera injury is typical and once seen is usually well remembered. If there is a spot in the vineyard where the vines are not doing well, or if there are several spots where the vines in the center are dead or nearly so, the conditions gradually improving toward the outer edge of the spot it would be a good plan to get a shovel and investigate the roots. Select a vine which, while showing some injury, is not too near dead, and dig out some of the roots. If they show considerable signs of decay you may have some strong suspicions that phylloxera is present. As the insect is so small that it can scarcely be seen with the naked eye, it is obvious that it is difficult to find unless one knows just what to look for. In this case it would be wise to ask your local horticultural commissioner to help you in the search. In the East there is a winged form but so far as is known at the present time this form is not present in California, so practically the only method of spread long distances in this state is on rooted vines, and the prospective planter should use every precaution to prevent the introduction of the insect to his ranch by this means.—F. K. H.

Queen Victoria Grapes

Where can I secure cuttings or rooted vines of Queen Victoria grape?—Subscriber, Orange.

This we are unable to answer for our inquirer. Perhaps some other subscriber has knowledge where they may had.

Pruning Thompsons

In pruning one year old Thompson vines I left only two buds on weak vines and a longer cane up to 18 inches according to growth, but since then have read in a book to either cut to desired length of heading vine or else two buds. Shall I prune them again?—Subscriber, Denair.

If the stronger vines to which you refer made only enough growth to leave 18 inches I would by all means suggest that you cut them back to two buds this year. If you will give the vines the proper attention this summer and train a good strong growing shoot up to the stake, you should have very little trouble in making your permanent trunk next winter.—F. K. H.

Chemical Weed Killers

We wish to know if there is any sure way to kill out Bermuda grass without injurying the land. We are advised to use a preparation called "Imperial." Do you know anything regarding this remedy, as to its ability to wipe out Bermuda grass?—Subscriber, Turlock.

We have heretofore answered similar question in effect that the best of all weed killers is a sharp steel plow or cultivator. In the case of Bermuda, morning glory or others which grow from cuttings, it is best to keep the tools on the infested section only until the pest is thoroughly eradicated or the infestation is liable to be spread to other portions of the same field. Regarding the use of chemical killers there is still a question mark in the minds of most of the growers. Prof. Gray, formerly of the state university, now with the U. S. department of agriculture, has made extended investi-

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gation and has found where greatest care is exercised and application of certain poisonous chemicals is made in summer time when plants are in fullest growth that good returns may be had though at an expense which is justified only where crops making big returns are to be planted. There are now several of these weed killers offered by the trade, but where one has serious infestation it may be well to make some thoroughgoing experiments, keeping definite records as to behavior of the plant after application of poison and as to all of the conditions which obtained at time of making the application. As to the weed killer referred to, we are not informed.

Maintaining Nuisance

A man who owns orchard land above mine is harboring Bermuda grass. He had men dig some of it out but they threw it onto my land, where it has started quite a large patch. The waste water from his irrigations is also allowed to run on my land, carrying the seeds with it. Is there any way in which I can collect damages or compel him to take care of his waste water?—Subscriber, Cabazon.

This question is not referred to the legal department for it is more a matter of fact. Of course an irrigator who permits his water to escape onto the property of another is liable to damages whether it comes from direct injury of water or from carrying of noxious weeds on the place. This is a case where the county horticultural commissioner should be notified and asked to help bring the weed pest under control, and then of course one should take the matter up with the party who is continuing to harbor the pest and perhaps through cooperation both places may be cleaned up better than by legal means.

Testing for Lime

What are some reliable ways to test ground for lime content?—Subscriber, Anaheim.

"Go to the agricultural chemist" is about the only answer to this question. However, as to whether the soil is in alkaline or acid condition may be quickly tested by litmus paper. If the blue litmus paper turns red after it has been saturated with some of the soil moisture then your soil is acid and the application of lime will prove beneficial. But determination as to actual lime content can only be had through analysis.

Fertilizer for Walnuts

Is it profitable to fertilize walnut orchards ranging from eight to twelve years of age, in addition to winter cover crops? What kind is used?—Subscriber, Anaheim.

The best fertilizer for walnuts is whatever you can get. That is, if stable manure is available, by all means get it. If not, use bone meal or superphosphate and perhaps dried blood or other nitrogen former and at time of cover crop secure as heavy a crop as possible. If the soil is not altogether too deficient in nitrogen perhaps the blood, which is very expensive, need not be applied. Presumably your soil is rich enough in potash. In case it is then we would apply complete commercial fertilizer.

Currant Fruits at Redlands

A Redlands subscriber in the Cultivator for January 8 asks if there is a variety of black currant that will fruit in the vicinity of Redlands. Four years ago I bought the Crandall's Black currant from the Fancher Creek Nurseries in Fresno, and with but indifferent care I get a good crop of berries every season. These currants are not juicy, like the red currant, but make a nice jelly.—Mrs. Wm. J. G. Lambert, Visalia.

Intersetting Vines with Citrus

Is it advisable to interset Red Emperor grapes in citrus orchards?—Subscriber, Richgrove.

If the trees are to be planted at least 24 feet apart it is possible that one might secure a few crops of grapes before it would be necessary to remove in order to give the trees their best opportunity to grow. It must be borne in mind, however, that it will be but very few years before the tree roots will fill this space and these additional plants will take some of the nourishment. They would also prevent during the latter part of the summer thorough tilth and might prevent best soil conditions. For an intercrop we would prefer alfalfa, berries, vegetables or beans, especially the alfalfa and the beans might be plowed under and prove of real value to the soil. In any case intercropping requires a larger amount of water than is needed for the orchard alone.

Figs Not Bearing

I have some white figs that do not mature well. While the fruit seems ripe and some fall, the seeds are not large enough nor are they ripe. Some have tough woody spots on them. The soil is black loam, has enough moisture and a black fig tree grows near that has good fruit. Will spraying them help destroy the germ that causes this?—Subscriber, Upper Lake.

This may be a Smyrna fig which requires pollination. If so, the only way to help is to secure a supply of capri figs.

The tour of farm advisers and farm bureau delegates will this year visit the San Joaquin Valley, May 23-28. Last year the trip was made through the Sacramento Valley to Redding.

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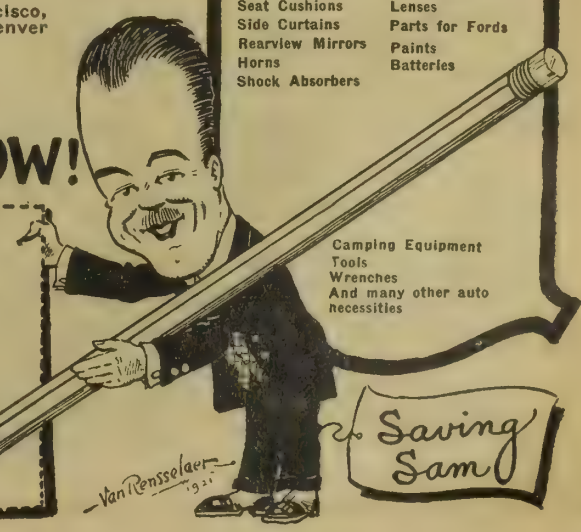

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MARCH IN THE VEGETABLE GARDEN

(Continued from Page 307.)

and prepare your "sets" by cutting the tubers, leaving about two good "eyes" to a section. These may be placed in a flat or shallow box and allowed to sprout and by the end of the month planted in well prepared soil. If farmyard manure is obtainable this should be placed in the bottom of the trench before planting. A commercial fertilizer such as bone meal or dried blood will also be helpful and bring increased yields. Do not waste time or money by planting on poor soil. Regarding the varieties, plant Early White Rose and American Wonder and insist on having the best seed. Five to six sacks of tubers will be required to plant an acre. It is a safe plan to dip the tubers in a solution of formalin before planting as preventive against fungoid disease. Plant the tubers in rows four to six inches deep and 12 inches apart in the row, which should be two feet apart.

Cabbage

Sturdy plants of Early Jersey Wakefield and Early Winnigstadt should be planted out now in rich soil in rows 18 inches apart, the rows being two feet apart.

Lettuce

Sow very thinly May King and Los Angeles for a successional supply, covering the seeds one-quarter of an inch deep in rows 20 inches apart. This crop delights in rich soil. Varieties sown last month should be thinned out and transplanted to six inches apart.

Radish

Sowings of Early Scarlet Turnip and Half Long may be made now on rich soil and the seed sown broadcast or in rows.

Carrots

This crop requires well prepared soil and will repay any extra trouble by larger yields. Make sowings of the small French Forcing, Oxheart and Long Orange. Sow seed very thinly in drills half an inch deep and 18 inches apart. Later they must be thinned.

Tomatoes

Prepare hotbed by building a wooden frame or using large boxes two feet deep, and on this place fine soil to sow seeds of the following varieties. Chalk's Early Jewel, San Jose Canner and Ponderosa. Cover the frame with cheesecloth or glass. If the latter is used it must be well shaded and the frame ventilated. By this method you may secure early plants. Prepare the plots in the meantime for this crop.

Onions

The main crop varieties will now be ready to thin out and transplant to six inches apart. Keep them well cultivated between the rows. Onion sets may still be planted. Plant six inches apart, two inches deep.

Turnips

Sow on well prepared soil very thinly Early Snowball, Purple Top, Flat Dutch or White Egg, all good table varieties. Sow the seed in rows 20 to 24 inches apart. They require plenty of moisture during their growing season.

Beets and Swiss Chard

Sow Crosby's Egyptian and Early Blood Turnip varieties in rows 20 inches apart. Swiss chard is grown for the leaves or tops used as spinach. Sow Large White in rows 24 inches apart.

Southern California

By D. F. Reichard

PEACH and apricot trees are coming into bloom, so according to Uncle Sam's garden advisers it is time to begin planting our spring garden. They are right. If the plot you are to put into garden is not ready, have it worked up at the earliest possible moment. The rains so far this winter have come in fine shape. It is now up to the garden makers to take advantage of this moisture by working their ground and keeping it pulverized.

Although it may be a little cool during the early part of March for the "warm temperature" vegetables, there are a goodly variety of things to be planted at once in the open ground. Sow the seed of lettuce, either Iceberg or Los Angeles Market; spinach, kale, endive; Crosby's Egyptian beets; Oxheart carrot; radishes, parsley, turnips, onions and Laxtonian peas. It is getting late to plant peas in Southern California, but by using the Laxtonians you can get a crop before it gets too warm for them. Set out plants of cabbage, cauliflower, kale, Swiss chard; the later part of the month set out tomato plants, peppers, eggplant and sweet potatoes.

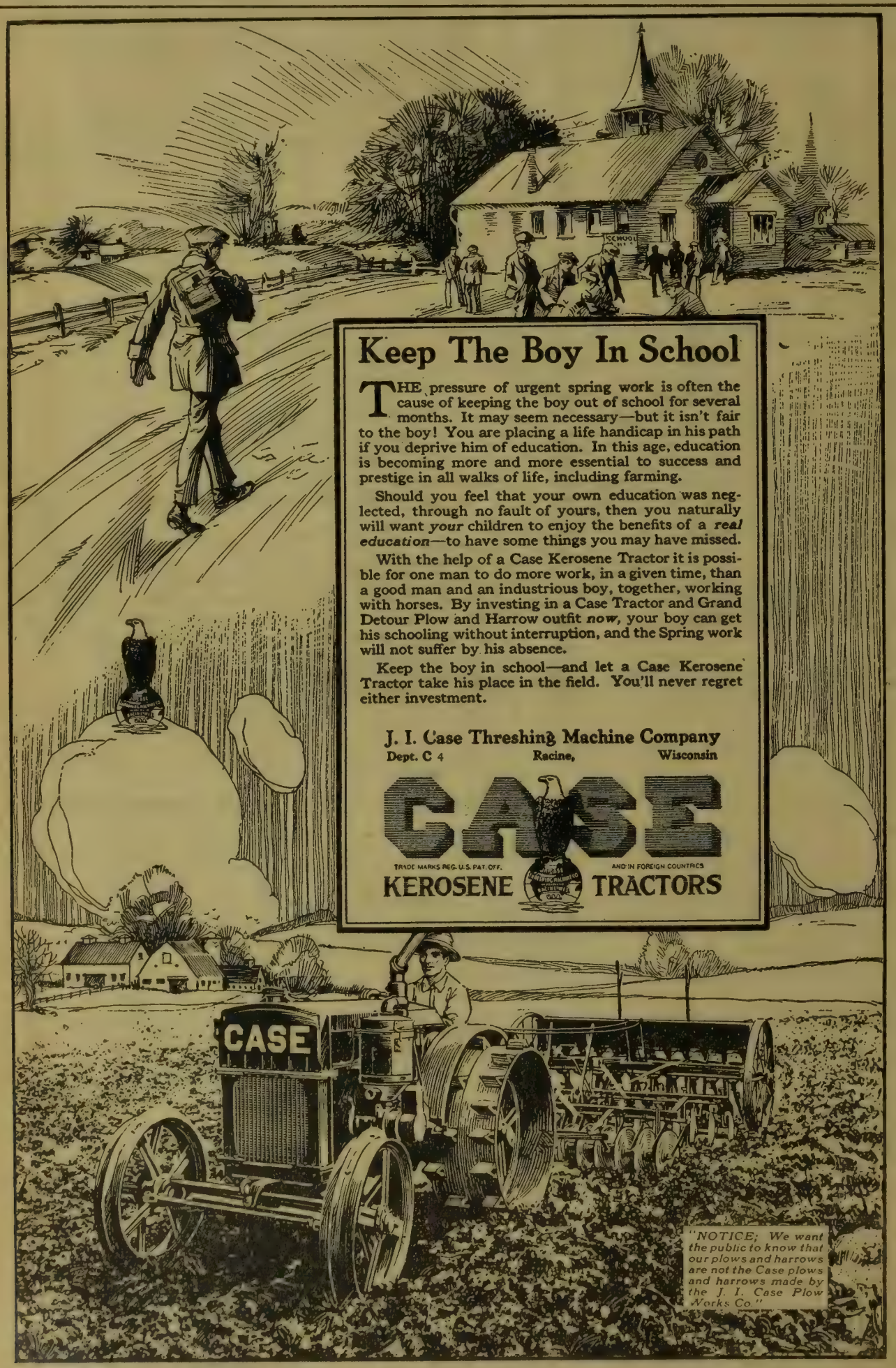
One should remember when planting that to get proper germination and sturdy plants the seed must be firmly embedded in well worked fine moist soil. The soil under the seed should also be in a fine friable condition that the rootlets may readily find sustenance. If the ground bakes over the drills or rows before the seed are up it is advisable to break the surface by raking lightly with a steel tooth rake. This should be done very carefully to avoid injury to the tender shoots.

Transplanting or setting out of plants should be done, if possible, on a cloudy day or late in the afternoon. Take off most of the large leaves from the plants to eliminate evaporation. Be sure to have the roots firmly set in the new place and apply about a pint of water to each plant to settle the dirt about the roots. If it is very bright weather protection should be given the newly set plants.

The latter part of the month the more tender things may be planted. Make your first plantings of sweet corn—Heath's Early and Golden Giant are the best; bush and pole beans, early cucumbers, summer squashes—try a few hills of the Fordhook; winter squash, melons and roselle.

If you intend planting potatoes this spring they should go into the ground this month. Late planted potatoes do not do well here on account of the hot weather at the time they are developing.

Thin out the beets, carrots, etc., that were planted last month and keep the surface of the ground worked to destroy weeds and make mulch. Be diligently on the watch for aphis and other insects. Peas and cabbage are apt to be attacked at this time. A wise gardener does not wait for the appearance of insects and diseases but sprays at reasonable intervals to insure against the likelihood of loss.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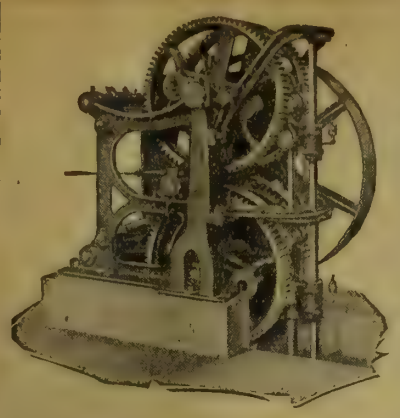

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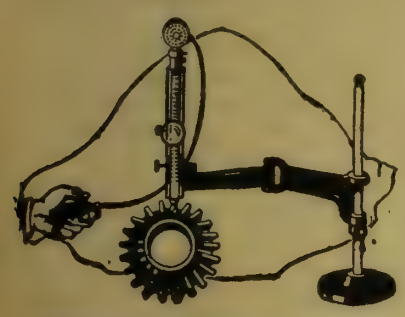

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Southern Arizona

By M. E. Bemis

PLANTINGS of the more tender vegetables may be made in March. At the same time most of the common varieties of vegetables which have been planted through the winter may be planted again for a succession. The list of the latter comprises beets, carrots, lettuce, radishes, spinach and mustard.

Asparagus may be set out and also tomato plants. Tomatoes may also be planted in the ground where they are to grow, and this is a practice that finds favor with some, although it is probable that the majority prefer to transplant.

March is the month for beginning plantings of beans. Stringless green pod is one of the most popular varieties. This is a bush variety and is as near stringless as any known. Black wax and Improved Golden wax are also bush beans that give good success. For garden culture beans should be planted in rows 18 to 24 inches apart and two inches apart in the row. One pound should plant 100 feet of row. Beans should be planted about 1 inch deep. Pole beans are not so popular, probably on account of the scarcity of sticks for poles. In the small garden some space may be saved by planting the pole varieties, but this saving is not so very great as they should be planted farther apart in the row and rows should be also farther apart. Kentucky Wonder may be planted early and does well. A native variety is the Aztec, claimed to have been discovered in the prehistoric ruins of the cliff dwellings. This bean somewhat resembles the lima but is more nearly round. It grows in large pods and is used both as a green bean and dry.

Corn may be planted this month. The sweet corn varieties are grown to some extent, but the variety which is best adapted to this dry climate is the Papago sweet corn. This is a sweet variety which was discovered on the Indian reservation of the Papago tribe and improved somewhat by selection. Corn is best planted in hills, for garden culture about three feet apart each way. It may be planted in furrows and covered about one inch deep. Later hoeings will gradually fill in the furrow, and later irrigations will be between the rows. It is doubtful if any variety of corn that can be grown in Southern Arizona is superior or even equal to the Sacaton Mexican June, which is the variety grown most largely for field culture both as a grain crop and for silage. For roasting ears this corn is almost as sweet as the best of sweet corn and as it yields well is to be recommended. The only disadvantage for the small garden is the high stalks which tend to shade too much other crops.

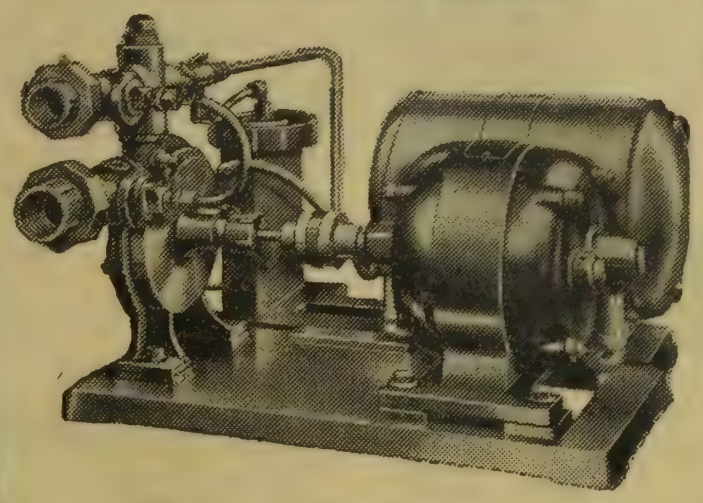
Cucumbers do very well some seasons and at other times, without any logical explanation, do not make the yields that are hoped for. Davis Perfect is a good variety. Early White Spine and Improved Long Green are popular varieties. Cucumbers should be planted four to six feet apart each way and covered one inch deep. Planting on the sides of ridges just above the water line is the best way. Half an ounce of seed should be enough for 100 feet of drill.

Peppers may be planted in the row where they are to grow or plants may be purchased and set out towards the latter part of the month when it is warm. The soil should be rich and the plants require considerable water. Plant on the side of ridges 30 inches from center to center and 18 inches apart. Anaheim Chili is a mild pepper that is also good dried. Chinese Giant and Large Bell are recommended varieties of the Bell types. Mexican Chili is a hot pepper that is immensely popular with the Mexicans. Pimento is a sweet pepper that is splendid for canning or salads

Pumpkins require rather too much room for the small garden. Not much is required, though, to produce a few pumpkins to furnish the table with an occasional pie. If planted six or eight feet apart and the seed covered one inch deep they should do well with ordinary attention. Small sugar, Japanese Pie and Kentucky Field are popular kinds to grow.

Potatoes will do well in light soils, but it is not advisable to attempt to

A Water System Without a Tank



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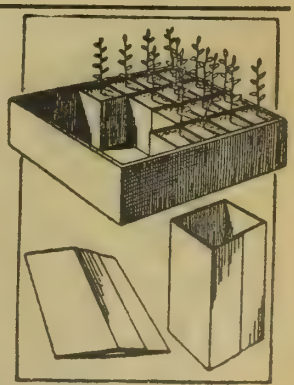

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grow either Irish or sweet potatoes in heavy adobe soils. Early White Rose and Irish Cobbler are grown here.

Salsify or vegetable oyster should be planted in March. This plant will make considerable growth through the winter if planted in the fall, but is inclined, possibly because of the slow growth, to become woody and unfit for use. For this reason the spring plantings are advisable.

Summer squash should not be forgotten in the March plantings; both the White Bush and the Summer Crookneck do well. They should be planted about the same as cucumbers and are easy to raise.

Cantaloupes for the commercial crop are being planted at this writing (February 23) in the Salt River Valley. For the home garden they may be planted later and will possibly do even better than the early plantings. A variety that has come into favor here both on the local market and for shipping is the Improved Salmon Tinted. For the general crop, Rocky Ford and several kinds of Netted Gem are splendid cantaloupes. Watermelons also should be planted in March. Kleckley Sweet and Tom Watson are grown more than any other varieties. The Black Seeded Chilian has proved a favorite on the Phoenix market and always commands a better price than other varieties.

A few sunflowers in odd corners or where shade is required will furnish some chicken feed at little cost.

March in the Ornamental Garden

Southern California

By Ernest Braunton

IF YOU are going to garden during 1921 you should be at it now. At no other time of the year may you garden with such profit; at no time is nature more active. March is the one best month for making new lawns, renovating old ones and fertilizing all parts of the home grounds.

Prepare soil for all plants easily injured by frosts or that refuse to start during cold weather. Sow seeds of those too tender for earlier temperatures, for the hour of liberation is at hand. Seeds sown now will bring forth plants that doubtless will grow unchecked by nights too cool, as might occur earlier in the year. But days may come quite hot, in sharp contrast with cool nights, and a protective mulch of sifted stable manure is a fine protection against drying of surface soil. If this is not used one must sprinkle every day, or twice each day, where seeds shallowly sown should be germinating.

Last month we gave an extensive list of seeds to plant, also one of bulbs and tubers. All these may be planted in March. In fact this month's work may be merely a continuation of the February program, or the institution of the work in sections too cold for an earlier beginning. Dahlias, cannas, gingers, cyperus, papyrus, and all roots and plants held back for fear of frosts may now be planted with a fair assurance of safety. All sorts of propagation may be performed—seeds, cuttings, divisions, budding and grafting. A good hotbed is a great aid but not necessary to success if sufficient care is taken. Last week's article on chrysanthemum culture tells precisely how all cuttings should be made and cared for to bring the greatest degree of success. A final admonition is to garden every minute you can find to spare during the month of March.

Northern California

By A. R. Gould

TO the successful gardener patience is a virtue. Forethought is also an asset. We must plan and plant ahead if we would keep our garden full of flowers and be prepared to wait patiently for results if we wish to raise plants from seed or the small seedling stage. Furthermore, there will be insect pests and fungus diseases to fight, but most of these may be overcome and will make the work more interesting and the worker more observant. In this department also it is essential to keep a garden notebook and record dates of seed sowing, planting and periods of flowering. All this will be useful data to the grower and many details of cultural methods may be recorded in this way to prove of value for the future. Before any planting is done the holes for trees or shrubs must be carefully prepared and manured, and there should be some thought given to arrangement so that the taller growing subjects will be placed in the background and the smaller to the front, and several subjects of one kind may be grouped together and if the variouos colors are arranged correctly the whole may be very effective.

The Perennial Border

A well arranged perennial border is becoming more popular in our American gardens. There are a large number of perennials to select from and they last a considerable time in flower. In preparing the border deep trenching and manuring is essential, and it is only by such practical application that a successful border can be established, as it must be remembered that perennials are there to stay for some time and are not disturbed except for subdivision every two or three years. The following is a list of suitable subjects and we shall mention the taller growing first, giving the colors: Delphiniums in various shades of blue. Hollyhocks in shades of rose, white, yellow, pink and crimson. Anchusa italica, "opal" blue. Asters, or Michaelmas Daisy, all growing from three to five feet. Much smaller subjects are gaillardia grandiflora hybrids, old gold and yellow. Erigeron speciosus, blue, and Asa Gray, apricot. Gentiana Andrewsii, blue. Campanula persicifola, blue. Coreopsis grandiflora, yellow. Chrysanthemum, single flowered types in various colors. Centaurea montana, blue. Oriental poppy, crimson; Iceland poppy, yellow and orange. Pinks, Dianthus in variety. Primulas, polyantha and vulgaris. Silene alpestris, pink and Sweet Williams in various shades. Such a collection will not only provide a long display but might also be grown for cut flowers.

Annuals for Cut Flowers

There are many who are anxious to secure flowers from seed in a short time and now is the time to sow if summer bloom is required: Godetia, marigolds, calliopsis, salpiglossis, schizanthus, centaurea, scabiosa, nemesia, larkspur, Emperor branching, zinnias, shirley poppy, and mignonette. The last two should be sown in the place where they are to flower and thinned out. Sow seeds of the above in well prepared soil on a warm border or in boxes, and during the heat of the day they should be shaded from the sun. Keep the soil fairly moist and sow the seed thinly.

Roses

If pruning has not yet been attended to this should be done without delay and all dead wood removed. Dig in manure very liberally. This is also the time to plant your new roses, and you should include the following: Irish Fireflame, Sunburst, Ophelia, Los Angeles, E. Herriot, Hoosier Beauty, Geo. Dickson, Lady Hillingdon, Frau Karl Druschki, Edward Mawley, British Queen, Rainbow, Harry Kirk, Ulrich Brunner, Melody, A. R. Wadell, Paul Neyron, Hadley and Baby Doll. Roses thrive best in a fairly heavy soil. Good climbers are Beauty of Glazenwood, Cecil Brunner, Cherokee, and Banksia yellow and white.

Eremurus Himalaicus

This very stately plant from India grows to a height of eight feet and has beautiful white flower spikes. It requires a deep rich soil and will look effective in the perennial border or placed in a group by itself.

Lawns

These will require weeding and a general top dressing with a fertilizer such as guano, dried blood or bonemeal. It is also a good time to sow new lawns or fill in any bare spots,

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At its last monthly meeting the Arlington Poultry Association passed a resolution asking the Riverside County farm bureau to establish a poultry division.

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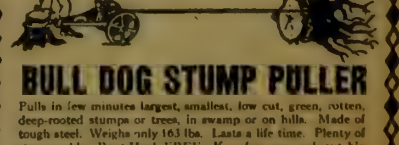

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The sunshine is bright on the rain,
And over the hills and the valleys
We follow the glory—in vain.

Though we stand where we thought it had rested,
Yet distant it ever appears;
For what seems the rainbow to others
To those at its foot may be tears.
The strongest of charms is upon it,
This treasure, which never is gained;
And bright, with a glory celestial
Is the goal that is never attained.
—Philadelphia Bulletin.

STAR LIGHT, STAR BRIGHT

By Clara Peterson

ONCE upon a time there was a little boy who had never had any fun. This was because he lived with an old, old uncle instead of the own dear mamma who had died when he was a baby.

The uncle's name was Old Toteman. That is, the villagers and the naughty children called him that, but little Dick called him Uncle Toteman because he was afraid to say the other.

Old Toteman worked in a blacksmith shop, and after school Dick had to help him instead of sliding down hill with the boys. From four until six he worked very hard, pumping the bellows to heat the iron horseshoes or holding the tallow candle which lighted the horses' hoofs, for Old Toteman.

Then they went home to supper and to bed. There was no fine, cozy time around the stove, for candles were expensive and it was foolish to keep the fire burning after seven o'clock.

The blacksmith shop wasn't a bad place in summer, for it stood at the edge of a beautiful wood and flowers grew up to its very door, except where Old Toteman threw cinders and killed them. But in winter it was desolate and cold. Dick's face burned on one side and froze on the other while he held the dripping candle and wondered anxiously whether the big horses would ever kick him, by mistake.

The boy really thought that this long, cold winter would never end. His red arms hung out far beyond his coat sleeves and his mittens did not even cover his wrists, so the bare space was always chapped and bleeding. Between this and his aching feet, Dick was glad to go to bed the minute he had rubbed on the hot mutton tallow his uncle grudgingly melted over the stingy flame.

But he did not always go to sleep. He would lie and look up at the stars, twinkling through the window. He was only eight and a half, yet the stars were the only friendly things he had ever known. He had invented names for the big ones and every night he talked to them.

Tonight his chapped wrists hurt worse than usual and his toes were icy cold. There had been only mush for supper and he was hungry, so he climbed quickly into bed and hugged his arms together under the quilt, playing that he had a little dog or kitten in them. Dick had never had a pet, but he imagined that the boys and girls who did have, must always sleep with them and so keep warm. You see, it never occurred to him that most children had snug, bright rooms and soft beds with plenty of covers.

He lay there holding his imaginary pet tight and whispering half aloud to the brightest star. The others had not yet broken through the clouds but Dick could see the faint pin points of light where they would appear, so he hurried and said his little heathen prayer, the only one he knew:

"Star light, star bright, first star I've
seen tonight,
Wish I may, wish I might, have the
wish I wish tonight."

And then he wished. He had been wishing the same thing ever since Christmas, when he had seen, all in one day, a boy with a Shetland pony, another with a dog in a bell covered harness, and a girl with a beautiful kitten in a basket.

"Dear Star, please send me a pet, any kind, just a pet."

Dick never stopped to think that Uncle Toteman would soon put an end to that if the pet really did arrive.

Then he went to sleep.

The next day was Friday and school seemed harder than usual. Dick was not brilliant and the teacher did not indulge him. He was almost glad to get away at four o'clock and run to the shop.

The day was cold and already growing dark. The home lights were shining through the cheerful curtained windows, but Dick did not stop to envy the other children. He ran as fast as he could so Uncle Toteman would not scold, and breathed a little sigh of relief as he reached the cinder path to the shop door. It would be warmer inside.

At that second something ran in front of him and stopped a few feet away—a black, furry ball. Dick could hardly tell it from the bushes. His heart beat wildly. His pet! It must be his pet. Sealthily he crept toward it, but the ball did not move and he gathered it into his arms.

Just then the light from the forge shone brightly through the narrow window and Dick saw that he held a rabbit, a beautiful, soft, long-haired rabbit with shining eyes. He heard Uncle Toteman coming to the door and in panic realized that he must never see the pet.

Desperately he ran to the back of the shop. What could he do? The answer loomed before him. The old shed where Uncle Toteman kept his coal and where no one but Dick ever entered. (It was his evening task to replenish the big coal box beside the forge.)

Dick knew there was an old pile of burlap in the shed. He unlatched the door and thrust the rabbit inside. Old Toteman was calling gruffly:

"Hey, Dick, I heard ye. Come get busy with the bellows."

Dick ran through the open door and pumped up the flame in a second. He was so happy that he smiled all over but Old Toteman only frowned. When boys were happy there was some deviltment in the air.

At 6 o'clock the work was finished and Dick ran out while Toteman put on his overshoes.

The rabbit had huddled into a corner of the burlap and seemed asleep.

Now this had been a particularly happy day for Dick because that noon he had found a rosy red apple in the schoolyard. He had meant to eat it after he got into bed so he wouldn't mind the cold so much, but now he took it out of his pocket and looked at it. The rabbit moved restlessly and without a sigh Dick put the apple down before it. In the dim glow from the shop he could see it nibble the ruddy skin with the greatest relish.

"Tomorrow I'll bring you more, Bunny," said Dick fondly. "I bet you'd like to come home and sleep with me. I'd keep you nice and warm. But we'd better not, just yet," he added, embarrassed.

"I'll tell you about it later."

It would never do to let the rabbit know that it would be unwelcome at Uncle Toteman's.

The old man was standing at the end of the path, waiting for Dick.

"What's the matter now?" he asked angrily. "Don't you be runnin' off with no boys. They're a bad lot."

"All right, Uncle Toteman," said Dick meekly, glad he had hit so far from the mark.

"I never do play with the boys, anyway, and they don't with me."

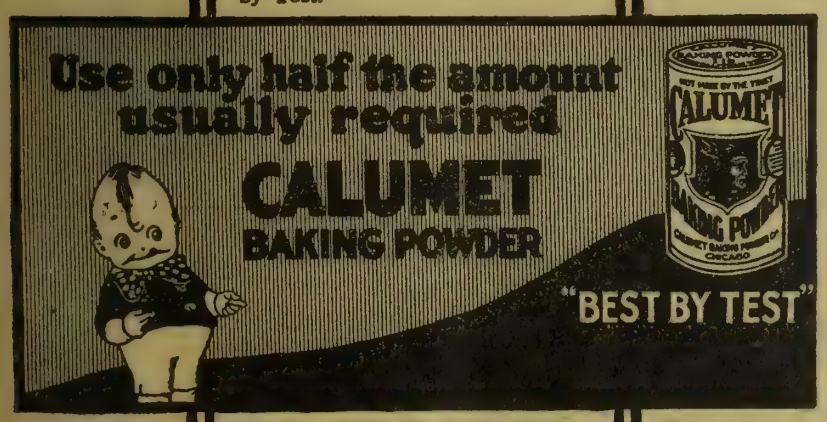
Uncle Toteman cooked vegetable soup for supper and Dick's eyes sparkled at sight of the potatoes, the cabbage and the big carrots. Didn't he know what rabbits loved!

You may be sure that Uncle Toteman did not waste much of the vegetables, but Dick carefully picked the

YOU don't use as much of Calumet as you do of most other Baking Powders. It has more than ordinary leavening strength. You save about half.

You don't pay a big price for Calumet. It's sold at a moderate price—that represents another saving.

You don't feel uncertain as to results. Bakings never fail—because Calumet never falls below the proven standard of "Best by Test."



It possesses the highest quality ever put into a Baking Powder. Contains only such ingredients as have been officially endorsed by United States Food Authorities.

For weeks, for months, it keeps as fresh and full of strength as the day it left the Calumet Factories, the World's Largest, most Sanitary and Modern Baking Powder plants.

Pound can of Calumet contains full 16 oz. Some baking powders come in 12 oz. instead of 16 oz. cans. Be sure you get a pound when you want it.

Calumet Gold Cake Recipe

Yolks of 8 eggs, 1¼ cups of granulated sugar, ⅔ cup of water, ½ cup of butter, 2½ cups pastry flour, 3 level teaspoons Calumet Baking Powder, 1 tablespoon of vanilla. Then mix in the regular way.

Ask for Ghirardelli's Ground Chocolate at the store where you do your trading. Never sold in bulk but in cans only. In this way Ghirardelli's retains its flavor and strength—the two most important elements of good chocolate.

IT'S simple enough—the chocolate-sweetness of Ghirardelli's makes additional sugar unnecessary. You lose nothing of its deliciousness, its flavor, its strength, when you "pass up" the sugar. For Ghirardelli's "stands on its own feet" as a complete food beverage—sufficient unto itself!

Say "Gear-ar-delly"

D. GHIRARDELLI CO.
Since 1852 San Francisco

GHIRARDELLI'S
Ground Chocolate

Honest Shoes For Honest Work

Mayer *Honorbilt* Work Shoes

MADE of honest leather, "Built on Honor" by skilled workers, *Honorbilt Work Shoes* will give double the wear of ordinary shoes.

Suitable for every kind of work on the farm too. For the leather in *Honorbilt Work Shoes* is double tanned to resist the alkali in the soil and the leather-eating barn yard acids.

And you will find these long wearing shoes always soft and easy on your feet. Wet work will not make them hard; they stay pliable and comfortable with the roughest use.

Honorbilt work and dress shoes, for every one in the family, are sold by leading dealers everywhere. All bear the *Mayer Honorbilt* trade mark—a guarantee of quality that never fails. Look for it on the soles and if your dealer does not handle *Honorbilt Shoes* write us.

F. Mayer Boot & Shoe Co., Milwaukee, Wis.

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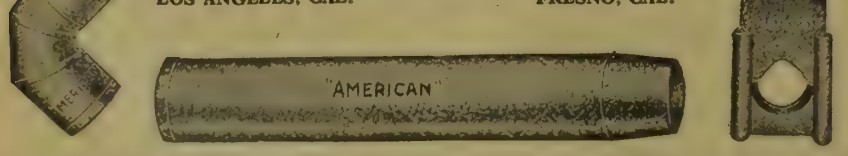

First Quality (Certified) **HAIRY PERUVIAN ALFALFA SEED** GROWER to SOWER

Government and State experiments and twelve years' experience in Yuma Valley have proven the superior qualities of this alfalfa.

Experimental Station letters from the Atlantic to the Pacific, through the South attest its superior growth.

This Association is the SOLE growers' organization through which you can get Hairy-Peruvian seed direct from fields CERTIFIED by the representatives of the Arizona State University.

Each sack branded and can be traced to the field where grown.

Order direct, or club your orders through your Farm Bureau or purchasing organization.

PRICES

Ton Lots (F.O.B. Yuma).....$31.00 per cwt.
Sack Lots (F.O.B. Yuma)..... 32.00 per cwt.
Car Lots.....Special prices on application

One car (30,000 lbs.) will sow 2,000 acres.

Yuma Valley Produce Growers Association - Yuma, Ariz.

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

succulent scraps from the trash basket and stuffed them into his pocket.

He sat down to the table with such a shining face that Uncle Toteman looked at him suspiciously.

The soup was very hot, and very good—for Toteman soup. Dick was allowed a big bowl full and when he had finished, his little stomach was replete.

Taken all together, it had been a deliciously happy day, and when Dick crawled into his sagging bed and looked up at the stars, he was so comfortable that he even forgot to thank Star Bright for giving him his wish. He just gazed for a moment with drowsy eyes, and then went to sleep, his arm crooked lovingly about a rabbit that was not there.

The next morning Uncle Toteman had Dick help him carry Farmer Brown's buggy wheel to the shop, so it was easy to see the rabbit. Dick's heart pounded as he opened the rickety door. What if it had dug its way out or died of loneliness!

But there it sat on the burlap, its brown eyes twinkling. It gobbled the vegetables like a little pig and Dick could hardly contain his joy until he found that the rabbit was lame and dragged one leg when it hopped.

Dick comforted it cheerily.

"Never you mind, ol' Bunuy," he crooned. "It'll be spring any day now. Then I'll take you to the woods and you can hop around and get well."

The weather did grow warmer after that, but undoubtedly it would have seemed warmer to Dick anyhow for the rabbit thrived wonderfully. It was all he could do to keep from bringing out the pet and exhibiting its wonders.

Several noons he had gone without his dinner to do errands for a penny or two and as the grocers were generous to the lonely little fellow, the rabbit had fared well. It was truly an exceptional rabbit for it followed Dick around the shed, like a dog, and snuggled up to him whenever he sat down.

(Continued next week.)

HOUSEHOLD QUERIES

Nut Bread

Here is another recipe for nut bread which is particularly good:

Three cups flour, 4 teaspoons baking powder, ½ cup sugar, 1½ cups milk, 2 eggs, 1 cup walnuts, 1 scant teaspoon salt. Mix dry ingredients together and add milk, well beaten eggs and nuts. Put in pan and let stand 20 minutes. Bake slowly for 35 minutes.—F. K., Los Angeles.

Grated Potato Cakes

Grate or grind with a very fine cutter eight large, not largest, potatoes. Salt to taste. Break into this from five to seven (we like seven) eggs, and beat with spoon until thoroughly mixed. Do not use any flour. Put two or three tablespoons fat in skillet and when hot put in two or three, depending on size of skillet, large spoonfuls and spread, then cover till ready to turn. If there is not enough fat in skillet, cake will look dry when turned. Serve with bread and butter and black coffee—a whole meal in itself. Mrs. A. W. Leitske, Dinuba.

Dye for Rag Rugs

I have been much interested in the way you have helped many to solve their difficult problems, and now I come to you with mine. I am much interested in making the old fashioned rag rugs which are used so much now but have been able to find no dye that will not fade with the light and washing. Can you tell me how to get fast colors, especially blue? I have wondered how our grandmothers and great grandmothers dyed their threads such beautiful fast colors for weaving cloth.—An Interested Subscriber, San Fernando.

Who can help this inquirer? Do any of our housekeepers know what dye our grandmothers used on the wonderful old blue and white counterpanes, now surely as rich and beautiful in color as the day they were woven?—Ed.

The Cultivator Patterns

BE SURE TO SEND SIZE

3522-3509. Ladies' Costume.—Blouse 3522 cut in 6 sizes; 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3509 cut in 7 sizes: 24, 26, 28, 30, 32, 34 and 36 inches waist measure. To make this model for a medium size will require 6⅜ yards of 44 inch material. The width of the skirt at the foot is 2⅝ yards, with plaits extended. Two separate patterns 10 cents for each pattern.

3123. A Dainty Frock.—Cut in 4 sizes; 4, 6, 8 and 10 years. Size 10 will require 4 yards of 27 inch material. Price 10 cents.

3577. Work or Morning Dress. — Cut in 7 sizes; 34, 36, 38, 40, 42, 44 and 46 inches bust measure. For a medium size 6 yards of 36 inch material will be required. The width at the foot is 2¼ yards. Price 10 cents.

3505. Child's Short Clothes Set.—Cut in 4 sizes; 6 months to 1 year, 2, 3 and 4 years. A one year size will require 1¾ yard for the dress, 1⅝ yard for the petticoat and ⅝ yard for the drawers of 36 inch material. Price 10 cents.

3499. Misses' Dress.—Cut in 3 sizes; 16, 18, and 20 years. An 18 year size will require 3¾ yards of 44 inch material. The width of the skirt at the foot is about 1⅝ yard. Price 10 cents.

3496. Girl's Dress.—Cut in 4 sizes; 8, 10, 12 and 14 years. A 12 year size will require 2⅝ yards for the middy and 3¼ yards of 27 inch material for the skirt, collar and cuffs. Price 10 cents.

3235. An Attractive Apron.—Cut in 4 sizes: small, 32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. A medium size will require 4¼ yards of 27 inch material without the sash. Price 10 cents.

3503. Boy's Suit.—Cut in 5 sizes; 3, 4, 5, 6 and 7 years. A 4 year size will require 2 yards of 44 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEKS; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

"BRIGHT LIGHTS" FOR THE FARM

As a jazzy, tuneful melody, "How You Gonna Keep 'Em Down on the Farm?" has long since been discarded. But as an actual problem it still holds the attention and consideration of many a mother and father of rural America. How is this trend of country boys and girls to the cities being checked? For it is being checked to a noticeable extent, even though the progress is slow.

"By making country life livelier and more attractive," might be a general answer to the problem. But that brings up the question, "How?" And this question is best answered by the findings of investigators of the research division of the Home Economics Society.

In a recently completed survey which covered various rural sections of several states, these investigators found that modern conveniences and labor saving devices in and about the farm home are the most importaant factors in making young men and women more satisfied and contented with rural life. Many of the pleasures and conveniences that they used to go to the cities for are being taken to the farm.

Automobiles, player pianos, talking machines, good magazines, water plants, washing machines, tractors, log saws—a score of other devices all are playing a part in adding pleasure and eliminating discontent on the farm and keeping the boys and girls at home. Yet there is another factor which, according to the survey, is exerting an even greater influence than any of the foregoing in "Keeping 'em down on the farm."

"Bright lights"—that's what is helping to keep them on the farm—instead of luring them away!

Bright, cheerful light for every task in the home, and for every pleasure, reading, playing games, dancing, and for just sitting around the family circle—works for a happier home and a more contented family. And the means of this happiness and contentment is easily within the reach of every rural resident.

THE RIGHT WAY TO BOIL HAM

The discussion of ways to boil ham may seem to some entirely superfluous, yet have you never noticed that some hams retained that rich red color and perfect taste, while others have a brownish color and the meat comes apart? This difference lies in the manner of boiling. A good ham put on in cold water and cooked slowly, or allowed to stand for awhile without cooking, will lose much of its nutrition. The proper way to cook a ham is to put it on in water that is already hot, just beginning to simmer. If it can be kept at this temperature, which is a few degrees below the boiling point, so much the better. At any rate it should not boil vigorously. For every pound of ham let it boil a quarter of an hour. Thus a 16-pound ham would require four hours to properly cook. When put in hot water the outer layers of meat are cooked at once, thus preventing the escape of juices which takes place in cold water. Let stand till cool in water in which it was cooked.

JELLIED MEAT

One cup of beef which has been cooked and put through food chopper, half cup bread crumbs, salt and pepper to taste, mix well. Stir into this two-thirds cup of boiling water which has had one-half an envelope of gelatin dissolved in it. Pack in a tin and set in a cool place, after which it can be sliced.

EAT MORE RICE

Some people do not like rice. This is largely because they do not know how to cook it properly or how to combine it with other foods. When properly prepared there is no better or cheaper food than rice and no other food can equal its combination of deliciousness, economy and high food value.

Rice is quickly cooked and easily digested and is completely utilized by the body. A well cooked dish of rice can safely be given to convalescents and young children. Its nutritive value, its palatable merits and its moderate cost have long made a strong bid for popularity, but for some incomprehensible reason the American housewife has not accorded it deserved recognition.

It will also interest many to learn that in California we grow a type of rice which is the finest cooking rice produced anywhere. The reason it is not more popular is because most of us don't realize that our Golden State short grain is superior to the long grain rices of the Orient and the Southern states. The mellow, sweet California rice meets with instant demand wherever its qualities are understood, and there is no food superior in flavor and wholesomeness.

The Rice Association of California is asking consumers to "Buy a Bag of Rice" because there is a serious marketing crisis this year due to high costs of production and low market conditions. Regardless of this situation, which is serious, we urge housewives to eat more California rice because there is no better or cheaper food to be had anywhere in the world.

PLAN HOME WISELY

The attractiveness of a home isn't dependent on the amount of money spent on it. A small and inexpensive house may be as beautiful in its way as a large and costly mansion. The essential thing isn't the cost. It is the good taste of the designer.

The old lesson is repeated. "With what do you mix your colors?" was the question put to the famous painter. "With brains, sir?" was the retort. The house needs to be designed and planned with brains.

OLD FURNITURE MADE NEW

The bright spring days are the best time for making over old furniture around the house. The modern painted furniture that looks so attractive in the stores owes its appearance to paint. A little grey or white enamel will soon convert an old, dingy piece into a new and stylish adornment. Chairs, tables or other pieces of which the grain of the wood stands out can be touched up and preserved with varnish stain, giving any desired effect. Almost every attic contains some article of furniture which has been discarded because of its appearance or some easily repaired break. At the present cost of things, it is the best economy to repair and repaint, and remember, by "saving the surface" you save all.

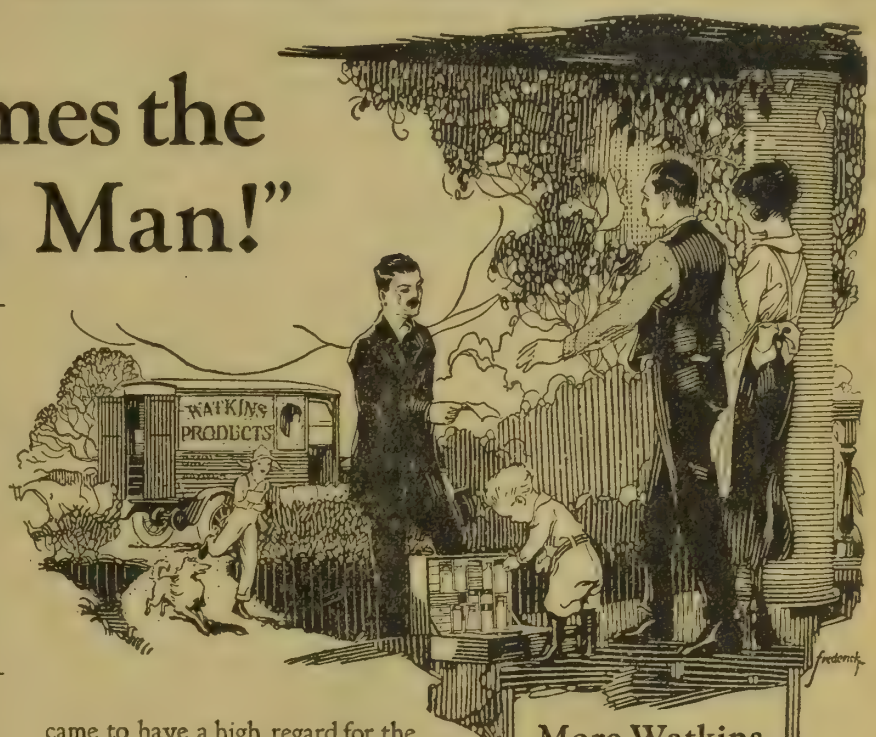
CHICKEN AND OYSTER PIE

Stew two good sized chickens till the meat is ready to fall from the bones. Arrange the meat in layers in a large baking dish, with large oysters between. Boil down the chicken juice till about one pint, add the juice from oysters and thicken with one tablespoon flour. Season and pour over chicken and oysters. Cover with a good crust and bake brown.

When chopping dates, citron, raisins, etc., sprinkle on some of the flour that would be used anyway and the chopper will not be gummed up.

"Here Comes the Watkins Man!"

Do you realize exactly what that means to you? Delivery direct to your door of 137 Watkins products; economical prices; a standard of quality established through more than fifty years in business. Twenty million satisfied users are served by Watkins Men today



MORE than fifty years ago, the first Watkins wagon jogged over the countryside. Farmers along the way were astonished at this novel method of selling goods.

Needless to say, they were pleased at the thought of having home necessities delivered *to their very doors*, thus saving them immeasurable time and trouble. But that was not the only thing they liked about the Watkins plan.

It soon became apparent that in addition to convenience, the Watkins method of selling *direct to the user*, through authorized Watkins Retailers, meant a substantial saving of money to the householder. And in addition to that, it was not long before people came to have a high regard for the reliable quality of Watkins products. The quality never varied—was always the best.

And so the Watkins idea grew. Today twenty million satisfied users, on farms, in small towns and in large cities, are being served by more than 4,000 Watkins Men. The Watkins line has grown until now there are 137 products.

Millions of families find it worth while to hold their orders until the Watkins Man calls at regular intervals. You, too, will profit by Watkins Service, Watkins Saving, Watkins Quality. If a Watkins Man has not called recently, won't you write to us? We'll take pleasure in seeing that you are supplied.

More Watkins Men Needed

to help supply the tremendous demand for Watkins quality products, comprising 137 household and farm necessities sold direct to the home. The experience of over 4,000 successful Watkins Men points the way to a real opportunity for you. Desirable territories, country and city, are open for responsible men who are capable of serving Watkins' customers in the manner which has made this the largest and most successful company of its kind in the world.

Write today for full information regarding how you can become a Watkins Man and what it means to you.

Among the 137 Watkins products are: Livestock and Poultry Preparations; Household Medicines, Liniments, Balsams; Spices, Extracts, Coffee, Baking Powder, Washing Compound, Tube Flavors; Soaps, Shaving Cream, Perfumes, Toilet Waters, Face Creams, Powders, Tooth Paste, Tooth Brushes; Automobile Supplies, Tires, Tubes, Spark Plugs, etc.

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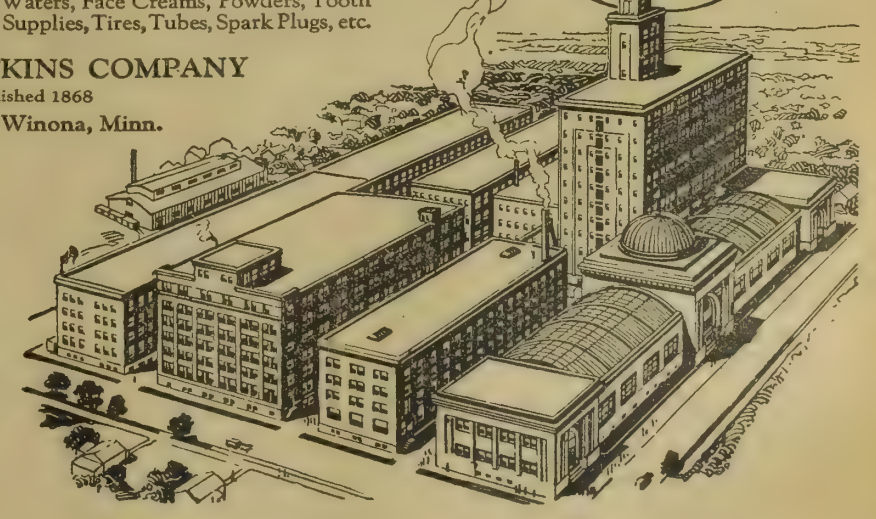
137 PRODUCTS
Best for over 50 years



SECOND ANNUAL STOCKMEN'S WEEK

(Continued from Page 309.)

the complete plans for the week and outlined the purpose and hopes of his division in arranging the program. B. O. Cowan of Santa Monica, formerly assistant secretary of the American Shorthorn Breeders Association, represented that organization and drew from his great fund of experience much that was interesting and instructive. Mr. Cowan held forth great encouragement to the breeders of registered Shorthorns and stated that it was his opinion that the next few years would see a very wide expansion of the industry due to the economic conditions that are facing the cattlemen of the United States. C. E. Ratchford of the forest service discussed range and forestry problems. Ratchford, while deploring the average quality of the beef cattle running on the ranges of this state, said that there was a very marked and constant tendency on the part of California cattlemen to look to the pure bred bull as a means of increasing the efficiency of their cattle. Dr. Elwood Mead of the University of California told of the policy adopted by the settlers on the Durham and Delhi colonies to incorporate livestock in their activities and of the plan to confine themselves to one breed of each class of livestock. The afternoon of the first day was given over to the annual spring sale held by members of the California Shorthorn Breeders Association. Seventy-eight head of bulls and females were sold for an average of $268.

T. H. Ramsey of Red Bluff, president of the California Cattlemen's Association, presided at the Wednesday sessions. During the morning the annual meeting of the Pacific Coast Hereford Cattle Breeders Association was held. Paul G. Redington of the forest service discussed the stabilization of grazing permits, and T. N. Lorenzen, also of the service, discussed phases of range management. Lorenzen particularly emphasized the question of overstocking and declared that only through a proper adjustment of cattle to range, based on the carrying capacity of the feed, could that capacity be maintained and increased. Lorenzen cited many instances to demonstrate the effects of careful management.

One of the most impressive addresses of the week came from John E. Painter of Roggen, Colorado, who came to the Coast to represent the American Hereford Cattle Breeders Association of which he is an officer. Mr. Painter is regarded as one of the most successful and clear thinking men in the business, and the message that he delivered to the cattlemen of this state was based upon his actual and successful experience. Painter told his hearers of his operations covering more than 30 years and ranging from the handling of the plainest sorts of range cattle to the maintenance of a large herd of registered cattle. He demonstrated in no uncertain terms the value of better blood and cautioned the cattlemen of this state against a policy of ignoring the worth of better cattle. Painter also pointed out the sound features of the pure bred cattle business and stated that he knew of no section that held out greater inducements for the production of high class cattle than he had found in this state. He called attention to the fact that now was a particularly opportune time to engage in that phase of the business, as values were at the low ebb and certain to improve.

Wednesday afternoon 56 head of Herefords, including bulls and females, were sold at auction for an average of $236.50.

A mass meeting was held in the University Farm Auditorium Wednesday evening. Dr. H. C. Gross of Eureka represented the American Jersey Cattle Club and following a motion picture depicting many of the famous animals of the breed, addressed the meeting, and aside from setting forth the many merits of the Jersey breed he took occasion to urge the Jersey breeders of this state to take an increased interest in testing their cows. Dr. Gross pointed out that there were over 200 Jersey breeders in this state but that only 25 were members of the American Jersey Cattle Club. He also stated that about three-fifths of the breed records were held by Oregon cows and that no breed record is held by a California cow.

Walter Mulford, acting dean of the college of agriculture, told of the relation of the college to the animal husbandry industry of the state and briefly outlined many of the problems that are now the basis of investigation. Dean Mulford especially urged the livestock interests to regard the college as their own organization for furthering their work and invited suggestions as to how the college could best serve the industry.

Dr. W. H. Walker, president of the California Farm Bureau Federation and vice-president of the American Farm Bureau Federation, went into the details of that organization and told of many cases in which the federation had been able to serve the agricultural industry in definite manner.

R. N. Wilson, secretary of the agricultural legislative committee, took occasion to tell of the work of his organization and briefly discussed pending legislation that is of interest to agriculture. Wilson called particular attention to several bills before the legislature that the agricultural interests regard as dangerous. Among the bills he referred to were assembly bills Nos. 40, 60, 240 and 450 and senate bills Nos. 440, 744 and 685.

The third day proved to be one of the best of the week. That day was generally designated as "Dairymen's Day." J. M. Henderson Jr., president of the California Milk Producers Association, presided at the morning session, and Sam H. Greene, secretary-manager of the California dairy council, held the chair during the afternoon.

J. E. Dorman, chief federal dairy bureau, Salt Lake City, discussed the general dairy situation of the West and pointed out that from now forward dairymen must give greater attention to improving their cattle in order to widen the margin between cost of production and selling prices.

Sam H. Greene drew attention to the growing use of substitutes for dairy products and urged that legislation be enacted to help meet that competition and stressed the importance of educating the public to the real difference between the real article and the substitute.

C. W. Rubel of the college of agriculture suggested that the time was at hand when this state should line up in the pure bred sire campaign that is being waged by the United States department of agriculture. Rubel said that at present most of the organized work in this state was among poultrymen.

E. L. Westover, western fieldman for the Guernsey Breeders Association, urged the organization of local breed associations.

Professor F. W. Woll, who is in charge of the state dairy cow competition, read a paper on the accomplishments to date. L. W. Wing, formerly professor of dairy husbandry at the Oregon agricultural college, and now in charge of the Elkhorn Ayrshire herd, read a paper on the problems of the dairymen in the coast region. Frank L. Morris of Woodland presented an excellent paper on the development of a high producing herd. (The paper will appear in the Cultivator.) Sam H. Greene told of his efforts to organize a Pacific Coast Dairy Show to be held at Stockton next November and asked for the support of the various breed associations.

The California swine breeders held their annual meeting Friday, February 24, J. I. Thompson, Davis, acting as chairman. Prof. C. W. Rubel gave a very interesting talk on the growth and development of the hog auction sales as conducted by the farm bureau. This system, he declared, has saved thousands of dollars for the pork producers of the state through cooperative marketing. In many localities where the average farmer has only a very few hogs and it would be almost impossible to find a means of disposal, and out of the question for the feeders or shippers to assemble a full car at any one time, this system has encouraged pork production and has made it possible for the man with only five or six fat hogs to sell them as cheaply and profitably as the man producing hogs in carload lots. Prof. Rubel called attention to the fact that this system of marketing had been extended until farm bureau sales were now being held at most of the pork producing centers of the state and would be extended as fast as conditions warrant. He emphasized the need of cooperation by all pork producers to help improve and extend this system.

C. B. Cunningham, Mills, former president of the California Swine Breeders Association, spoke on "Closer Cooperation by the Breeders of Pure Bred Swine." Mr. Cunningham laid

(Continued on Page 328.)

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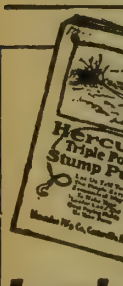

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5,000 ft. 12 inch Riveted 12 Gauge
1,000 ft. 18 inch Riveted 12 Gauge
800 ft. 22 inch Riveted 14 Gauge
300 ft. 24 inch Riveted 14 Gauge
500 ft. 36 inch Riveted 12 Gauge
10,000 ft. light wrought iron 8 inch pipe with cast iron collars.

All above pipe thoroughly overhauled and inspected and ready for immediate use.

We also have large quantity standard pipe and screw casing, pressure tested and guaranteed.

Don't delay—write for our prices on your pipe requirements today.

PACIFIC PIPE COMPANY
237 Howard St. San Francisco, Cal.

When writing advertisers, mention the Cultivator.

Here! The Famous Sharples Suction-feed Separator Now Priced so Low that Every Farmer Can Own One!

FOR the first time in the history of dairying, farmers can now buy for **less than fifty dollars,** a religable, high-grade, standard cream separator, and the **only one** that skims clean at any speed! The Sharples Separator Company, with the oldest and largest separator factory in America, now offers the average American farmer the most certain profit-maker ever put on the market —the new

Sharples TYPE C SUCTION-FEED CREAM SEPARATOR

$44

(Cash f. o. b. factory)

THIS TYPE C separator has every mechanical feature of the larger capacity types of the Sharples Suction-feed Separator—the most reliable separator in the world and the ***only*** separator that ***skims clean at any speed,*** and delivers cream of even density at any speed. The only difference: Type C is ***smaller***—capacity 200 pounds; weight 40 pounds; 22¾ inches high.

Thousands of dairymen who have been forced to use "cheap" machines, that lose precious butterfat and go to pieces quickly, can now get ***100% profit from their butterfat*** with Type C Sharples.

So great is our confidence in its efficiency, we plan to build 100,000 TYPE C machines this year

and it is on this basis of big and economical production, and of our unbounded faith that it will find a waiting and an enthusiastic market, that we price it at $44. Mass production on a gigantic scale will enable us to do what was never done before—offer a high grade, high class, standard separator at a price any farmer can afford.

The TYPE C Sharples is GUARANTEED to the limit. And a *Sharples* Guarantee means that the great Sharples business is back of the separator as long as it is in use. Durable—the only separator that skims clean at any speed —the only separator with a perfect automatic oiling system —the only separator without discs in the bowl—easiest to clean and keep clean; easy to operate—low cash price (only $44) or, if you wish, easy monthly payments arranged under our special partial payment plan.

This new Sharples has everything in the standard Sharples Suction-feed! ***It's the greatest opportunity you've ever had to get more profit from your dairy.***

You can afford to pay $44 for this wonder-separator. ***You can't afford to be without it.*** It will earn its initial cost so quickly you'll be amazed.

The TYPE C SHARPLES skims clean at any speed

No other separator, ***regardless of price,*** can skim clean at any speed. ***Sharples suction-feed principle is patented.*** And few of the so-called "cheap" separators skim clean ***at any time.*** Yet—$44 will buy you this standard Separator that gets ***all*** the butterfat ***all*** the time, at ***any*** speed! TYPE C SHARPLES will save you money ***now*** when you need every possible cent of profit.

200-LBS. CAPACITY

Large enough to skim all the milk you get in the average farm dairy of a few cows. Small enough to enable us to sell Type C for a price that you can easily pay. And on easy terms if you wish.

WILL OUTLAST ANY OTHER

machine of its kind. The same expert workmanship that stands behind the larger capacity Sharples Separators insures 100% efficiency and life-long durability in Type C Sharples. And this great Company ***absolutely guarantees*** Type C in every way. We experimented several years to prove Type C perfect. ***We will stand squarely behind every machine we sell.***

EASY PAYMENTS

You can either pay the entire cash price now, or you can arrange to pay under our easy partial payment plan with a small cash deposit and balance in easy monthly payments.

GET THE FACTS—Write Today

Learn how this wonderful new-type Sharples Separator will save its low purchase price over and over again by saving valuable butterfat that the ordinary separator invariably loses. Better still, send us check or money order for $44, tell us the name of your dealer, and we'll ship you profit-maker TYPE C Separator without delay, f. o. b. West Chester, Pa.

THE SHARPLES SEPARATOR COMPANY, Address Dept. W
WEST CHESTER, PA.
JOY REAMS CO., Distributors

Branches: Chicago—San Francisco—Toronto
1908 South Main St., Los Angeles, Cal.

P 162

All Sharples Suction-feeds Reduced in Price!

Now's the time to buy your new separator. Altho manufacturing costs, prices of materials and labor costs have not as yet materially decreased, Sharples have anticipated lower prices for farm machinery after this readjustment period is over. Hence, prices of all standard Sharples Suction-feed Cream Separators are ***reduced over 20%.*** Prices are back to practically prewar level. Sharples share readjustment losses with the farmer. Remember—you can now buy the standard Sharples Suction-feed cream separator —at lower prices than for years past. And Sharples Suction-feed is the ***only*** separator that skims clean at any speed. ***Get in touch at once with your Sharples dealer—or write us for literature.***

GUERNSEY BULLS

AT BARGAINS

We still have a number of Guernsey bulls of service age. We need the room. A quick reply will bring our list. Bulls that will make wonderful increases in the butter fat production of your grade herds are

For Sale at Farmers' Prices

They will sire grades equal to the ones dairymen have rushed to pay us $300, $400 and $500 for.

We are sold out of grades but we have still more pure bred females than we can care for. They are priced right.

Hollow-Hill Farm

Colton, Cal.

He'll Improve Your Herd

Andon Prince Cornucopia, No. 321092

20 Months Old, Light Colored, a Sure and Quick Breeder

Price $500.00 F. O. B. Fresno.

Sire: Segis Pontiac De Kol Burke Gerben. A blue ribbon winner, whose two nearest dams average: 31 lbs. butter in 7 days and 938 lbs. in 365 days.

Dam: Victoria Brunaro Johanna. 24.82 lbs. butter, 666.6 lbs. milk in 7 days. Best day's milking 102 lbs. at 4 years of age. This was the highest milk record made by any cow under 5 years of age during the first half of 1920. She is a very typey individual, the "OLD FASHIONED KIND" that weighs around a ton. She will be tested again in April as a 5 year old and if she does not increase her record I guarantee to refund half of your money.

Andon Herd of Registerd Holsteins

Herd Tuberculin Tested

Mrs. Annie Donders, Prop. **Fresno, Cal.**

BREED TO

King Segis Pontiac Jannek

A Great Individual and a Proven Sire of Show Type and High Production

At the Los Angeles Livestock Show 1920 His Get Won

1 jr. heifer calf.	Grand champion female
1 jr. yearling heifer.	1 calf herd
1 2-year-old cow.	1 breeders' young herd
Reserve jr. champion female.	1 produce of dam
Senior champion female	1 get of sire
	Besides 6 seconds and thirds

Sire of K. S. P. J. Pet Segis, who made 632.20 lbs. of milk and 21.16 lbs. of butter in seven days as a Junior two year old, 99 lbs. of milk in her best day, and sold for $3800.

King Segis Pontiac Jannek is available for service to high class Holstein cows.

Santa Monica Dairy Company

On Washington Blvd., 2 Miles East of Venice **Santa Monica, Cal.**

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

BETTER MILKING

N. J. Daysh, inventor of the De Laval milker, is now on the Pacific Coast and is giving first hand instruction in the operation of the milker. Mr. Daysh only recently came from the headquarters of the big concern in New York and will remain some time on the coast working in connection

N. J. Daysh

with the salesmen. He has made a life study of dairying and especially of milking machines. His first work in the dairy field was in New Zealand and for the past ten years he has been engaged in perfecting the milking machine. This particular one has only recently been put upon the market. It is declared to be 100 per cent efficient and it is to secure its full efficiency that Mr. Daysh is making this trip.

MEXICO BUYING CATTLE FROM ARIZONA

Mexico, which for a great many years has supplied beef cattle to the United States in large quantities, has of late become an important market for American meat animals, including cattle, sheep and hogs, says the Arizona Cattleman and Farmer.

Many shipments to the packing houses of Mexico City and Tampico have been reported during the past few weeks from Kansas City and Fort Worth, while a carload of steers from Southern Arizona was delivered at the Mexican national capital recently.

This change of situation, in which Mexico has become a consumer instead of a producer, is attributed by local cattlemen to the fact that the range country south of the Rio Grande has become practically impoverished of livestock, due to the years of revolution, when many large stock raisers were forced to quit because of unsafe conditions away from thickly populated centers, and because thousands of beef cattle and sheep were stolen by bandits.

Recent information reports several additional carloads of fat steers, sheep and hogs shipped from Kansas City within the past few days to Tampico and the Mexican capital.

SOLDERING

Farmers have a great deal of soldering to do. Oftentimes when it is desired to mend something it is found that the supply of soldering flux has been used up. It is very easy to make a good flux by dissolving pieces of zinc in hydrochloric acid. The reaction forms a solution of zinc chloride. The formula? Just keep adding zinc to the acid until no more chemical action is observed. The solution can be kept in a glass bottle and applied in the usual way.

Decline of three per cent in retail food prices in January as compared with December is reported by the bureau of labor statistics of the department of labor. The greatest decrease, six per cent, was reported for Los Angeles and Manchester, New Hampshire.

FREE BOOKLETS ON

FARM SANITATION

The following booklets tell how to prevent disease among livestock and poultry and give directions for using

Kreso Dip No. 1

(STANDARDIZED)

PARASITICIDE AND DISINFECTANT

which is specially adapted for use on all

Livestock and Poultry

BOOKLETS

No. 151—**FARM SANITATION.** Describes and tells how to prevent diseases common to livestock.

No. 157—**DOG BOOKLET.** Tells how to rid the dog of fleas and to help prevent disease

No 160—**HOG BOOKLET.** Covers the common hog diseases.

No. 185—**HOG WALLOWS.** Gives complete directions for the construction of a concrete hog wallow.

No. 163—**POULTRY.** How to get rid of lice and mites, also to prevent disease.

Kreso Dip No. 1 is sold in original packages at all drug stores.

ANIMAL INDUSTRY DEPARTMENT OF

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WE CONDUCT SALES OF REG. DAIRY CATTLE GRADE CATTLE GEN. FARM SALES in all parts of Calif. and adjoining States. Satisfaction guaranteed. Write for dates and terms.

BICKMORE'S GALL CURE

ON COWS

Sore teats mean less milk. Rub ointment into teat and wipe away all excess with a cloth. Teats healed and softened over night. Excellent for caked udder, wire cuts, cracked hoof, etc. Write to The Bickmore Co., Box 343 Old Town, Me.

ANOTHER GREAT HOLSTEIN RECORD

Another California Holstein cow has completed one of the greatest yearly records of milk and butter production the breed has yet recorded. Adirondac Wietske Dairy Maid, owned by Bridgford Holstein Company, Patterson, finished her year on February 12 with the tremendous production of 31,900 pounds milk and 1,296.5 pounds butter, the third highest milk record in the United States. The records made by this great cow have been consistent throughout her lifetime to date. As a senior three year old she made 20.03 pounds butter from 487.7 pounds milk in seven days. As a four year old she made 27.73 pounds butter from 560 pounds milk in seven days. As a five year old she made 30.38 pounds butter from 624.3 pounds milk in seven days. As a six year old she made 41.02 pounds butter from 831.7 pounds milk in seven days. This year she completed her first yearly record with the great production given above, and is due to calve again in April.

Adirondac Wietske Dairy Maid

Adirondac Wietske Dairy Maid is unquestionably one of the really great cows of the breed. In flesh she weighs over 2,000 pounds, has a tremendous girth and middle, with a well balanced udder of good texture. She is the sort of cow that the eye would credit with any reasonable production. She has two sons in service to date, one, King Abbekerk Johanna Segis, sold as a yearling at public sale to W. F. Mitchell, Visalia, for $5,000, and is in active service in Mr. Mitchell's herd. The other son, Sir Johanna De Kol Rag Apple, by Sir Pledge De Kol Korndyke, heads the herd of H. E. Cornwell, Modesto. She also has two splendid young daughters, both under milking age, both of which are in the Bridgford Holstein Company herd.

TRUTH IN FABRIC

American textile manufacturers have been so persistent in the use of reworked rags in "all wool" cloth that they have caused a reduction of 3,800,000 in our sheep population in the last two years and of 8,566,000 in a decade. If a way is not soon found to get the public demand for virgin (new) wool cloth back into touch with the wool growers, the continued reduction in the flocks will eventually produce a clothing situation worse than any experienced as a result of the World War.

The French-Capper Truth in Fabric bill does not provide that textile manufacturers shall use only virgin wool in clothing. It simply requires that they shall stamp their cloth with its content of virgin wool and of shoddy, cotton or silk. Of course, we expect that the labeling will tend to increase the demand for pure virgin wool cloth and increase the price of wool to a sum allowing shepherds a living profit, but more than that we neither seek nor expect, especially with nearly a billion pounds of virgin wool available for manufacture in American storehouses.

HIGHEST PRODUCING JERSEY

We mentioned in last week's Cultivator the fact that Raleigh's Gertie's Tulip now holds the record as the highest producing Jersey for age in California, but failed to mention the fact that this fine youngster is the property of Dr. H. G. Gross of Eureka, Humboldt County.

Making Ends Meet

CONDITIONS are changing very rapidly in the farming business. Lower costs of production are becoming absolutely necessary, for production costs at the present time are far out of proportion to selling prices. There is little possibility of material advances in the prices of food products for some time to come. There are the same laws operating with respect to these as to all other products which are today on the decline, and it is human nature for purchasers to refrain from buying largely on a falling market.

There was profit to the farmer in grain, fruit and cattle at pre-war prices simply because the production cost was then in proportion. If the prices of labor and supplies which the farmer has to buy decline proportionately with those of what he has to sell we shall again reach an equilibrium, but from all present indications this will be only partially accomplished. The probability is that the farmer who follows the methods of 1910 will labor under increasing difficulties in making both ends meet.

Nearly every line of producing business in the United States is up against the very same condition. The large manufacturers realize that no matter what reduction in labor takes place it will not be sufficient to offset the decrease in the selling prices, and the result is that most manufacturers are now spending large sums of money equipping their plants with new machinery and adopting methods that will result in a greater output of products with a smaller amount of manual labor. This is the only method they know of coping with the present conditions.

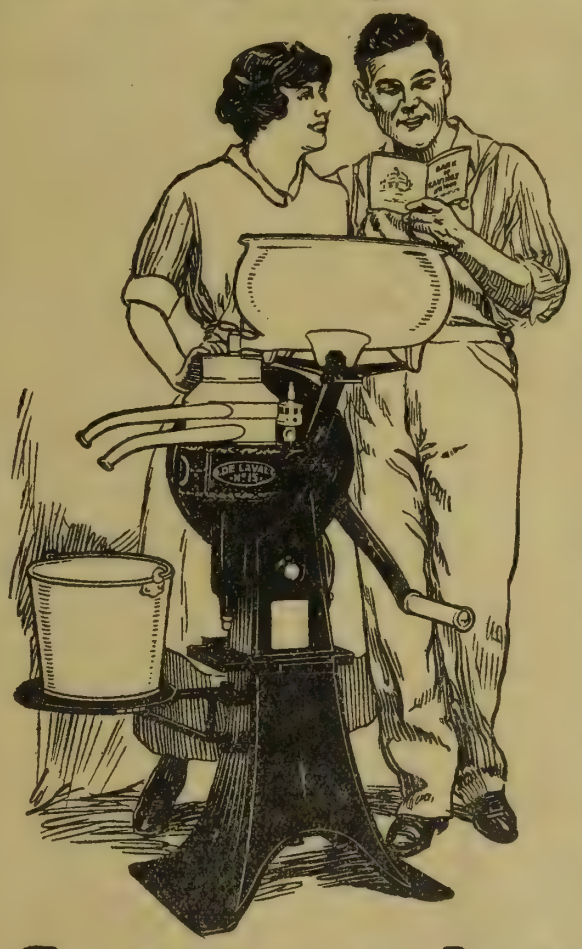
If such improved equipment is advantageous to the large manufacturer it should work similar results for the farmer and stock raiser. The time has come when it is necessary for farmers and stock raisers to get away from the methods that are of the past and to put their money into equipment that will enable them to increase their output at a decreased expense. A successful manufacturer figures that when he can get a machine that will increase the output of any of his products to such an extent that the increased returns over his present methods will pay for a new machine in five years, it is a good investment, especially when he figures that the life of the new machine is ten years. He doesn't figure that the discarding of the old machine he has been using is an expense — he counts it an investment; and experience has proven many times that it is a wise investment.

It is unfortunate that the average farmer and stock raiser has never thought very strongly along these lines; but conditions are going to make it necessary in the future. Up to date business methods are just as applicable to the farmer as to any other line of business.

For instance, a hog raiser realizes that to get the best results from his hogs in the way of putting on fat it is necessary to feed and water at specified hours each day. To do this by the usual methods means that a man must get up at a certain hour each morning, go to the hog lot and put in from half an hour to an hour, depending upon the number of hogs; and the same thing is necessary at a regular hour near the end of the day. Even with all this labor expended in hand feeding and watering, it has been proven by agricultural colleges that a proper type of self feeder will put on the same amount of flesh in from 20 to 30 days less time.

The best type of automatic feeder will cost about $35 and should last five years with active use. Now if the feeder will do what the agricultural experts say it will do, that is, save 20 to 30 days in bringing the pigs to market weight and condition, it will certainly show itself a good investment on that score alone, to say nothing of the great savings effected in labor. This being so the farmer should ask himself whether the money

Dairying is most profitable



PRICES for dairy products have held firmly, while the cost of feed has been greatly reduced. Because of this there is relatively more profit than ever in dairying, and many farmers are turning low-priced feed into high-priced butter-fat. An eminent dairy authority says that you can make corn worth $2 to $3 a bushel by feeding it to good cows.

Times like these prove the value of dairying. It is the backbone of the nation's agriculture—the most profitable, surest and safest of all branches of farming. Dairying is not suffering from overproduction, is not overcrowded or overdone.

And De Laval Cream Separators have done more than any other factor to place the dairy industry on such a firm and profitable basis. They save cream, time and money twice a day, every day in the year. They produce a steady cash income. They have made the market accessible, even though you live 500 miles from a creamery. They keep the skim-milk on the farm to produce another crop of calves, hogs and poultry. They are made so well that 20 to 30 years' service from a De Laval is not unusual. Over 2,500,000 are in use in all parts of the world.

You need a De Laval more than ever.
There is a De Laval agent near you—see him.

De Laval Dairy Supply Company
61 Beale Street **San Francisco**

Sooner or later you will use a De Laval Cream Separator or Milker

The 1921 Guaranty Sale

"The Pacific Coast Holstein Classic"

50 Registered Holstein Tops. State Fair Grounds, Sacramento, Cal. Thursday, March 17, 1921

CONTRIBUTORS TO SALE:

AGEE BROS., Rivera, Calif.
ANITA BALDWIN, Santa Anita, Cal.
DEAN BEEMAN, Woodland, Calif.
BRIDGFORD HOLSTEIN CO., Patterson, Calif.
BURR FARM, Los Angeles, Calif.
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A. W. MORRIS & SONS CORP., Woodland, Calif.
R. C. STURGEON, Tulare, Calif.
TOYON FARM ASSOCIATION, San Francisco, Calif.
ALEX WHALEY, Tulare, Calif.

Cattle for this sale were selected from herds owned by members of California Holstein-Friesian Association only, in California, by a Committee of four, working under the most stringent instructions to date.
No open heifers will be offered, the females including 8 fresh cows, 20 cows and heifers due to calve in March, April, and May; 6 due to calve in June and July; 9 due to calve in September and October.
Study the wonderful breeding and tremendous production represented, then add to it the services of the outstanding bulls to which these females are bred, then consider the excellent type of the offering, and the good health guarantees, and some appreciation will be had of the great worth of this offering as real foundation stock.

THE FEMALES INCLUDE:

KARLRAY ORMSBY ALCARTRA, the world's record junior 2 year old for 305 days combined milk and butter. Due to calve April 26 to the three times Grand Champion, King Segis Alcartra Prilly.
A 23 POUND JUNIOR 2 YEAR OLD half sister to the above heifer, due May 6 to King Segis Alcartra Prilly.
A DAUGHTER OF KING SEGIS ALCARTRA PRILLY, out of a 33 lb. granddaughter of King of the Pontiacs. Safe in calf to King Segis Alcartra Abbekerk, sire of the two heifers listed above.
A 2 YEAR OLD DAUGHTER OF KING SEGIS PONTIAC, bred to a 30 lb. son of King Segis Pontiac Jannek.
A 2 YEAR OLD DAUGHTER OF JOHANNA McKINLEY SEGIS, with 701.85 lbs. butter from 18,230 lbs. milk in 365 days as a junior 2 year old. Her dam a half sister to the dam of the world's record milk cow Pietertje Segis Prospect. Due to calve March 15 to Matador Segis Walker.
A GREAT YOUNG COW with 922.31 lbs. butter from 20,504.3 lbs. milk in one year, sired by a full brother to the 1146 lb. cow Johanna Piebe White. Her three nearest dams are all yearly record cows and she is due March 20 to Matador Segis Walker.
A GRANDDAUGHTER OF OLLIE JOHANNA SIR FAYNE, with 645.5 lbs. butter in 305 days as a senior 3 year old. Her dam with 515.95 lbs. butter in one year as a junior 2 year old, second dam a 26 lb. 4 year old with 667.4 lbs. butter in one year as a junior 2 year old.
A 20 POUND JUNIOR 3 YEAR OLD daughter of Forward Prince Segis, out of a 21 lb. 3 year old. A show heifer, due to calve June 14 to Carnation King Sylvia, the $106,000 son of May Echo Sylvia.
A 2 YEAR OLD DAUGHTER OF SEGIS PONTIAC ACME, out of a 22 lb. daughter of a 22 lb. cow. Due to calve May 22 to Matador Segis Walker.
A BEAUTIFUL 22.89 POUND 3 YEAR OLD DAUGHTER OF HOLLYWOOD LILITH PALMYRA, out of a 30 lb. dam that made 818.95 lbs. butter in a year as a junior 4 year old. Second dam a 35 lb. granddaughter of Pontiac Korndyke. Safe in calf to Matador Segis Walker.
A DAUGHTER OF CHIMACUM SPRING FARM KING PONTIAC, with 709.47 lbs. butter from 16,483 lbs. milk in 305 days as a junior 2 year old. Her dam a 31 lb. cow that was first prize 3 year old at National Dairy Show, and made 872.85 lbs. butter in 305 days as a 4 year old. Second dam a 30 lb. granddaughter of Colantha Johanna Lad with 1129.2 lbs. butter in one year. Due June 30 to Sir Pietertje Ormsby Mercedes 43d.
A DAUGHTER OF PAUL AAGGIE OAKHURST, the only sire with two 1100 lb. 3 year old daughters. She has 808.3 lbs. butter from 19,106.2 lbs. milk in 365 days as a junior 3 year old, and is out of the same dam as the heifer listed above. Due to calve June 13 to Sir Pietertje Ormsby Mercedes 43d.
A DAUGHTER OF SIR KORNDYKE PIETERTJE HARTOG, with 570.27 lbs. butter in 295 days as a junior 2 year old. Her dam a 30 lb. granddaughter of Colantha Johanna Lad with 1129.2 lbs. butter in one year. Due to calve March 22 to Sir Aaggie Mead.
A 2 YEAR OLD DAUGHTER OF CHIMACUM SPRING FARM KING PONTIAC, out of the same dam as the heifer above. Due to calve April 7 to Sir Pietertje Ormsby Canary.
A 20 POUND JUNIOR 2 YEAR OLD daughter of Johanna Bonheur Champion, out of a 25 lb. daughter of Homestead Fayne De Kol. Fresh and sells open.
A 1069 POUND YEARLY RECORD granddaughter of Colantha Johanna Lad, out of a 27.59 lb. granddaughter of Lilith Pauline De Kol's son. Due to calve April 6 to Sir Pietertje Ormsby Canary.
A 1036 POUND YEARLY RECORD daughter of Sir Ormsby Burke Segis, out of a 29.46 lb. daughter of Mutual Piebe Paul. Due March 20 to Sir Pietertje Ormsby Canary.
MONA FOBES, the great 30 pound show daughter of Mutual Fobes Longfield De Kol, with 863.95 lbs. butter in 305 days. Selling open.
A 2 YEAR OLD DAUGHTER OF SIR VEEMAN KORNDYKE PONTIAC, out of the 30 lb. cow Melba Hengerveld. Due to calve July 22 to Sir Aaggie De Kol Acme 2nd.
A 2 YEAR OLD DAUGHTER OF KING MOROCO ALCARTRA, out of an 18 lb. 3 year old granddaughter of Aralia De Kol, second dam a yearly record daughter of King Mead of Riverside, third dam a yearly record daughter of Juliana King of Riverside. Safe in calf to Sir Aaggie De Kol Acme 2nd.
A 24 POUND SHOW COW, safe in calf to Sir Aaggie De Kol Acme 2nd.
A 16 POUND JUNIOR 2 YEAR OLD DAUGHTER OF SEGIS PONTIAC ACME out of a dam that made over 30 lbs. butter in 7 days at 10 years of age, over 30 lbs. in 7 days at 11 years, and 788 lbs. butter from 18,859 lbs. milk in 365 days at 13 years of age. Safe in calf to King Korndyke Pontiac 20th, the $12,000 son of Miss Valley Mead De Kol Walker.
A DAUGHTER OF CHIMACUM SPRING FARM KING PONTIAC with 773.12 lbs. butter from 22,637.9 lbs. milk in 365 days as a junior 3 year old. Due to calve March 18 to King Korndyke Pontiac 20th.
A 2 YEAR OLD GRANDDAUGHTER of the 1039.6 lb. yearly record cow Iowana Witte, out of a dam now on yearly test. Due May 27 to King Korndyke Pontiac 20th.
A GREAT 27 POUND COW, safe in calf to King Korndyke Pontiac 20th.
THE SECOND PRIZE SENIOR YEARLING AT CALIFORNIA STATE FAIR, now fresh as a junior 2 year old and milking over 75 lbs. per day. Selling open.
A 2 YEAR OLD GRANDDAUGHTER OF KING VALDESSA, due to calve May 4 to King Pontiac Tola Ormsby, son of Y P Tola, the 36 lb. daughter of King of the Pontiacs now making 1000 lbs. butter this year.
A 2 YEAR OLD GRANDDAUGHTER OF KING VALDESSA, due to calve April 29 to King Pontiac Tola Ormsby.
A 25 POUND DAUGHTER OF COUNT SEGIS, fresh and selling open.
A 28.56 POUND COW, record made at 3 years 4 months, out of a 24 lb. 4 year old granddaughter of Colantha Johanna Lad. Safe in calf to King Pontiac Tola Ormsby.
A SPLENDID 29.21 POUND COW, by a grandson of King of the Pontiacs, out of a 21 lb. 3 year old. Fresh and selling open.
A 27.94 POUND 3 YEAR OLD, sired by a 30 lb. son of Dutchland Colantha Belle Boy. Fresh and selling open.
A 25 POUND 3 YEAR OLD DAUGHTER OF PRINCE GELSCHE WALKER KORNDYKE, out of an 18 lb. granddaughter of Pontiac Korndyke, second dam a 21 lb. 4 year old daughter of Pietertje Hengerveld Segis. Fresh and selling open.
AN OUTSTANDING 2 YEAR OLD, by a son of the Grand Champion bull Merci Lad Korndyke Burke. Her dam a 22 lb. junior 4 year old granddaughter of Tilly Alcartra, second dam a 27 lb. daughter of Johanna McKinley Segis, now making a big yearly record. Due to calve April 21 to the $41,000 bull King Korndyke Pontiac Acme.
A 28 POUND JUNIOR 4 YEAR OLD daughter of Merci Lad Korndyke Burke, out of a 26 lb. 2 year old granddaughter of King of the Pontiacs. Fresh and selling open.
A 19 POUND JUNIOR 3 YEAR OLD daughter of Merci Lad Korndyke Burke, out of a 22 lb. dam. Due to calve April 22 to Prince Walker Cornucopia, 36 lb. son of Prince Gelsche Walker.
A GREAT 2 YEAR OLD DAUGHTER OF PRINCE WALKER CORNUCOPIA, out of a 20 lb. 3 year old daughter of Merci Lad Korndyke Burke, second dam a granddaughter of King of the Pontiacs with 738.82 lbs. butter in 305 days as a junior 4 year old. Due to calve May 10 to the $41,000 bull King Korndyke Pontiac Acme.
THREE DAUGHTERS OF SEGIS PONTIAC ABBEKERK, 35 pound son of Segis Pontiac De Kol Burke. All bred to Sir Aaggie De Kol Acme 2nd.
A BEAUTIFUL 2 YEAR OLD DAUGHTER OF KING KORNDYKE PONTIAC 20TH, out of an 877 lb. yearly record daughter of Ignaro De Kol. Heavy with calf to Sir Aaggie De Kol Mead, son of Sir Aaggie De Kol Acme and Miss Valley Mead De Kol Walker.
A 2 YEAR OLD DAUGHTER OF KING MORCO ALCARTRA, out of a 17 lb. 2 year old daughter of Prince Gelsche Walker. Heavy with calf to Sir Aaggie De Kol Mead.

THE SEVEN BULLS:

CHIEF ABBEKERK PAUL 309002, born Apr. 24, 1920. Sire, King Abbekerk Johanna Segis, the $5000.00 son of Adirondac Wietske Dairy Maid. Dam, Fairmont Pauline De Kol 2nd, 39.12 lbs. butter from 711 lbs. milk in 7 days as a junior 4 year old, now on yearly test and will make well over 1100 lbs. butter. His dam and sire's dam average 40.07 lbs. butter and 770 lbs. milk in 7 days; 149.48 lbs. butter and 3195.4 lbs. milk in 30 days; and will average close to 1200 lbs. butter and over 28,000 lbs. milk in one year. He is a splendid individual.
CARNATION KING TILLIE DENVER 328160, born Nov. 9, 1920. Sire, Carnation King Sylvia, the $106,000 son of May Echo Sylvia. Dam, Jollie Tillie Denver, a 28.90 lb. granddaughter of Sir Korndyke Hengerveld De Kol. A splendid individual, and except the calf that goes to the Brentwood National, he is the highest record son of his sire at Carnation Stock Farms.
A SON OF SIR AAGGIE DE KOL MEAD, out of a dam that made 768.28 lbs. butter from 17,429 lbs. milk in one year as a four year old, second dam with 1025.97 lbs. butter from 24,660.4 lbs. milk in one year, third dam with 1008.2 lbs. butter from 20,740.3 lbs. milk in one year. Six of his seven nearest dams average 1043.26 lbs. butter in one year, and he is a show bull.
PRINCE WALKER CORNUCOPIA 15TH, 295749, born Nov. 26, 1919. Sire, Prince Walker Cornucopia, 36 lb. son of Prince Gelsche Walker. Dam, Sundrie Sunbeam Girl, with 1033.74 lbs. butter from 28,905.9 lbs. milk in one year after dropping triplets. This bull is one of the triplets, is a vigorous, growthy fellow, and a number of females are already safe in calf to him.
TOYON COUNT COLANTHA 309071, born Dec. 17, 1919. Sire, Dutchland Colantha Emperor, a 30 lb. son of Colantha Johanna Lad. Dam, a 30 lb. granddaughter of Colantha Johanna Lad with 1069.9 lbs. butter from 23,261.2 lbs. milk in one year, second dam a 27.59 lb. granddaughter of Lilith Pauline De Kol's Son. A high class individual.
KING PONTIAC TOLA ORMSBY, born May 17, 1919. Sire, It, son of Pontiac Clothilde De Kol 2nd, the first cow to make over 37 lbs. butter in 7 days and over 1200 lbs. in one year. Dam, K P Tola, 36.16 lbs. butter in 7 days, now on yearly test and almost certain to make over 1000 lbs. butter this year. She is by King of the Pontiacs and out of a granddaughter of the great foundation cow Prilly. A high class individual ready for service.
DEAN TULE SEGIS 320932, born Dec. 30, 1919. Sire, Dean Fayne Segis, a son of King Wachusett Valdessa and a 27 lb. daughter of King Fayne Segis. Dam, a 31.79 lb. daughter of a 28 lb. cow. His five nearest dams average over 30 lbs. butter in 7 days, and he is a show bull, standing second in a class of 19 at California State Fair 1920.

The Bulls To Which the 35 Bred Females in this Sale Are Safe in Calf.

KING KORNDYKE PONTIAC ACME, the $41,000.00 son of King Korndyke Pontiac 20th and Miss Aaggie Acme Burke.
KING KORNDYKE PONTIAC 20TH, the $12000.00 son of Miss Valley Mead De Kol Walker.
MATADOR SEGIS WALKER, sire of the new world's record junior 2 year old for yearly milk production; half brother to the world's record milk producer Segis Pietertje Prospect; sire of outstanding show ring winners.
CARNATION KING SYLVIA, the $106,000.00 son of May Echo Sylvia.
SIR PIETERTJE ORMSBY MERCEDES 43D, a great long distance son of Sir Pietertje Ormsby Mercedes.
SIR PIETERTJE ORMSBY CANARY, another great long distance son of Sir Pietertje Ormsby Mercedes.
SIR AAGGIE MEAD, son of Sir Aaggie De Kol Acme and the 1215 strictly official yearly record cow Aralia De Kol Mead.
SIR AAGGIE DE KOL ACME 2ND, son of Sir Aaggie De Kol Acme and the 1100 lb. yearly record cow Aralia De Kol 3d.
KING SEGIS ALCARTRA PRILLY, three times Grand Champion at California State Fair. His daughters now making wonderful records at first calving.
KING SEGIS ALCARTRA ABBEKERK, whose first daughters to freshen average over 22 lbs. butter in 7 days.
K. S. P. J. COUNT, a 30 lb. son of King Segis Pontiac Jannek, the great sire of show ring winners.
SIR AAGGIE DE KOL MEAD, son of Miss Valley Mead De Kol Walker and Sir Aaggie De Kol Acme.
PRINCE WALKER CORNUCOPIA, 36 pound son of Prince Gelsche Walker.

Catalog of Sale Mailed Free on Request. A Postal Will Do.

Management: CALIFORNIA BREEDERS SALES AND PEDIGREE COMPANY
C. L. Hughes, Sales Manager, Sacramento, Cal.
Auctioneer: Col. Ben A. Rhoades, Los Angeles. Bell and Davis in the Ring.

spent for the feeder is an expense or an investment.

The feeder requires filling only once in several days instead of once in several hours. Just stop and figure the number of hours of a man's time that would be saved by this method in 12 months and multiply it by the average pay a man gets, and see if the saving in one year wouldn't pay for the feeder. If the feeder will last five years, which one properly constructed will do, how many times will it pay for itself in that length of time, saying nothing of the convenience to the farmer of being able to get away for a day or two with his family on a picnic or to the state fair, knowing that his hogs are helping themselves to the feed in a better manner than if he were feeding them by hand?

The same thing is true with automatic hog watering devices. In fact, the probability is that the use of self feeders and self waterers is capable of reducing the labor of hog raising by as much as 50 per cent. These are only two items, but there are many others which represent the application of Yankee ingenuity to the farmer's problems. Automatic farm gates in place of the lumbering old contrivances save time and tugging; the little orchard tractors, made to take the place of one or two horses, are very efficient; they never get tired and they eat nothing when not at work. Many a farmer who makes his head save not only his heels but his pocketbook, is counting on producing as much or more salable produce this year with his own labor and that of his sons, supplemented by modern labor saving devices, as he used to produce on the same acreage with the aid of two or three hired men.

STOCKMEN'S WEEK

(Continued from Page 324.)

especial emphasis on the fact that the men engaged in the production of the various breeds were all working toward one end and should work more in harmony to encourage the use of better sires and the need of closer cooperation by all concerned so that both producer and consumer might be brought closer together to their mutual advantage. He also urged a more careful system of feeding to cheapen costs of production, the more general use of pastures and the necessity of the breeder producing more of his feeds and using the hog as a medium of converting farm crops into cash.

J. P. Bennett of the Cultivator spoke on "Commercializing the Pure Bred Hog Business," laying especial stress on the need of each breeder putting his breeding operations on the strictly business basis, the necessity of cutting down costs of production, eliminating unnecessary overhead expense and the working out of an effective selling system to the farmers and pork producers. He also emphasized the production of as much of the feed as possible at home, either as forage or grain crops, thus cutting down the cash outlay that has caused many pork producers to suffer heavy losses during the two previous years; also the need of improving the standards of excellence, thus increasing the efficiency of the pure bred over the scrub and the necessity of having some idea of production costs so this efficiency in production can be demonstrated.

Dr. C. M. Haring gave a short talk on swine feeding experiments. He spoke of the need of adequate equipment at the university farm to carry on this work. Dr. F. M. Hayes of the veterinary department told those present of the results of the research work and experiments for the control of contagious abortion in swine. Much information of interest to the swine breeders will soon be available both as to the cause and control of this disease that caused such heavy losses throughout the state a year ago.

Prof. E. H. Hughes gave a short talk on the feeding of hogs and the use of various feeds and pasture crops.

A business meeting was then held and the following officers elected for the ensuing year: J. I. Thompson, Davis, president; C. B. Cunningham, Mills, and R. M. Filcher, Corcoran, vice-presidents; E. H. Hughes, Davis, secretary-treasurer; V. F. Dolcini, Davis, H. M. Berglund, Dixon, J. Francis O'Connor, Santa Rosa, F. B. Anderson, Sacramento, M. Bassett, Hanford, Francis T. Underhill, Santa Barbara, were elected directors.

California Shorthorns Average $268

The fifth annual sale held under the auspices of the California Shorthorn Breeders Association at the university farm, Davis, Tuesday, February 22, resulted in a general average of $268 on the 78 head sold. While the values established were regarded as extremely conservative, the consignors recognized before the sale that too many entries had been accepted, especially of the younger bulls. The buyers, knowing the large number to be sold, felt sure of their position and refused to manifest undue interest in the offering and bided their time to pick their bargains. A disappointing feature of the sale was the lack of appreciation shown for the more fashionably bred sorts over the less popular kind. The top ends of both bull and female divisions was up to the usual high standard of the association sales and were entitled to more liberal support from the buyers. Anyway the sale is figured it was a buyers rather than a sellers event, but the latter, even though they may feel that some of their entries failed to bring all that they should, can gather some consolation in knowing that they furnished a class of cattle to many new breeders that will serve to bring future patronage to their herds.

The sale, which was managed by D. J. Stollery, secretary of the state association, was opened by an address by B. O. Cowan, formerly assistant secretary of the American Shorthorn Breeders Association, and Ried Carpenter, noted Shorthorn breeder of Ohio.

The top of the sale was made with the senior yearling heifer, Violet Opal 4th, consigned by W. M. Carruthers of Liveoak and purchased by W. S. Short of Arthur, Nevada, for $800. The top bull came from the consignment of the Blackhawk Ranch, Diablo, Blackhawk Archer, and was purchased by H. C. Muddux & Son, Sacramento, for $690.

Clyde N. Moore of San Francisco was the auctioneer and he was assisted in the ring by Cols. John A. Davis of Manteca and Tim Anspach of Sacramento.

A representative list of sales follows:

Consigned by W. M. Carruthers, Live Oak

1, Riverside Grace 3rd, Feb., 1919, W. J. Fulgham & Son, Visalia, $550.
12, Riverside Grace 4th, May, 1920, W. J. Fulgham & Son, $220.
14, Violet Opal 2nd, Dec., 1918, W. J. Fulgham & Son, $725.
16, Live Oak Grace, Sept., 1919, H. C. Muddux & Son, Sacramento, $285.
18, Crimson Flower 2nd, Feb., 1919, W. S. Short, Nev., $550.
20, Live Oak Secret, Nov., 1918, W. S. Short, $400.
22, Violet Opal 4th, Nov., 1919, W. S. Short, $800.
53, Count Glory Junior, Oct., 1919; Elder Creek Ranch, $250.

Consigned by Howard Vaughn, Dixon

2, Becky, Oct., 1918; Roy Traynham, $175.
50, Types Jinx, Aug., 1919; Oeste Bros., Davis, $300.
58, Stanford Star, Feb., 1919; S. C. Dorn, $240.

Consigned by Thos. T. Miller, Hollister

3, Milmar Mistletoe, Oct., 1918; Roy Traynham, $195.
6, Choice Beauty Milmar, Feb., 1919; Ormondale Ranch Co., Redwood City, $475.
25, Milmar Norseman, May, 1919; G. F. Silliman, Watsonville, $200.
39, Milmar Rural Choice, July, 1919; G. F. Silliman, $170.
46, Milmar Master Stamp, Mar., 1919; Weber Bros., Davis, $360.
57, Milmar Courtier, Dec., 1918, J. E. Montgomery, $375.
60, Milmar Victor, May, 1919; T. S. Glide, Davis, $290.
66, Milmar Magnet, Mar., 1919; J. E. Montgomery, $280.
71, Milmar Ordens, May, 1919; J. Q. Colm, $170.

Consigned by Edinger, Johnston Co., Hood

55, Pine Grove King 16th, Mar., 1919; Roy Traynham, $275.

Consigned by Thos. B. Dibblee Estate, Lompoc

5, Secret Clipper, Mar., 1919; W. H. Murphy, $410.
35, Baron Lancaster, Sept., 1918; Ernest Robnett, Lakeview, Ore., $350.

Consigned by University of California

8, California Copa De Ora, April, 1919; C. A. Slack, Tracy, $260.
32, Memory's Champion, Mar., 1919; Elder Creek Ranch, Corning, $440.
43, Senator Mayflower, Nov., 1919; Ernest Robnett, $200.

Consigned by A. L. Klopping, Underwood, Iowa

9, Phyllis Cumberland, May, 1916; Howard Vaughn, $170.
21, June Goods 2nd, Aug., 1916; M. B. Church, Grass Valley, $170.
72, Dandy Goods, Mar., 1919; J. B. Wallace, Burney, $185.

Consigned by Fair Oaks Ranch, Willits

10, Fair Oaks Mirth, Oct., 1919; C. A. Slack, $190.
41, Fair Oaks Prince 2nd, Mar., 1920; Thos. Carlyle, Sanger, $165.
83, Roan Victor, Nov., 1919; Thos. B. Dibble Est., $275.

Consigned by L. N. Pabst, Cedarville

27, Lord Abbott, May, 1919; Ernest Robnett, $165.
37, Victor Style 2nd, May, 1919; A. J. Smith, Clarksville, $225.
67, Victor P., July, 1919; J. B. Wallace, $185.

Consigned by Jack London Ranch, Glen Ellen

33, London's Red Boy, June, 1919; A. J. Smith, Clarksville, $155.
49, Proud Hero, April, 1919; Thos. B. Dibblee, Est., $260.

Consigned by Ormondale Ranch, Redwood City

23, Ormondale King, May, 1919; W. H. Murphy Est., Brentwood, $625.
26, Mayfield Goods 2nd, June, 1919; E. F. Hogan, Napa, $210.
29, Ormondale Archer, Mar., 1919; Herbert Smith, Stockton, $210.
30, Volumnia's Goods 2nd, Sept., 1919; T. H. Ramsey, Red Bluff, $250.
34, Ormondale Villager, Mar., 1919; Thos. Carlyle, Sanger, $430.
38, Ormondale Radium, Feb., 1918, Thos. Carlyle, $275.
47, Ormondale Marshall 2nd, Nov., 1919; J. F. Moorhead, Chico, $150.
51, Volumnia's Champion, 2nd, Dec., 1919; Pacheco Cattle Co., $150.
56, Scottish Goods 3rd, Feb., 1920; Ernest Robnett, $215.
59, Ormondale Archer 2nd, Feb., 1920; Fred Hamill, Davis, $195.
69, Ormondale Laddie 3rd, Nov., 1919; T. H. Ramsey, $185.
77, Ormondale's Galaxy, Feb., 1920; W. J. Fulgham & Son, $170.
81, Ormondale Chieftain, Sept., 1919; Thos. B. Dibblee Est., $200.
85, Ormondale's Gem, Jan., 1920; Pacheco Cattle Co., $200.
86, Earl of Ormondale, Jan., 1920, Thos. B. Dibblee Est., $275.
88, Ormondale Baron 3rd, Mar., 1920, T. S. Glide, Davis, $170.
89, Searchlight's Goods, Dec., 1919, Ernest Robnett, $210.

Consigned by Henry M. Elberg, Woodland

24, King's Knight, Feb., 1919, G. Bloss, Atwater, $500.
40, King's Commander, Dec., 1918, Ernest Robnett, $275.
48, Red Prince, Nov., 1918, Starns Bros., Napa, $275.
70, Rosedale, May, 1919, E. Zazoni, Petrolia, $350.

Consigned by Easton & Ward, Diablo

31, Blackhawk Archer, May, 1919, H. C. Muddux & Son, $690.
36, Blackhawk Jester, July, 1919, Frank Campbell, Davis, $390.
42, Blackhawk Spicy King, Nov., 1919, Ernest Robnett, $425.
52, Blackhawk Royalist, Oct., 1919, Thos. B. Dibblee Est., $250.
54, Blackhawk Villager 2nd, July, 1919, M. B. Church, Grass Valley, $250.
68, Blackhawk Arrow, June, 1919, S. C. Dorn, Oroville, $210.
74, Blackhawk Victor, Oct., 1919, Thos. B. Dibblee Est., $285.

Consigned by Warm Creek Land & Cattle Co., Wells, Nev.

90, Scotchman, Sept., 1919, Pacheco Cattle Co., $300.
92, Master Goods, June, 1919, E. M. Clover, Napa, $165.

HE'LL IMPROVE YOUR HERD

In the ad appearing on page 291 of last week's issue of the California Cultivator, carrying the above head, there was error in arrangement of phrases which made an entirely erroneous statement. The ad should have read "Andon Prince Cornucopia, No. 321092, 20 months old, light colored, a sure and quick breeder." The next paragraph in the ad should have begun "Sire: Segis Pontiac De Kol Burke Gerben, a blue ribbon winner whose two nearest dams average 31 lbs. butter, etc." However, our attention has been called to the rearrangement of the phrases which made it appear that the sire of Andon Prince Cornucopia was only 20 months old. Mrs. Donders has a magnificent young animal in Andon Prince Cornucopia, as is shown in the two paragraphs giving records of sire and dam in the ad in this week's issue.

H. H. Sisson of Sunnybrook Farm, Willits, writes: "Our heifer, Princess Boweda Alcartra, granddaugter of the famous Boweda, has completed her 30 day strictly official test and made 83.82 pounds butter and 2102.7 pounds milk. This heifer is a junior two year old and made 21.029 pounds butter and 538.5 pounds milk in seven days. This milk record both for seven days and 30 days places her among the leading two year olds of the state."

Italian Vineyard Company
Big Type Berkshires

We are offering for sale some fine big sows and gilts bred to our great herd boars for early litters. Some very special bargains to farmers and new breeders.
Everyone tuberculin tested and cholera immune.

Alex. M. Wilson, Supt. **Guasti, Cal.**

A 1 Duroc Ranch
— THE UTMOST IN DUROCS —

My herd has been selected for type, conformation and utility, with regard to fashionable blood lines. Here you will find Pathfinders, Sensations, Orions, Creators and Defenders.
Visitors Welcome. Correspondence Solicited.

J. P. Walker **Visalia, Cal.**

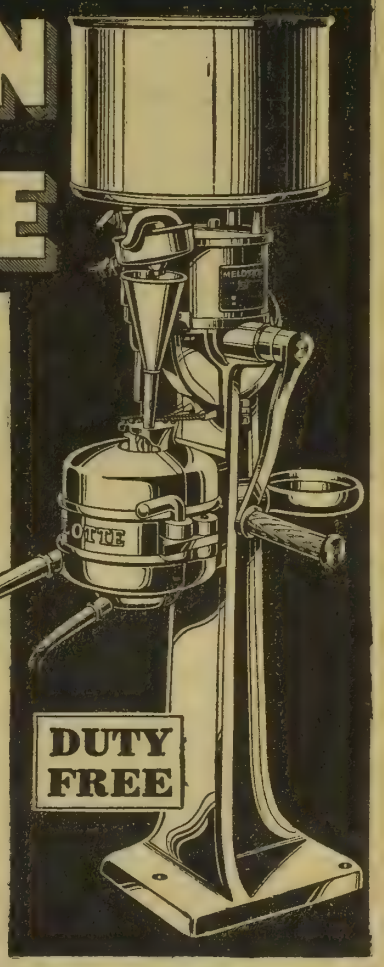
Watch La Tierra de Uva Durocs **Pathfinders, Orions, Sensations**
Three Top Boars

Fannie's Orion King assisted by Uneeda Orion B, 2nd prize aged boar at State Fair, 1920, and grand champion at Glenn County Fair, 1919, and Valley View's Sensation, 3rd prize junior boar pig and litter mate to 1st prize and reserve champion at State Fair, 1920, and a wonderful string of prize winning sows and gilts, including Miss Sensation, 1st sow pig and reserve champion at State Fair
C. C. ELLIS **Exeter, Cal.**

MERRITT-BOWERS COMPANY, Tagus Ranch, Tulare, California
have just got in two carloads of registered Shorthorns and Hereford bulls, and have a large assortment of draft stallions of all breeds, work horses and mules, as well as Mammoth Jacks, Duroc-Jersey Hogs and Poland China Hogs for sale, with a guarantee on every animal.

Home of King Korndyke Pontiac Mead
Bargains In Bull Calves from Tested Dams.
Top Herd in U. S. for Fat Production of 100 Cows.
LOS ANGELES COUNTY FARM HOLSTEINS
HONDO, CALIFORNIA
Three Miles South of Downey on Downey-Long Beach Blvd.

BELGIAN IMPORTED MELOTTE



No Money Down

Jules Melotte—*"The Edison of Europe"*—is placing his **Great Belgian Melotte Cream Separator** on the American market on a wonderful—**no money down—30 days' free trial—easy payment offer.**

You, who have wanted the world's greatest separator, write for catalog right away. Find out why 500,000 Melotte Separators are in use today. Before buying any separator find out how the Melotte has won 264 Grand and International Prizes and every important European contest. Mail the coupon now for our great offer.

$7.50 = After 30 Days' Free Trial!

You are not to send a cent until you have used this Great Belgian Melotte for 30 days on your own farm and thoroughly made up your mind that it is the separator you want to buy.

Easy Payments

After 30 days, when you are completely satisfied that the Belgian Imported Melotte is, by far, the best cream separator to be found any place in the world, then send only the small sum of $7.50. Settle the balance in small monthly payments. Mail coupon NOW—today.

Send this Coupon!

Fill out and mail the coupon for new Melotte catalog containing full description of this wonderful cream separator and the story of M. Jules Melotte, its inventor. Don't buy *any* separator until you have found out all you can about the Melotte and details of our 15-year guarantee. Sending coupon below does not place you under any obligation whatsoever. It brings you new Melotte catalog and full description and details of our Great Special Offer. Don't do another thing today until you have mailed coupon.

The Melotte Separator, *H. B. Babson, U. S. Mgr.*
Dept. 3023, 2843 West 19th Street, Chicago, Ill.

Self Balancing Bowl

Can't vibrate or get out of balance. Bowl chamber is porcelain lined. Easy to clean as a china plate. Can't rust. One half less tinware to clean. Bowl spins 25 minutes after you stop cranking unless you apply brake. No other separator needs a brake. Send for catalog showing details of the Melotte self-balancing bowl; also many other features.

The Melotte Separator, H. B. BABSON, U. S. Manager
Dept. 3023, 2843 W. 19th St., Chicago

Without cost to me or obligation in any way, please send me the Melotte Catalog which tells the full story of this wonderful separator and M. Jules Melotte, its inventor.

Name.....

Address.....

Post Office.....*State*.....

O. U. R. Hampshire Sale

Everyone recognizes the Underhill Ranch at Santa Barbara as a leader in Hampshire circles in this state and everyone turned out to the big sale on the 8th.

Mr. Underhill had chosen a lot of fine stock and Supt. Dinsmore had them in fine shape. The sows were nearly all heavy with pig and sold rapidly and well. The top was the fine big sow Tipton Missie, one of the foundation sows of the herd, who sold to Harry Gantz of Montecito for $425. Mr. Gantz has watched this herd for a long time and knew the individuals almost as well as the owner did. He also bought Scottish Girl, a daughter of Hawkeye Lad, for $375, and a number of the others.

The Doheney Land Company bought Lady May, another daughter of Hawkeye Lad, for $325.

Mr. Underhill has used these sows to breed with his chosen boars and develop his own foundation animals. He is just now ready to go ahead and develop the Hampshire along lines he desires. He is a close student of the blood lines of the breed and has done some excellent work in developing it.

A number of the animals were sold for shipment to Oregon and the Eastern states.

Tipton Missie, Harry Gantz, $425.
Scottish Girl 19th, Harry Gantz, $375.
O. U. R. Cresta Tipton, W. B. Lindsay, $125.
Lady May, Doheny Oil and Rranch Co., $325.
O. U. R. Cantata, Harry Gantz, $100.
O. U. R. Cantatrice, Hayes & Harter, $110.
O. U. R. Cornflower, Hayes & Harter, $105.
O. U. R. Creole, Carl G. Meiners, $95.
Tipton's Maid 2nd, James Marwick, $150.
O. U. R. Bola Tipton, Harry Gantz, $85.
Pat's Princess, Wilbur T. Helm, $75.
Berenice, James Marwick, $125.
Bluebell, Gwyn Thurmond, $150.
Ruby, Carl Meiners, $140.
Sunny Slope's Princess, Hayes & Harter, $125.
Mada, Carl Meiners, $120.
Wood Thrush, Hollister Estate Co., $100.
O. U. R. Carrie, Roy Rickard, $50.
Winter Wren, Paul C. Adams, $75.
Hawkeye Belle, Harry Gantz, $100.
Trixie Lookout, James Marwick, $60.
Kickapoo Lady, M. L. Harmon, $100.
O. U. R. Astoria, Dreamwold Farm, $95.
O. U. R. Cordelia, Hayes & Harter, $95.
O. U. R. Alabama, Harry Gantz, $130.
O. U. R. Coronet, Hayes & Harter, $65.
O. U. R. Camelia, Carl Meiners, $80.
O. U. R. Clova Tipton, J. G. Coleman, Jr., $40.
O. U. R. Celia Bly, Hayes & Harter, $75.
O. U. R. Brenda Tipton, Hayes & Harter, $80.
O. U. R. Baska Tipton, Hayes & Harter, $70.
O. U. R. Belle Tipton, Hayes & Harter, $85.
O.U.R. Bona Tipton, Russell Rowe, $55.
O. U. R. Brava Tipton, Hayes & Harter, $100.
O. U. R. Cora Bly, Russell Rowe, $65.
Bonnie Tipton, Hayes & Harter, $135.
O. U. R. Cinema, V. A. and Thos. Carlyle, $60.
O. U. R. Caroline, V. A. and Thos. Carlyle, $50.
O. U. R. Chuska Tipton, Hayes & Harter, $65.
O. U. R. Caddie, S. B. County Farm, 60.
Crown Sparrow, Joseph G. Coleman, Jr., $65.
O.U.R. Comanche, Hayes & Harter, $65.
O. U. R. Affability, Fairbanks Ranch, $100.
Helen 3rd, S. B. County Farm, $55.
O. U. R. Comadre, S. B. County Farm, $60.
Beatrice 3rd, Roy Rickard, $65.

THE CALIFORNIA POLAND CHINA BREEDERS SALE

The sale of bred sows and gilts held by the California Poland China Breeders' Association at the University Farm, Davis, Friday, February 25, was very successful in every way. Not only was the average of $97 per head very gratifying, but the fact that with the exception of a very few head, the entire offering went into the hands of new men either to start new herds or to grade up commercial herds. The offering was a high class one and demonstrates the fact that the public is ready to buy high class stock when given the opportunity. Much credit is due A. J. Elliott, Tulare, for the high class maner in which the sale was conducted as well as the hard work he accomplished to make the sale a success.

The top of the sale was Tulare's Best, consigned from the Elliott herd and purchased at $250 by Stralock Farm, Davis. The next top was an outstanding fall gilt from the Eastman Ranch herd, San Fernando, purchased at $165 by L. E. De Forest, Susanville. H. V. Traynham, Davis; George Vogelsang and William La Grange were all heavy buyers.

Col. George Bell on the block, assisted by John Davis, Manteca, and Fred Gatewood, Fresno, was in good form. Following are part of the sales:

1, W. F. La Grange, Inverness, $75.
3, H. V. Traynham, Davis, $75.
4, Stralock Farm, Davis, $250.
5, T. S. Glide, Davis, $110.
6, B. G. McClelland, Litchfield, $80.
7, H. V. Traynham, $90.
8, J. E. Bronson, Doyle, $70.
10, W. F. La Grange, $110.
15, Geo. Vogelsang, Chico, $150.
16, J. S. Roberts, Sheridan, $155.
17, Bassett Bros., Hanford, $75.
18, L. E. DeForest, Susanville, $165.
20, Bassett Bros, $75.

THE WESTERN BERKSHIRE CONGRESS SALE

The Western Berkshire Congress annual sale of bred sows and gilts at the University Farm, Davis, Thursday, February 24, was not so successful as we had hoped it would be. The offering was worthy of better prices than the $60 average received. The sale was conducted in a high class manner, but for some reason the large crowd present did not respond as they should have done. The entire offering sold at very uniform prices, prices any farmer could pay with the assurance of making a good profit out of the cheap feed available at the present time. The top of the sale was Rookwood Lady Double, consigned by J. Francis O'Connor, Santa Rosa, purchased by Italian Vineyard Co., Guasti, at $125. The next top was Champion Star Lady, consigned by H. C. Muddux & Son, Sacramento, purchased by D. J. Bastanchury of La Habra at $100. The Italian Vineyard Co., Guasti; Wm. Carruthers, Live Oak; Sierra Vista Vineyard Co., Minturn, and W. F. La Grange, Inverness, were all heavy buyers of the better lots.

Col. George Bell, Tulare, sold the offering in his usual satisfactory manner.

1, Italian Vineyard Co., Guasti, $55.
5, H. C. Muddox & Son, Sacramento, $75.
7, Fred Hall, Perris, $50.
9, Wm. Carruthers, Live Oak, $70.
11, C. M. Talmadge, Salem, Ore., $55.
12, Sierra Vista Vineyard Co., Minturn, $45.
13, D. J. Bastanchury, La Habra, $100.
14, Italian Vineyard Co., $80.
15, Italian Vineyard Co., $60.
16, Italian Vineyard Co., $125.
17, R. W. White, Woodland, $50.
18, W. F. La Grange, Inverness, $45.
23, Miller & Lux, $65.
24, Sierra Vista Vineyard Co., $55.
25, Wm. Carruthers, Live Oak, $70.
26, Wm. Carruthers, $70.

WASHINGTON BERKSHIRES AVERAGE $150

The sale of Berkshires by D. C. Bunn, Prosser, Washington, was held February 19. The 50 head sold consisted of three herd boars, 18 bred sows and gils and 29 pigs of fall farrow. An average of $150 for mature animals and $35 for the pigs was secured. The top of the sale was one of the herd boars, Ames' Rival 158th, the sire of the grand champion boar at the last International, Chicago, going to Ralph King, Cleveland, Ohio, for $430. Royal Dominator and Bunty's Longfellow, the other two herd boars, sold for $325 each to Oregon agricultural college and Green, Goodwin and Bull, Yakima Valley, respectively. The sale was held under the management of Chas. M. Talmadge, Salem, Oregon.

NO SPECIAL FAVORS

"I'm bothered with rats," said Mrs. Casey, owner of the boarding house, as she talked over the back fence with her neighbor.

"Did yez buy any of thim rat biscuits for thim?" suggested Mrs. Kelly.

"Now, Mrs. Kelly, what kind av a house do you think I'm runnin'? Sure, if the bastes can't ate what the rest of us do, they kin go hungry."

Kodak on the Farm

On the farm Kodak serves a double purpose. Like the auto it is ready for business or for pleasure.

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have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

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SEEK TO NULLIFY OLEO AND IMITATION MILK LAWS

Sam H. Greene, secretary-manager of the California Dairy Council, calls to the attention of dairymen the efforts being made before the legislature to challenge existing regulatory dairy laws.

Greene says: "In the closing hours of the first session of the legislature in January, two bills were introduced in the senate that are a serious menace to the health and well being of the citizens of California.

"Senator Breed of Alameda County introduced S. B. No. 440, amending the present oleomargarine law. The intent of the bill is to relieve hotels, boarding houses and restaurants of advertising by signs and printed statements on bills of fare the fact that they serve oleomargarine. It would also nullify the regulation requiring retail dealers to display signs advertising the fact that they sell oleomargarine. Furthermore, it would permit the manufacture of colored oleomargarine for export.

"Senator Crowley of San Francisco County introduced S. B. No. 744. This bill is intended to amend the present imitation milk law by reducing the retailer's license fee from $5 to $1 per annum. It would also eliminate the provision in the license which now makes it unlawful for the holder of a license to manufacture, sell, or deal in imitation milk and similar substances if they resemble in appearance pure whole cow's milk, or the condensed and evaporated product made therefrom.

"If these bills should be enacted into law great harm would certainly ensue. The oleomargarine and milk laws of California are recognized throughout the United States as being models of this class of protective legislation.

"In the light of the knowledge that we have received in recent years, from the research and experimentation work of such scientists as McCollum, Funk, Hopkins, Osborne and Mendel, and the experience of Hoover, realization has been brought home to us all that it is imperatively necessary to protect the general public against imitations of these essential foods.

"The manipulation of animal fat or vegetable oils with milk from which the butterfat has been extracted yields products that are distinctly inferior in food value. By reason of the fact that their original cost is so very much lower than the cost of pure dairy products there exists a great incentive on the part of manufacturers of these products to exert every effort to remove every possible restriction upon their manufacture and sale. It is impossible to truthfully claim that any of these products are equal in food value to the pure dairy products which they are made to resemble.

"We have then, a clear cut situation in the case of these two bills: The present laws are reasonable and necessary for the protection of the development of children and the health and well being of the adult citizens of our state. Since no claim of superiority in food value can be substantiated, there can be but one reason for desiring to eliminate the present legal restrictions—the desire to extend the sale (for profit) of these inferior food products.

"If bill No. 440 should become a law butter would disappear from the tables of all the hotels, boarding houses and restaurants of the state, except in a few of the highest order.

"If bill No. 744 should become a law the present imitation milk law would be practically nullified."

INCORRIGIBLE OPTIMIST

The dear old thing, with her usual stock of questions, was visiting the circus. "Keeper," she said, "what do you consider to be the most remarkable animal in this collection?" "Well, ma'am," replied the keeper thoughtfully, "I should say that there laughing hyena gets the prize." "Indeed, my good man! What makes you think that?" "Well, he only has a sleep once a week, a meal once a month, and a drink once a year," said the keeper, moving on. "So what he has to laugh at sure beats me."

BUSY MAN'S MOTTO

If you have a half hour to spend don't spend it with some one who hasn't.—Columbia Record.

"I Can Well Afford to Feed It"

says Mr. A. L. McCulloch, of Alpaugh, Cal.

Mr. McCulloch is a far sighted feeder. He has noticed that Pure Cane Molasses has a tonic property and tones up the system of the stock. They are hungry all the time and clean up every stem in the mangers. A food that will have this effect, and can be fed as cheaply as Molasses can, is worth considering. It is not a question of how expensive–but how cheaply?

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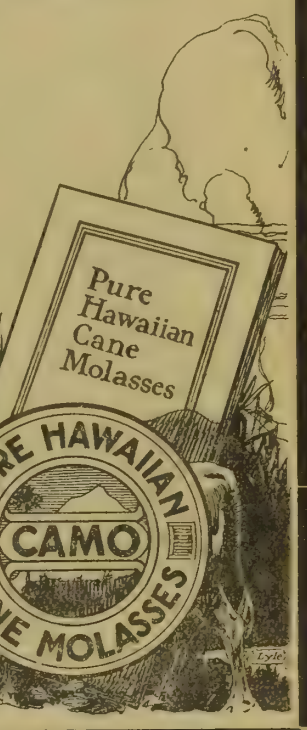

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Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

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S. C. White Leghorn Baby Chicks from heaviest laying (Hoganized) stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June $5.00 per 25, $9.00 per 50, $14.00 per 100. Special prices 500 and 1000 lots. Largest electric hatchery in the World. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh Street, Petaluma, California.

Go to Town While the Chickens Pip—Go to bed without worrying about temperature. Charters' Regulator with the automatic "light that never fails" takes all grief off your mind. Needs filling and trimming only once a week. Send for catalog or send $12. Regulator on 30 day money back basis. Charters Mfg. Co., 334 Soquel Ave., Santa Cruz, California.

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Chicks With Plenty of "Pep" are what you need. Petaluma Electric Incubators hatch that kind. Will send names of hundreds of people and hatcheries using them, or supply chicks ourselves. Catalogue free. Petaluma Electric Incubator Co., Petaluma, California.

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Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

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White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, California.

For Sale — Hoganized White Favorolle with laying records 230-240. Setting of 15 eggs $5 and $10. White Favorolle Poultry Farm, Andres Stammerjohann, Ontario, California.

Brown Leghorn Hatching Eggs from highest grade of utility matings, trapnested, linebred, vigorous, high producing stock. Sun Crest Poultry Yards, Box 115, Boston Avenue, San Jose, California.

Single Comb Black Leghorns—Combine beauty and utility. Why? Write for circular. Hatching eggs, etc. Fred Turnbull, Box 108, Alameda, California.

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Hoganized Rhode Island Red Eggs for hatching, $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Baby Chicks—Can book a few more orders S. C. White Leghorns, McFarland strain. Mrs. F. C. Reineking, Inglewood, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jerch, Fallon, Nevada.

POULTRY

White Leghorn Hatching Eggs now hatching 75%. Bred for over ten years for vigor and heavy egg production. During high priced season we shipped more eggs to market than any other ranch near. We have more hatching eggs than necessary to fill contract with big hatchery which has taken our eggs for several seasons, which we will sell during March and April in 100 and 1000 lots at $6.00 per 100. No baby chicks. Verity Egg Ranch, 511 West Broadway, Glendale, California.

Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made such a remarkable record in the state laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

For Sale—10,000 W. L. Baby Chicks every week from California's heaviest layers. Each year some customer reports 200 eggs average in large flocks from our pullets. Lay large eggs from the start. $14.00 per 100, $130.00 per 1000. Rocks and Reds $17.50, Pekin Ducklings 30 cts. We ship everywhere. Free circular. P. Cook Chick Ranch, Alhambra, P. O. Los Angeles. Rt. 8 Box 45.

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Get Chicks Now and have layers for next winter when eggs are high. Hatches every week. Prompt reliable service. Safe arrival of vigorous chicks from good layers guaranteed. Hatched by electricity. White and Brown Leghorn, R. I. Red, Barred Rock. Reasonable prices. Stubbe Poultry Ranch and Hatchery, Box 67-D, Palo Alto.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

White Leghorns—hatching eggs our specialty, produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the West. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R. 1 Box 29, Gardena, California.

Chicks — Eggs — Hoganized White Leghorns, Brown and Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, Calif.

White Leghorn Baby Chix from heavy-laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Price for April, May and June, $14.00 per 100. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

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Baby Chicks hatched from our utility S. C. White Leghorns, a result of many years selecton and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

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Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

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Hillview Buff Plymouth Rocks — An American bird for Americans. Splendid layers, fine broilers and fryers, beautiful in color, the ideal for the farm, city lot or show room. Blue ribbon winners 1920 in Oakland, Riverside and San Diego shows. **Eggs for hatching from our best matings** $5.00 per setting of 15, commercial eggs $3.00 per setting. Hillview Poultry Ranch, Chatsworth, California.

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Eggs from Hens that lay and pay. R. I. Reds and Brown Leghorns. Fertility guaranteed. Price low. Eva Conklin, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

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For Sale Reg. Duroc Boars—1 by Imperial Type and Flower Queen farrowed Apr. 15, 1920. 1 by Imperial Type and Princess Pat, farrowed Apr. 27, 1920. 3 by Crescent Prince and Princess Lady, farrowed Apr. 12, 1920. Montana Land Company, So. Bellflower, Los Alamitos.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bred Sows and Gilts and young stock. Pathfinder and Great Wonder I Am breeding. Monthly payments if you wish. Derryfield Farm, Capital National Bank Building, Sacramento.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

For Sale — 6 thoroughbred Duroc pigs. Hadley Ranch Co., R.D. 1, Box 92, Rivera.

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Orland, California.

BRED GILTS FOR SALE.

Grape Wild Farm—Berkshires, Guernseys, Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

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Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

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Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

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Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

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Caldwell's White Muscovy Ducks win, weigh, lay and pay. The largest duck of the duck family. The duck without the quack. Eggs, ducklings, breeders. Free circular. Caldwell Duck Ranch, Lock Box 274, Los Angeles.

Mammoth White Pekin Duck Eggs for hatching, $1.00 per dozen. A. Surtman, Petaluma, California.

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WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

RABBITS

Pedigreed Fleming Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California.

POLAND-CHINAS

Pure Bred Polands shipped on approval. Contracts sent on request. Sires, Iowa Pilot, Smooth Clansman. We breed nothing but the best. California Swine Corporation, Escalon, California.

Bargains in Polands—600 pure bred Polands—sows, gilts, boars, feeders, must be disposed of to make room. Take one or more at your own price. Santa Anita Rancho, Santa Anita, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

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TEN PER CENT CASH
FOR SMALL FARMS

Ten, twenty and forty acre farms, $375 to $450 an acre, with water, on terms of ten per cent cash and easy annual installments. There's double profit here, from products and the rapid increase in values. These lands sell for $2,000 and up with matured orchards.

EARLIER and BETTER crops because of soil, water and climatic conditions. Three and a half tons of peaches from three year old trees. Seven and a half tons of apricots from five year trees. No land in California gives better results, at any price.

Carloads of trees now being planted by last year's buyers, all practical fruit growers.

INCOME INSURANCE

Close to a prosperous town, on the borders of a splendid lake. State highway and railroad pass through property. Seventy miles from Los Angeles. Many experts believe this will be the highest priced land in Southern California in ten years. The acreage in the district is limited.

Write for descriptive information prepared by the Elsinore Chamber of Commerce under supervision of Elsinore Farm Center, or come to our office. Best crops are Peaches, Apricots, Oranges, Grapefruit, Walnuts, Almonds, Olives, Grapes and Alfalfa.

J. B. Stearns Uede Jacobs
214 Story Building, Los Angeles.

For Sale — Foothill poultry ranch: two acres of land; three shares water stock; 465 Tom Barron White Leghorn hens; coop for housing 800. Barn and four room house. Alta Loma, ½ mile N. E. Pacific Electric Station. Mrs. E. K. McKeig, Alta Loma, California.

For Sale—27 acres, plenty water for irrigation, good house, garage and chicken house. Lots of shade trees, good schools. ½ mile from town of Manzanar. For further particulars write owner. Address Box 11, Manzanar, California.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192, Indio, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

TRACTORS

For Sale: 12-20 Yuba, 8-ft. Killefer automatic double disc, 8-ft. Killefer chisel, 4 gang power lift John Deere 12-inch plow, new tracks on tractor, engine just overhauled. Must have money. $1,750 takes the outfit. O. B. Lolmaugh, Phone Hemet 8847, Hemet, California.

For Sale—Two brand new 10 horsepower wheel Tractors, one especially equipped for orchard, standard make, to be sold at prices greatly reduced from wholesale cost, to satisfy bank loan. Address City Bank, Stockton, California.

Merry Garden Tractors — Circulars and demonstration free. Dwight E. Smith, Southern California Distributor, 1645 North Normandie Avenue, Los Angeles.

For Sale—Cleveland Tractor (Cletrac), practically new. With or without implements. Liberal discount. See Karel Parizek, Elsinore, California.

For Sale—12-20 Yuba Tractor; been used 1 year. Hadley Ranch Co., R.D. 1, Box 92, Rivera.

For Sale—Holt 75, also Holt 30. Good condition. Also tractor tools. C. E. Newman, Chowchilla, California.

TURKEYS

Turkeys—"Goldbank"—"Copper King V strain. Selected Giant Bronze toms. Sired by son of famous "Copper King V." First Prize Yearling, N. B. T. Club Show, Madison Square, N. Y., January, 1919. Bred to 20 lb. hens. Egg orders taken. Prices reasonable. Address: BRONZE KING MOUNTAIN FARM, P. O. Box 308, Calistoga, California.

Turkey Eggs—Purebred Mammoth Bronze "Gold Nugget" and other strains. You are safe with our guarantee. Write for folder. Eggs $25 per 100. Best 60c each. Special rates on 500 and 1,000 egg lots. Turkey Raisers not Brokers. Andrews & Andrews, Bo-K-Haunt, Hemet, California.

Turkeys, Ducks and Geese. Bronze turkeys, gold nugget prize strain. Eggs ready now from 18 lb. 2 year old hens and 35 lb. gobblers. $35 a 100. Inglewood Poultry Co., Box 242, Inglewood, Calif.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

"Goldbank" Strain — Giant Bronze turkey toms. Partridge Plymouth Rock chickens. Chicken and turkey eggs in season. M. M. Reiman, Planada, California.

Burbon Red Turkey, Buff Orpingtons. The Ferris Ranch, S. Reservoir, Pomona, California.

For Sale—Only choice White Holland toms. Place orders soon. Eggs at 75 cents each. L. A. Robinson, Hemet, Calif.

Pure Bred White Holland Turkey eggs at 75c, guaranteed. Pause Pheasantry, Fair Oaks, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

SEEDS AND PLANTS

For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

Berry Plants — Strawberries, Loganberries, Currants, Gooseberries, Blackberries and Raspberries, for immediate delivery. All stock first class and strictly true to name. Write for prices. M. J. MONIZ, Berry Specialist, Sebastopol, California.

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Tomato Seed—Improved Stone, San Jose Canner. 25 cents oz., $3 pound, postpaid. Stamps or Money Order. Thomas Murray, 3209 West Washington St., Los Angeles, California.

Rhubarb Plants—Wagner's Giant 1 year, per dozen 50c; per hundred $4.00. Wagner's Giant, 2 year, per dozen $1.00; per hundred $8.00. Seed per pound $5.00. Currier Bulb Co., Santa Cruz, California.

R*O*S*E*S $1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue C. KAVAN NURSERIES, San Bernardino, California.

Brandywine Strawberry Plants from stock which produced $3,000 worth of berries from acre this season. Price reasonable. Lon King, 1158 West Fourth, Riverside, California.

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Peas—"Blue Bantam" earliest and sweetest of all table peas. Heavy yielder, 15c per lb. SEVIN-VINCENT CO., Seedgrowers. Established 1860. 512 Washington Street, San Francisco, California.

100,000 Grape Rootings $30.00 a 1,000. Figs, prunes, apples, pears, peach, apricots, almond, orange trees. Reduced price. Farm and garden seeds, 4 kinds of alfalfa. Box 501, Fowler, Cal.

Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch—767 S. Central Avenue, Los Angeles, Cal.

Large Returns quickly, small investment, tree blueberry, easily grown throughout South, markets everywhere. Southern Blueberry Co., Tampa, Fla.

For Sale—Dwarf Red Milo Seed. Selected stock. Heavy producer. Eight cents per lb. delivered C. O. D. or check. C. E. Newman, Chowchilla, California.

Durango Cotton Seed for sale; small lots, 4c a lb.; 1000 lbs. or more, 3½c. F. O. B. Coachella, California; C. M. Devore.

For Sale: Certified White Rose potatoes, three cents pound. D. Taylor, East Central Avenue, Lankershim.

For Sale—Limited supply of mountain grown Strawberry plants. Write for particulars. B. Bryan, Camp Baldy, Cal.

For Sale—Rooted grape vines, California Concord or Pierce. Robert McIntosh, Box 936, R. D. 2, San Gabriel.

California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

CATTLE

Guernsey Bulls of all ages at bargain prices. Bulls out of imported and high record dams are filling space we need. Priced low to move quickly. Grade dairymen take advantage of this to raise calves that will increase your butter fat production. Hollow-Hill Farm, Colton, California.

Ayrshire Bull—Finlayston Sunset 24861—Age one year. Superior breeding with excellent Ayrshire dairy type. Write for price, pedigree, etc., or call. J. F. BUTTERFIELD CO., Breeders of Registered Ayrshires since 1869, 277 Brockton Ave., Riverside, California.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

For Sale—Jersey bull 6 months old out of imported bull Helen's Oxford Son. Price $75.00. J. R. Carhart, Fullerton, Calif.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Ayrshires—A few well marked and well put up bull calves from high producing stock. Wyndham Dairy, Redding, Cal.

TREES

For Sale—15,000 Orange and Lemon trees at $1.00 each in the nursery row. W. B. Ames, 1 mile west of San Dimas, Calif.

Surplus Wholesale 1,000 Greenings, 1,000 Pippin Cash Nurseries, Sebastopol.

TREES

PRICES ON FRUIT TREES ARE REDUCED
We offer to clean up
No. 1 Home Grown French Prune 6-8 ft. 45c; No. 1 Home Grown French Prune 4-6 ft. 40c; No. 1 Home Grown French Prune 3-4 ft. 35c; No. 1 Home Grown Jefferson Plum 6-8 ft. 45c; No. 1 Home Grown Jefferson Plum 4-6 ft. 40c; No. 1 Home Grown Jefferson Plum 3-4 ft. 35c; No. 1 Home Grown Bartlett Pear 6-8 ft. 45c; No. 1 Home Grown Bartlett Pear 4-6 ft. 40c; No. 1 Home Grown Bartlett Pear 3-4 ft. 35c. Prices on other trees are reduced also. Write or phone your order. We ship on approval. Return if not entirely satisfied. J. F. MILLER & SONS, Healdsburg, California.

Fruit Trees of Dependable Varieties and Quality—Peach Trees, both free and cling. Leading varieties. Apples—Arkansas Beauty, W. W. Pearmain and Banana, best for planting in Southern California. Crabapples, Transcendent, Hyslop, Red Siberian. Bartlett Pears on Japan Root. Grafted Walnuts, Grapes, etc. Stock first class, inspection invited. Plant now for best results. Los Nietos Valley Nursery, Downey, California.

PLENTY OF TIME TO PLANT
Our fine dormant trees. Our clean-up sale is now on and you can well afford to plant at prices we are making on French, Sugar, Silver and Robe de Sargent prunes. Bartlett pears, plums, Jap. persimmons and other trees, grapes and berries. Write today list of your wants. Don't send any money, we ship on approval. J. F. MILLER & SONS, Healdsburg, California.

For Sale—Fruit trees, all leading varieties, including Bartlett Pears, Royal Apricots, Tuscan Cling and Phillip Cling Peaches, Satsuma and Santa Rosa Plums, Eureka and Placentia Perfection Walnuts. Write for catalog and price list. Orange County Nursery Co., Anaheim, Calif. Salesyard: North Los Angeles Street.

For Sale—All kinds of citrus nursery stock, one and two year buds, fine roots. Y. Yamaguchi, Upland, 10th Street and Cucamonga Avenue. Phone 386-W.

10,000 Valencias; 2,000 Eureka lemons; 3,000 Texas Umbrellas; 3,000 Mission olives; 500 Wonderful Pomegranates; 100,000 sweet, 100,000 sour orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colorado 6352.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

We Still Have a Few Hundred choice grafted walnut trees for sale, Placentia Perfection and Eureka varieties. Prices right, also a few sacks of black walnuts for seed. THE WALNUT NURSERY, W. A. Litten, Prop., Whittier, California. Phone 6294.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

Cling Peaches, Apricots, Almonds — All varieties and sizes. Concord, Mayette, Franquette Walnuts, Cory Thornless Blackberry; large stock. State your wants and let us quote. Ekstein Nurseries, Modesto, California.

Walnut Trees—Closing out balance Placentia and Eureka grafted on black root; choice trees; reduced prices. Terms to responsible parties. Nurseries Ventura and Los Angeles Counties. R. E. PIERCE & A. G. SNOW, Oxnard, California.

Budded Avocado Trees. Leading varieties. Order early to secure best selection. Dr. Stonebrook's Avocado Nursery, 15 N. Raymond Ave., Pasadena. Phone Colorado 208.

For Sale—Walnut trees, fine stock, Eurekas grafted on black root. Prices, 8 to 10 feet in height $2.50 10 to 12 $2.75. La Puente Walnut Nursery, Puente, California. Phone 103.

We Have Deciduous and Citrus Trees, berry plants, tomato plants and garden seeds. California Wonder Corn and Elephant Grass are big producers. Send for Catalog. Bishop's Nursery, Highland.

For Sale — Peaches, Cherries and other fruit trees. Full line of shrubbery and roses, also flowering plants. Write City Nurseries, 109A Orange St., Redlands, California.

For Sale — 100,000 Florida Sour Orange Seed-bed Trees; 100,000 California sweet seedling orange seed-bed trees. SOUTHLAND NURSERIES, 1941 East Colorado Street, Pasadena, California.

Fine Straight Rooted Florida Sour and Sweet SEED BED STOCK, 10 inches to 15 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

For Sale—Three thousand Phillips cling peaches; also a few Tuscans. Special prices to clean up. Burke's Nursery, Lodi, California.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

For Sale—About 230 one year old Avocado seedling nursery stock. H. Fordyce, Ojai, Ventura County, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Citrus Seed Bed Stock—Orange, Lemon, Grapefruit trees. L. A. Tuttle, R. 1, Box 385, Pasadena.

Walnut Grafting Wood for Sale—All the leading varieties. Dr. W. W. Fitzgerald, 625 N. Madison St., Stockton, California.

For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

WANTED

YOUNG FARMER WANTED

As assistant motor truck salesman. We are organizing local sales force in every locality and want farmers, mechanics, or good drivers to assist traveling sales managers all or spare time; experience not necessary as our men will be coached and trained. Unusual opportunity to attain position paying $50 to $100 a week in the next big business of the country.

Address Peerless Commercial Co.,
Department C,
606 S. Hill St., Los Angeles, Cal

Wanted—Beeman or Utilitor tractor in exchange for nursery stock. Loganberries for sale. Young man to learn nursery business. Box 301, Sebastopol.

Wanted To Hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

Wanted to Buy—Combined side hill harvester—16 to 20 foot cut complete with motor. Box 5, Cultivator.

MACHINERY

FOR SALE
Rebuilt Windmills, Tanks, Pumps, Piping, Cylinders, Rods, Fittings.
Why Pay More?
We make new galv. tanks 300 gallons, $17.50; 600, $27.25; 1,000, $43.25; 2,000, $59.25; used redwood and galv. various sizes. Save you 60 per cent on windmills, most any make, any size. Also double acting Ames pump for 100 ft. well and 15 H. P. engine $875.00. Electric pump complete, 2 H. P. Fairbanks Motor Cutout, float and pump $175. Demmitt, 120 North Main, Los Angeles. 15191. Also buy.

HARDIE SPRAYERS SACRIFICED
For immediate sale we offer one Hardie Junior $355.00 and one Hardie Triplex Orchard Sprayer $450.00. These sprayers are absolutely new and are being sold to close out the stock. We also have a few hand sprayers at special prices. H. V. Carter Motor Co., 52 Beale Street, San Francisco.

For Sale—Lisle Powers improved motor driven Well Boring and Drilling Machine up to 24 inch hole, 500 feet. Everything complete. Sacrifice. Sickness. Mrs. I. W. Geer, Woodland, California.

For Sale—New Moline double disk power lift tractor plow. Has never been used. Cost $238. Will sell for $138. Owner, P. O. Box 29, Inyokern, California.

MISCELLANEOUS

Distributors to appoint agents and sell Powerene at wholesale. Agents make $30 a day. Special terms to distributors. Equals gasoline at 5c. The equivalent of 20 gallons, express prepaid, $1.00. P. Barnes, H424, Santa Rosa, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale — Finest white orange blossom honey, 60 pound can, $10.00, f. o. b. Dinuba. Louis Sinn, Dinuba, California, R. F. D. 3/75.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

White Mesquite Honey—Five gallon can, 60 pounds, f. o. b. Parker, Arizona, $6.50. G. E. Striplin.

ROOFING MATERIAL

SPECIAL SALE
The largest roofing dealers in the West
GUARD ROOFING COMPLETE
1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35
PIONEER SANDED ROOFING COMPLETE
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Roof Paint Special, 40c a gal., $2.00 for 5 gal. can. We carry a full line of roof and house paints.
Prompt deliveries on Mail Orders.
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Phone B'way 5401. Los Angeles, Calif.

GOPHER TRAP

"Go-For The Gopher." The Star Gopher trap is the best. Positive acting wire trap you can use. Interlocking jaws, very easy to set, right principle. Price 30 cents postpaid. Stamps accepted. Four for $1.00. Agents wanted. Star Manufacturing Co., 3802 Sunset Boulevard, Los Angeles.

GOVERNMENT LAND

300,000,000 Acres Free Land in U. S.—Send for free descriptive circular of our 100 page book THE HOMESEEKER, which tells you where this land is and how to acquire it, or send $2.00 for book direct. The Homeseeker, Dept. M, 336 S. Broadway Los Angeles, California.

PHEASANTS

Beautiful Chinese Ringnecked Pheasants, a few pairs at $10. Eggs $5 per setting. Pause Pheasantry, Fair Oaks, California.

GEESE

McNeely's Mammoth Geese $5.00 each, $15.00 for trio. Eggs in season 25c each. Peacocks $5.00 each. Chas. McNeely, Alnaugh, California.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Easements on Homestead

I own property upon which the original owners made declaration of homestead as the heads of family, which is duly recorded. After this declaration, deeds giving easements over the property were executed by the husband, in which, however, the wife did not join. The husband also executed a trust deed to a third party, in which the wife did not join. Under this trust deed, a third party granted to others the rights to develop water with riparian rights, which would seriously interfere with the use of the property. None of these rights have been exercised since the dates of the grants, now over 20 years old. Would the fact that the wife failed to join in the trust deed or in the easements invalidate them? Would the fact that the easements have not been exercised for over 20 years be ground for not permitting the parties to enter the property or to exercise such rights? What action should be taken to prevent such exercise, should exercise be attempted?—Subscriber, Los Angeles.

It is expressly provided by the code that the homestead of a married person cannot be conveyed or encumbered unless the instrument by which it is conveyed or encumbered is recorded and acknowledged by the concurrent act of both husband and wife. As the instruments mentioned would constitute either conveyances or encumbrances of the property, and the wife failed to join therein, they would undoubtedly be invalid as there has been no exercise of the rights thereunder. It would also doubtless be considered that the parties to whom the rights were granted had abandoned their interests, but as these instruments are of record, that would constitute a cloud upon the title of the property, which should be cleared by means of an action to quiet title brought against the various grantees.

Trespassing Hogs

A neighbor runs hogs and cattle. I run cattle in my fields and there is a good fence to turn cattle but it will not turn hogs. His hogs pasture largely upon my place. I have several times confined them in a corral and he has always come and got them. He pays no attention to my request to keep them off. Is it necessary that I put up a hog-tight fence? What can I do? —Subscriber, Dry Town.

As the land is all pasture land it would seem that under the general acts concerning estrays and trespassing animals there would be little relief, as these acts refer to lands which are planted to growing crops. It is possible, however, that a careful examination of the statutes pertaining to the individual county within which you are situated might give you relief, as these statutes vary. Otherwise, you are confined to merely taking the animals up and taking the lien provided in the estray act.

Private Telephone Line

Some time ago I gave permission to a neighbor to run a proper telephone line over my pasture upon the condition that he raise the line so that it would not interfere with the man rounding cattle in the field. He has failed to do this and the line is but a few feet off the ground and is very dangerous.—Subscriber, Dry Town.

Apparently this was a mere license made upon a condition which has not been fulfilled. The proper method to take would be to notify the delinquent party that unless the line was properly constructed within a certain time that at the expiration of that period you would take measures to cut the line off. Thereafter, if the condition was not performed, you could cut the line at the edge of your fields.

Damages From Runaway Team

A team ran away and collided with my fence, causing damage to the netting and posts. Can action be brought and damages collected against the owner of the team? — Subscriber, Ripon.

It would certainly seem that you would be entitled to recover the value of the property damaged. The action

(Continued on Page 339.)

Poultry Queries

Conducted by J. A. Koethen

Trapnest Door

Can you give design for easily constructed catch for setting and releasing door of trapnest?—Subscriber, Artesia.

I have mailed you Circular 142 of the California agricultural experiment station, which fully describes the California trapnest. Its door is hinged at the top, being swung inward and held at the bottom by a wire hook at just the right height so that when a hen enters the nest and walks under the door her back will raise it enough to release the hook and close the door quietly behind her. As the door swings shut against the outside door top (a three inch straight screw hook) the inside door top (a bent piece of No. 6 wire) drops down and locks it from the inside.

Swellhead

Some of my chickens have a large swelling in front of the eyes that comes to a head. They do not seem to have a cold, and the swelling appears on but one side. Others have eyes swollen and pale around the edges, with a watery discharge.—Subscriber, Rialto.

Both the swellings and the swollen watery eyes indicate roup. The simplest treatment is with potassium permanganate, but you cannot permanently get rid of the disease till you have gotten rid of the cause, which is almost always dampness in the roosting house, due sometimes to lack of ventilation, sometimes to rain coming through leaky roofs or under the foundation, sometimes to lack of drainage. Roosting houses should be open in front and should front south, so that the sun on winter days penetrates to the farthest corner. They should also, if possible, be in the highest part of the yard so that the damp night air may fall away from them instead of into them. It may be you have too many hens in one house, and they are so overheated at night that they chill when they come out in the morning. Possibly there are knotholes or cracks in the wall and a draft blows on the heads of the birds. Whatever the trouble, you will have to find and remedy it in order to stamp out roup. Before using the permanganate open the swellings under the eyes and cleanse with boric acid, hydrogen peroxide or some other antiseptic. Massage the nostril, rubbing upward toward the eyes, to loosen the mucous. Then drop a few permanganate crystals in a lard pail or quart measure of warmish water, just enough to give a pinkish tint. Dip the head of the bird in this solution and hold it there while you count ten, or longer if the bird can stand it. Repeat morning and night, using a fresh solution each time, till the disease disappears.

Indigestion

My hens have occasional diarrhoea and sometimes a whitish discharge from the vent. I feed clean grain, mostly milo maize, wet bran, soaked alfalfa, cooked potato peelings and some cooked fresh meat.—Mrs. C. H. B., Casa Grande.

An unbalanced ration and lack of green feed is causing indigestion. Your hens should have either one of the commercial mashes, which may be procured at any feed store, or a mash which you can mix yourself from a few simple ingredients. Equal parts bran and shorts with from 15 to 20 per cent beef scrap added, or 3 parts bran, 1 part shorts and 1 part corn meal with the same amount of beef scrap makes a good home made mash. If you care to mix a mash containing more variety try this, which is recommended in the last feed letter from the university farm (Feed Letter 12, Poultry Division, University Farm, Davis, Cal.): 50 pounds wheat bran, 50 pounds shorts, 50 pounds ground barley or oats, 20 pounds vegetable meals (soybean, cocoanut, linseed or cottonseed), 30 pounds meatscrap or fishscrap, 5 pounds finely granulated charcoal, 1 pound finely sifted dairy salt.

The dry mash should be before them all the time and the grain fed morning and night or only at night. It is better to feed two grains than one alone. You might use either wheat or barley with the milo. Then at noon give all the greens the hens will eat. Wet alfalfa does not take the place of succulent green feed. The cooked meat is all right for an occasional meal, and the potato peelings might be made into a moist mash with bran to be fed once a day as an appetizer.

Another Roup Cure

W. S. Kates of San Jose writes that he has found soda nuxine an excellent remedy for roup. This is a new remedy to me, and I am sure many readers will be interested, though I still believe that no cure can be permanent till the cause of the disease is removed.

Chicken Pox

We have a turkey gobbler that has scabs all over his head. Some of the hens are also getting them.—Subscriber, Orland.

Here is a remedy for chicken pox in turkeys which was given me only last week by a successful breeder: Rub all affected parts with carbolated vaseline. Mix and grind 2½ pounds each of nitrate of soda, copperas and Epsom salts. Add 2½ pounds powdered sulphur, 3¾ pounds dairy salt, 2 pounds carbonate of soda, ½ pound ground ginger, ½ pound carbonate of magnesia, 12½ pounds dry bone meal and 12½ pounds fine charcoal. Mix well and add 5 pounds of the mixture to 50 pounds mash for 100 turkeys. When this has been eaten mix 15 pounds of the mixture with the same quantity of mash and then a third time add from 6 to 10 pounds of the tonic to the 50 pounds of mash. The lady who gave me this prescription says she has found it a sure cure.

Bloody Shells

Why are my pullets laying bloody shelled eggs? I have been giving some special stimulants to induce laying. Do you think I have overstimulated them? I feed a warm wet mash of bran, ground milo maize, ground barley, meat scrap, cracked corn and tonic in the morning, and wheat, milo and occasionally rolled barley at night. Their allowance of greens is short.—Subscriber, Compton.

Yes, the blood on the eggs shows that the egg organs have been overstimulated. It is better to keep a dry mash before the hens constantly and to feed a moist mash only when they need a little coaxing. Please note reply to Casa Grande subscriber. The mashes suggested there should fit your need. Omit the tonic. Your hard grain ration is all right, but do not feed too much grain. A quart a day to from 12 to 15 hens is plenty. You can give a little in the morning and the rest an hour before sunset, or throw their breakfast in the litter the last thing at night so it will be ready as soon as they are off the roosts. Greens are very important. If you have nothing else, try mustard, wild radish, bur clover and other wild growth. Sprouted barley or oats once

Harvester Company Brands Story False

DURING the past month, reports have come to us that at farmers' meetings charges have been made, sometimes directly and sometimes indirectly, that this Company has adopted a policy of refusing to supply repair parts for old machines in order to compel the purchase of new ones. This statement is absolutely false. Such a policy has never been considered by this Company nor suggested to it.

Ordinarily we ignore such reports, because we have learned that any large company, no matter how fair and high principled, is subject at all times to unjust criticism. The facts are this Company has always recognized the importance of repair service and has used every effort to make IHC service the best. We believe we can truthfully say that the repair service furnished wherever this Company's goods are sold is equal if not superior to that furnished on any manufactured line.

We call attention to the fact that machinery "Fix-up Weeks," instead of being something new and originated by the farmers in 1921, as some seem to think, were really an outgrowth of the movement started by manufacturers and dealers' associations in connection with the Council of National Defense as a war conservation measure. Perhaps no other agency has done so much to promote "National Repair Weeks" as this Company.

The farmer needs machines which will be efficient and economical. If his old machines can be repaired so as to render efficient and economical service, he would be foolish to purchase new ones. Whether the farmer utilizes and repairs his old machines or buys new ones is a question for him to determine. But in making his decision, we give to every farmer who owns any IHC machines the assurance that a full stock of repair parts will always be provided by this Company.

Today, our repair stocks on the territory available for the farmers are 21 per cent greater than ever before at this time of the year. An average of a quarter million pounds of repairs are shipped from IHC factories for every working day in the year. Thirty million dollars' worth of repair parts are now ready, as insurance for the farmer when he needs this service.

In every International Harvester Works manufacturing orders call for repair parts first and even when furnishing them has meant cutting down production of new machines for which we had orders, repairs have always had preference.

At every one of our 91 branch houses trained men are on duty to see that all orders are filled and shipped promptly. Thousands of dealers scattered everywhere with an assortment of repairs in stock are always ready and willing to render every assistance.

This service which this Company has rendered through the years to those who have purchased its machines has been a matter of great pride to the Company, and is the foundation of the cordial good-will existing between it and its customers.

We feel it is due the Company and those who have purchased its machines that we give the widest publicity to the fact that this service of repairs will be maintained and improved, and that any charges to the contrary are untrue.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
(INCORPORATED)
CHICAGO U S A

"Pioneer" Blue Flame
100 to 1,000 Chick Brooder

Makes blue flame gas from common coal oil, no wick, very economical to use.

LARGEST HOVER OF ITS kind on the market, solid brass sight feeds, needle valves, extra well made in exery detail. Send today for free circular. MADE ALSO TO ORERATE ON

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One size only, 54 inch, $25 crated ready to ship.

PIONEER INCUBATORS

72 eggs to 540 eggs, used by 60 Western Hatcheries. Send for free 48 page catalog today.

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SICK BABY CHICKS?

There's no excuse for losses beyond 10% to full maturity. Baby chicks are tender and susceptible to diseases—just as an infant—but it's natural for them to live and thrive. Give them the proper protection and care and they will grow into money for you.

I'll tell you how. I've helped thousands of poultry raisers during the last twenty years and have thousands of letters thanking me. I'll show you how to raise at least 90% of your hatch, get more eggs, make money. Here's my proposition:

MONEY BACK IF NOT SATISFIED

My Germozone, on the market a quarter of a century and used continually by many during all that time, is both preventive and curative—a remedy for roup, colds, canker, diarrhoea, swelled head, chicken pox, bowel trouble and all such ailments of poultry and pet stock. With this I give ABSOLUTELY FREE my books, "Care of Baby Chicks" and "Lee's Poultry Book." These books tell how to avoid the pitfalls and mistakes that cause so many to fail in poultry work. Tells how to house and feed and care for chickens, how to detect diseases, how to prevent sickness and how to overcome ailments already present. Every bit of advice is based on common sense and actual experience.

Get a package of Germozone tablets—25c and 75c sizes—from your dealer or direct from me. Use Germozone and follow my directions for 60 days. If you are not entirely satisfied return the empty carton, with this advertisement, to the place where you purchased the Germozone and your money will be returned to you immediately.

I make this remarkable offer because I know you will get far better results. Start today. Thousands of others are having big success with my remedy and my system. You can make your poultry pay.

At your drug or seed dealer, or direct, C. O. D. if desired, from

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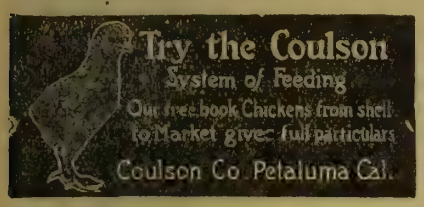
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Aggeler & Musser Seed Co. Los Angeles, California

a day is a great help in inducing laying. Sprout the grain four or five days and feed when the sprouts are about one-eighth inch long.

For Growing Chicks

I have some chicks coming off in a couple of weeks. How shall I feed them for early development?—Subscriber, Compton.

Start them on rolled oats, with grit, water and, if you have it, sour milk before them. The second day put chick feed before them and the third add bran to the chick feed. By the end of a week they should have a chick mash before them part of the day, and after three or four days it may be left before them constantly. Good chick mashes may be had at all feed stores but it is a good plan to add rolled oats to the mash for a while. The oats make frame. By the end of a week you can begin to add whole wheat and cracked corn or gyp corn or milo to the chick feed, just a little at first. The sooner you can get the chicks off the fine chick grain and onto whole grain the better. After three or four weeks drop the chick mash and keep a growing mash before them. Give all green feed and all exercise possible. If you can give free range so much the better. Exercise is just as important in producing early maturity as is feed. After 2½ to 3 months you can change from the growing mash to the laying mash, but do not force the pullets. They must make frame and muscle before they can become steady producers.

Squab Book

Where can I get reliable directions for raising and care of squabs?—Subscriber, Escondido.

The National Standard Squab Book, by Elmer C. Rice, P. O. Box 175, Boston, Massachusetts, contains complete directions for squab culture.

POULTRY PRODUCERS WANT MEMBERS

The Poultry Producers of Southern California are out for members and they are going to get them. There are now 540 shippers, members of the association. This is the largest number since the formation of the association, but it is not enough, for there are sufficient eggs outside, used by independent dealers in complicating market conditions so that association eggs cannot be sold to best advantage. Furthermore, a campaign is being made with members for a cleaner, higher grade product. In a circular letter to members, Cornele Ross, chairman of the executive committee, writes:

"We would suggest to all our members that they take immediate steps to clean up their houses and nests so that the number of soiled eggs may be reduced to a minimum. This would materially increase our returns, for dirty eggs are always a source of added expense and annoyance, especially when some of them cannot be promptly disposed of, but must be placed in storage. Greater care should be taken in grading and packing if we are to handle the increased receipts with a minimum of help and expense at the receiving station."

HEMET POULTRY CLUB

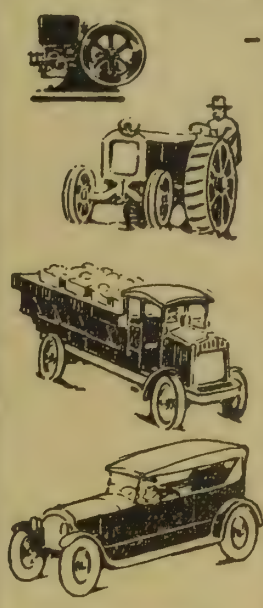
Assistant Farm Adviser John F. Osborn is making arrangements for the formation of a poultry club for the boys and girls of Hemet Valley, through the poultry association.

The members of the junior club will organize with the usual officers and they will hold meetings once a month. All school boys and girls who can do the required work are eligible for membership. Meetings will be held once a month and once a month the club will be visited by W. R. Rallston, leader of club work for Southern California.

POULTRY EXPERT WANTED

A movement has been started among the Poultry Producers of Southern California to get a poultry extension expert for Southern California and arrange to install an egg laying contest in Southern California under the direction and auspices of the farm bureau.

Worn and leaky piston rings waste motor power and fuel



—install rings that won't leak!

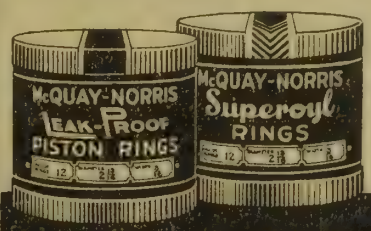
Leaky piston rings are too costly, no matter how little you pay for them. If they are not designed right and if they aren't carefully manufactured from the finest metal—they will let enough oil and gas waste past them to cause many oil and carbon troubles, a great loss of engine power, and a tremendous waste of gasoline and lubricating oil.

What little extra money the best rings cost you is made up many times over in economical and satisfactory gas engine operation.

McQuay-Norris Equipment—the Superoyl Ring to keep oil out of the combustion chamber—and the genuine Leak-Proof Ring to prevent the leakage of fuel—will increase your gas engine power—save gas and oil—and decrease carbon troubles. These rings represent 10 years of successful experience in piston ring manufacture. Your dealer can supply you in any size or over-size for any make or model of engine.

Always install the combination

McQuay-Norris Mfg. Co., St. Louis, U. S. A.



Write for Free Book

It explains why McQuay-Norris Piston Ring Equipment will increase gas engine power, save fuel and oil, and decrease carbon troubles. Address Dept. AB

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McQUAY-NORRIS
LEAK-PROOF Superoyl
PISTON RINGS

Wonderful New Hay Crop
SUDAN GRASS

First Introduced into the U. S. in 1909 from the Sudan in Africa. Tests by the department of agriculture have proved it to be of the greatest value in the Southern and Western states, where rainfall is deficient.

Culture—Sudan Grass is strictly an annual. It may be drilled or broadcasted. If drilled 8 to 12 lbs. per acre is ample; for broadcasting 15 to 25 lbs. should be used. It grows 8 to 10 feet high and yields from 3 to 8 tons per acre. You are sure of two cuttings, and if irrigated three or four cuttings.

Sudan Grass for Pasture—During the months of August, September and October all other grasses are dry, then is the time Sudan is most valuable for fall pasture, and by having it fenced in small fields it will yield food for six times as much stock as any other forage will without irrigation. For milk cows and hogs, there is no better and more abundant pasture than Sudan Grass. It will solve the hay proposition as nothing else can or will do in this climate. A good silage and balanced ration. This seed was grown on our own farm, and is free from Johnson Grass.

Price Per Pound:
10 lb. lots, 20c 100 lb. lots, 15c
250 lb. lots, 12c 500 lb. lots, 12c
1000 lb. lots, 10c

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721 J. Street Sacramento, Cal.

Commercial Fertilizer
Nitrate of Soda Fish Tankage
Sulphate of Ammonia

Hawaiian Fertilizer Co., Ltd.

Los Angeles Office
909 California Bldg.
Main 5408

Fresno Office
1120 Mattei Bldg.
Phone 1437

Los Angeles Markets

Los Angeles, March 2, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price, 48 cents.

Feb.	23	24	25	26	28	Mar. 1
'21 ...	60	60	59	59	48	48

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 32 per dozen. Case Count Produce Exchange closing price 30 per dozen; pullets, produce Exchange closing price 30 per dozen.

Dairy Exchange price last week on extras:

Feb.	23	24	25	26	28	Mar. 1
'21 ...	33	32	32	32	32	32

POULTRY

Price to producers: Hens, lt., 35; heavy 35; colored, 35; broilers, 55; roasters, 40; old roosters, 20; fryers, 55; ducks, old 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 14@19; old, 9.

LIVESTOCK

Los Angeles, March 1. — Weighed and delivered off cars without food or water: Hogs, (hard grain), 125 to 175 lbs., 11.50; 175 to 225 lbs., 12.00.

Cattle (on foot, gross weight): Steers, good, 9.50@10.00; medium, 9.00@9.50. Cows, good, 8.00; medium, 7.00@7.50. Calves, 1.25 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 6.00; lambs, 12.00@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock, March 1, by to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies heavy, market dull. Stocktons: Burbanks, quality poor, mostly 1.75@2.00; best, 2.25@2.35. Idahos: Russets mostly 1.90@2.00. Local: White Rose mostly 80@90 per lug; 2.00@2.25 per 100 lb. sk. New, supplies light, demand good, lb., 17@20. Sweet potatoes; Supplies light, market strong. Best mostly 2.25@2.50 lug; Arkansas, lb., 7@8.

Onions: Supplies heavy, market dull. March 1, by Los Angeles wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Garlic: Local best mostly 12@15 lb.; poorer 8@10.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock March 1, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 1.50@2.00; few 2.25.

Beets: Doz., 40@50; sk., 1.75@2.00.

Cabbage: Field cr. best mostly 65@75; poorer 50.

Carrots: Doz., 30@35; sk., 1.00@1.25.

Cauliflower: Supply moderate, field cr., best, 2.50@2.60; poorer, 2.00@2.25.

Celery: Cr., best 2.50@3.00; mostly, 2.75.

Cucumber: Hothouse, best, 2.00@2.50 doz.

Peppers: Bells, 18@22; Chilis, 20@25.

Lettuce: Local field cr. mostly 50@80; best mostly 70@80.

Peas: Supplies liberal, market firm. Imperial Valley, quality good, 11@14 per lb. Local, quality poor; sack sales, 7@8 per lb.; small lots, 10@11 per lb.

Radishes: 15 doz.

Rhubarb: Crimson Winter, best bx., 1.85@2.10; poorer, 1.75.

Spinach: Doz., 25@30.

Squash: Local Hubbard and Banana, lb., 1½@2.

Tomatoes: Mexican, per lug, original 3.00@3.50, repacked lug 3.50@3.75, repacked crates 3.00@3.25. Local, best 1.75@2.25.

Turnips: Per dozen, 25@30; sack, 90@1.10.

DECIDUOUS FRUITS

These are the actual prices obtained March 1, by the Los Angeles wholesalers in sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms Cash on walk.

Apples: Supplies liberal, movement good, market firm. California: Bushel boxes Bellfleurs, fancy 4 tier best 2.35 2.50; ordinary, 2.00@2.10; 4½ tier, 1.85 @2.00; Jonathans fancy 3.00@3.50. Delicious fancy 3.00@3.75. Rome Beauty, fy., 2.75@3.25. Idahos and Utahs: Loose Jonathans. Romes and Arkansas Blacks, best mostly 6@7 per lb. Oregons and Washingtons: Bushel boxes, extra fancy Jonathans and Spitzenburg mostly 3.25@3.50; small sizes low as 2.75.

Pears: Various varieties, 6@10.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 2.00@2.75; special packed brands, 2.50@3.25; Imperial box, 4.75@5.25; small sizes 4.25@4.50; Arizonas, 4.25@4.50; few high as 5.00.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.50 @2.25, few high as 3.00; loose, bx., 75@1.00; lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack large size 2.50@3.00; small low as 1.75; special brands small sizes 2.75@3.25 large 4.25@4.50; packing house culls, 25@85 box; few large size 1.00. Tangerines, best, 6@7 lb., small, 4.

HONEY

Supplies heavy. Demand slightly improved. Movement slow, market weak, prices lower. Prices and quotations f. o. b. usual terms: White orange blossom, 14@15, some high as 18; White Sage, 12@14; White Alfalfa, 12, Light Amber, 7@11, Light Amber Sage, 11@12; White Hawaiian 8, Light Amber Hawaiian 6. Beeswax: in l.c.l. sacked 33@35. Shippers expect lower prices, especially on dark honey which is said to compete with sugar. A large crop expected here account of recent rains.

WALNUTS

California Walnut Growers Association's prices: Soft Shell, No. 1, 22½; Soft Shell, No. 2, 18½; Budded, fancy, 26½; Budded, standard, 22½.

GRAIN AND FEEDS

Grain Exch. price bid March 1:
Milo: Carlots, 1.92½.
Eastern Kafir: No. 3, 1.52½.
Barley: 1.28¾.

HAY

Alfalfa Growers of California report under date of March 1:

Receipts during week: 1,500 tons on track; holdover, 1,100 tons.

Rabbit Alfalfa	36.00
No. 1 Dairy	24.00
Standard	21.00
Stock	16.00

Quotations by Nichols Loomis Company. **Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:**

Tame Oats	20.00@30.00
Barley	20.00@30.00
Alfalfa, No. 1 Dairy	25.00
Standard	17.00@21.00

San Francisco Markets

San Francisco, March 1, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 48½

Dairy Exchange prices extras this week and year ago:

Feb.	22	23	24	25	26	28
'21 ...	..	58½	59	58½	53	48½
'20 ...	..	..	66	66	62	63

Rcts. wk. ending Feb. 28, 3,321 centals.
65 centals of butter received from Seattle Feb. 26.

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Ore. Y. A.	35
Ore. Trip	35½
Cal. Y. A.	34½
Cal. Flats	24

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	38
Extra Pullets	32½
Undersized	31½

Dairy Exchange prices, extras this week and year ago:

Feb.	22	23	24	25	26	28
'21 ...	..	37	36	36	37½	38
'20 ...	..	..	48½	48½	45	45½

Rcts. wk. ending Feb. 28, 601.002 dozen.
552 dozen eggs were received from Seattle Feb. 26.

POULTRY

Wholesale prices are:
Hens: Colored, 33@35; White Leghorn, 33@35; strictly young roosters, 38@40; old roosters, 22@25; fryers, 50@55; broilers, 65@68.
Ducks: 30@35.
Squabs: 75@80 per lb.
Turkeys: Dressed, fancy, 50@54; poor quality 42@45 per lb.; live, 43@45.
Geese: 32@35 per lb.
Pigeons: Old, 2.50@3.00 dozen.
Belgian Hares: Live, 25@28.
Jackrabbits: 2.50@3.00 per doz.

LIVESTOCK

Western Meat Co. prices:
Cattle: Steers, No. 1 8@8½; do, second quality, 7@7½; do, thin, 4@5½.
Cows and Heifers: No. 1, 6½@7; do, second quality, 5@6; do, thin, 3@4.
Calves: Light weight, 8½@9½; medium, 8@9; heavy, 7@8.
Lambs: Milk, 10@11; yearlings, 8½@9.
Sheep: Wethers, 6½@7½; ewes, 4@4½.
Hogs: Hard, fat, grain-fed, weighing 100 to 225 pounds 11; 225 to 300 pounds, 10½; 300 to 400 pounds, 9½.

California Farm Bureau Marketing Association reports:

No.	Hogs Ave. Wt.	Dock	Price
Tulare, February 22			
48	190	...	$10.85
91	173	...	10.50
84	197	...	10.40
72	222	...	10.40
69	229	...	10.15
13	161	...	9.85
16	120	...	9.85
22	353	380	8.00
Five cars, 41 consignors, $8,590.51.			
Visalia, February 23			
78	191	...	10.60
91	168	...	10.60
59	225	40	10.15
8	323	90	7.65
Three cars, 23 consignors, $4,741.70.			
Hanford, February 24			
84	200	...	10.45
95	164	20	10.45
62	158	...	10.25
75	217	...	10.25
52	189	...	10.25
7	255	...	9.75
4	345	...	9.25
2	115	...	9.25
25	364	290	7.00
4	682	1090	5.00
Six cars, 30 consignors, $8,156.68.			
McFarland, February 25			
79	18	...	10.55
93	158	...	10.50
77	223	...	10.50
82	210	...	10.45
82	204	...	10.45
82	190	...	10.40
83	189	...	10.40
82	211	...	10.40
37	219	...	10.05
2	310	...	9.05
16	307	160	7.55
2	565	455	5.05
Nine cars, 27 consignors, $15,109.45.			

Total for the week, 23 cars, 121 consignors, $36,598.34.

HIDES AND PELTS

Hides: No. 1 heavy, 60 lbs. up, 5; No. 1 medium, 45 to 60 lbs. 5; No. 1 light, 30 to 45 lbs., 6; No. 1 native bulls, 4; No. 1 center branded in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 7; No. 2 wet salt kip, 15 to 30 lbs., 6; No. 1 wet salt calf, trimmed, 8; No. 2 calf, 2 per lb. less. The price of No. 2 hides will be 1 less than the price of No. 1. Hides having any defects will be classed as No. 2.

Dry hides, 16 lbs. and up, No. 1, 11; dry kip, 7 to 15 lbs., No. 1, 12; dry calf, under 7 lbs. No. 1, 14; dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, ½ price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Wet Salted Horse Hides: No. 1, large, skinned to hoof, 2.50; No. 1, medium, skinned to hoof, 1.50@2.00; No. 1, small, skinned to hoof, 50@1.00; No. 1, colt, skinned to hoof, 25@50.

Dry Horse Hides: No. 1, large, skinned to hoof, $1.50; No. 1, medium, skinned to hoof, 1.00; No. 1, small, skinned to hoof, 50@75; No. 1, colt, skinned to hoof, 25@50. All cut, scarred or badly cured hides are culls and worth proportionately less.

Goat Skins: No. 1 large, not matted, Angora, 30 up; No. 1, medium, not matted, 15@20; No. 2, 5@10. Damaged skins and very small kids, worthless.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearings, good, 1 to 3 months' growth, 10@20; shearings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20;

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, $1.75@2.25 for No. 1; do, Oregon Burbanks, 2.15@2.25; Salinas, 2.85@3.00; Idaho Gems, 2.15@2.25; sweet potatoes, 6.50@7.00 per 100 lbs.; Louisiana, 3.00@4.50; New, lb., 5½@6.

Onions: Australian brown, 75@90 per box.

Garlic: New, 7@10 lb.

VEGETABLES

Wholesale selling price:
Asparagus: Lb., 25@40; fy., 50.
Artichokes: Doz., 60@1.25.
Beans: 15@22½.
Beets: $1.50@2.00 sk.
Brussel Sprouts: 5@7 lb.
Carrots: 1.25 sk.
Cauliflower: Doz., 75@85.
Cucumbers: Hothouse, small, $4.50 box of 2½ dozen; large, $2.50@2.75 per dozen; English, $2@2.50 per dozen.
Cabbage: Lb., 1.
Celery: Cr., 2.00@3.00; fy. cr., 3.00@4.00.
Egg Plant: Southern, 5@20 per lb.; Florida, 20@25 per lb.
Lettuce: L. A. cr., 1.75@1.90; Imp., 2.50@2.75.
Onions: Green, per lug, 1.60@1.75.
Peas: Lb., large, 12@16; small, 8@10.
Parsnips: Sk., 2.00@2.25.
Peppers: Bells, Southern, 5@10 lb. for green; Florida, 20@22½; Chili, 10@15.
Rhubarb: 2.75@3.00 L. A. bx.; Alameda, do, 14@15; Sebastopol, 3.00@3.50.
Spinach: Cr., 1.25@1.50 lb.; 5@6.
Squash: Italian, nominal; Imperial Valley cream squash, 60@75 per lug; Hubbard squash, 1.00@1.25 per sack; Imperial Valley summer squash, 4.00@4.50 per crate; marrowfat and pumpkin, 1.00 per sack.
Tomatoes: Southern, 1.00@2.00; fancy, 3.00@3.50; hothouse, 35@40 per lb.; Mexican, repacked, 2.00@2.25 per crate, 3.00@3.50 per L. A. lug.
Turnips: Sk., 50.

FRESH FRUITS

Avocados: California, doz., 3.00@5.00; Tahiti, 2.00@4.00.
Bananas: Lb., 9@10.
Mangoes: Doz., 4.00@4.50.
Pineapples: 4.50@6.00 doz.

CITRUS

Navel oranges, 2.25@4.50; large, 4.75; lemons, 2.00@3.50 per box; lemonettes, 1.50@2.00; grapefruit, new crop, 2.00@3.50; limes, 1.00@1.50; tangerines, 2.50@3.75 per half orange box.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 18 lb.; Sunmaid, seeded, 36 15-oz. pkgs. 22 lb.; seedless Sultanas, 25-lb. bxs. 20 lb.; Thompson Seedless, 25-lb. bxs. 21 lb.; do, 48 15-oz. bxs. 22 lb.; 3-cr. L. M., 25-lb. bxs. 21 lb.; 2-cr., do, 20 lb.; 1-lb. clusters, 20-lb. bxs. 5.50 box.

Apricots: Fancy, 25 lb. boxes, 25 lb.; extra choice, do, 20 lb.; choice, do, 19 lb.; standard, do, 15 lb.

Peaches: **Blue Ribbon brand, 48 11 oz. to cs, $10 cs; Blue Ribbon brand, 24 2 lb. bxs. to cs. 11.00;** fancy, 25-lb. bxs. 18; extra choice, 25-lb. bxs., 16; choice, 25-lb. bxs., 14.

Pears: Fancy, 25 lb. bxs., 18; extra choice, 25 lb. bxs., 14; choice, 25 lb. bxs., 12.

Figs: Fancy black, 25 lb. bxs., 12 lb.; extra choice, do., 9 lb.; choice do, 8 lb.; fancy white, do, 14 lb.; extra choice white, do, 12 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4 layer, 10 lb., 2.00 box; choice 4 layer, 10 lb. boxes, 1.75 box.

Prunes: 30-40s, 25 lb. bxs., 14½; 40-50s, do, 11 lb.; 50-60s, do, 9½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6¾ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8 lb.; choice, do, 7 lb.

NUTS

Peanuts: Japanese, 8.
Pecans, 25.
Almonds: California Almond Growers Exchange quote:

Nonpareil	26
I. X. L.	26
Neplus	25
Drake	18
Languedoc	17
Hard Shell	12

BEANS

Below California Bean Growers Association shippers prices choice recleaned, Feb. 28:

Pinks	5.50
Large Whites	4.10
Small Whites	3.60
Mexican Reds	5.90
Blackeyes	6.50
Red Kidneys	9.00
H. B. Limas	5.40
Hayes	9.25
Crans.	6.05

HOPS

Cal. 1920, lb., 33@35.

RICE

Pacific Rice Growers Association prices: Fancy Japan, 4.40; choice, do, 4.15; screenings, fancy, 2.50; do, choice, 2.25.

GRAIN

Sales grain exchange, March 1:
Wheat: Milling, 2.60@2.70; feed, 2.60@2.70.
Corn: 1.75@1.90; White Egyptian, 2.75@2.85.
Oats: Red feed, new crop, 1.45@1.50; seed, 1.65@1.75.
Barley: New feed, 1.25@1.35; off grades lower: shipping, 1.35@1.45.
Shorts: 39.00@42.00 ton.
Mill Run: 35.00@39.00 ton.
Middlings: 45.00@48.00 ton.
Milo: Cal. Red, 1.95@2.00; Eastern 1.60@1.70.
Kafir: Eastern, 1.60@1.70.

HAY

Alfalfa Growers of California report under date of March 1:

Receipts during week were 650 tons.

No. 1 Dairy Alfalfa	21.00
Standard	19.00

Under date of February 26, A. W. Scott Co. says:

Arrivals past week 650 tons. The hay trade continues to be extremely slow and the markets all over the state have been weak. Although offerings have been a little more free through the interior districts demand has been light and there has been apparently no particular need for hay in amounts that would influence or strengthen the market in any degree. While there is a feeling that hay has approached its normal level and will probably not decline much more there is an uncertainty as to future values that still prevents active trading.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00

Citrus Markets

Los Angeles, March 2, 1921.

The blizzard which swept over the East restricted sales for a time but moderating weather is now coming and fruit is moving with increasing demand. Quotations f. o. b. California are running around $3.00 with larger sizes commanding premium, for instance, 136's sell readily at $3.75. There are a great number, however, of extremely small sizes which are being cut seriously. The warm weather of last Friday and Saturday was not helpful to the keeping qquality of the fruit already fully ripened. The temperature in some of the orchard sections reached almost 90 degrees. Eastern auctions are showing good average prices.

Lemons are at practically the same quotations as last week with rather more foreigns on hand and available for sale within the next 30 days.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 8,238 cars; lemons, 1,982; total, 10,220. To same date last season: Oranges, 8,271; lemons, 1,938; total, 10,209. From Central California to date, this season: Oranges, 4,035; lemons, 95; total 4,134. To same date last season: Oranges 3,456; lemons, 233; total, 3,689. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

AT THE AUCTIONS

February 23

New York: 37 or., 3 mixed, 9 lem. Nav. 2.25-4.20, Tangerines halves 2.10-3.15, lem. 1.90-4.05.

Boston: 18 or., 3 lem. Nav. 2.70-4.25, lem. 2.60-3.35.

Pittsburg: 4 or., 1 lem. Nav. 3.55-3.85, lem. 2.60-2.70.

Philadelphia: 2 or., 2 lem. Nav. 3.35-4.05, lem. 2.75-3.20.

St. Louis: 6 or., 1 lem. Nav. 2.88-4.15, lem. 2.70-2.85.

February 24

New York: 23 or., 3 mixed, 11 lem. Nav. 2.55-4.35, Tangerines 1.75-3.95, Ruby Bloods 2.45, lem. 2.60-3.70.

Boston: 14 or., 2 lem. Nav. 2.75-4.15, Bloods 1.50-4.00, Tangerines 2.90, lem. 2.60-3.35.

Pittsburg: 3 or., 1 lem. Nav. 3.80-4.10, lem. 2.90-3.80.

February 25

New York: 20 or., 1 mixed, 4 lem. Nav. 2.75-4.80, Tangerines halves 2.65-2.95, lem. 3.00-3.75.

Boston: 11 Nav. 2.55-4.00.

Cleveland: 4 or., 1 lem. Nav. 3.60-4.40, lem. 2.80-3.35.

Philadelphia: 1 or., 2 lem. Nav. 2.70, lem. 3.10-3.95.

Cincinnati: 1 or., 1 lem. Nav. 2.70, lem. 3.20.

St. Louis: 6 or., 1 lem. Nav. 3.00-4.15, lem. 3.25-3.30.

February 28

New York: 28 or., 4 mixed, 10 lem. Nav. 2.55-4.45, Tangerines halves 2.25-3.35, Ruby Bloods halves 2.10, lem. 2.50-4.00.

Boston: 18 or., 2 lem. Nav. 3.00-3.80, Tangerines halves 2.95, lem. 2.80-3.70.

Pittsburg: 9 or., 2 lem. Nav. 2.20-4.25, lem. 2.20-3.40.

Philadelphia: 4 or., 3 lem. Nav. 2.65-3.95, lem. 2.05-3.50.

Cleveland: 6 or., 1 lem. Nav. 3.40-4.45, lem. 3.55-4.00.

March 1

New York: 13 or., 1 Blood, 1 Tangerine, 1 mixed, 5 lem. Nav. 2.75-4.25, Bloods halves 1.90-2.45, lem. 2.80-4.00.

Boston: 13 or., 1 lem. Nav. 2.90-4.00,

Tangerines halves 3.30, lem. 3.45-4.70.
Pittsburg: 3 or., 1 lem. Nav. 3.50-4.30, lem. 2.95-3.10.
Philadelphia: 3 or., 2 lem. Nav. 2.95-3.70, lem. 2.70-3.30.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Diseased Ovaries

I have a mare that is vicious when she comes in heat and kicks so I cannot work her at all. She seems to stay in heat most of the winter. At other times she is a very good horse. Is there anything I can give or inject that will keep her quiet? She has been bred but without success. Could she be spayed and if so what would be the cost?—Subscriber, Summit Valley.

Yes, she can be spayed and that is about the only treatment that will be effectual. She probably has one or both ovaries diseased, and when they are removed she will be as kind and good as ever. The operation is not extremely difficult but is seldom performed because there are few occasions for it. Only a few veterinarians are familiar with the operation so you might have some difficulty finding one to do it. The risk is not very great but there are some chances that you might lose her. The price depends entirely on the man. The operation should be performed through the vagina, then there will be the least danger of infection and no scars to show. Both ovaries should be removed whether both appear diseased or not. Should you not be able to have her spayed you might help her some by giving one-fourth ounce of bromide of potash in the drinking water once a day for a week. If this helps for a time then when the symptoms return repeat the bromide.

Horse Rubbing Tail

I have an eight year old horse that habitually backs up against a post and rubs the base of her tail against it so that much of the hair is kept worn off. Can you suggest probable cause and cure?—Subscriber, Thermal.

This may be due to pin worms or a mite in the skin. For pin worms inject tobacco water. Use a paper of scrap tobacco and boil it for 20 minutes in three gallons of water. Strain, and when cooled to blood temperature, inject it all at one time into the rectum. Repeat this in one week. For mites in the skin: Scrub the tail with tobacco water made as above. Do this once a day for a week.

Sick Hogs

What is wrong with our hogs? One by one they become sick and droop. They stand in a humped position or lie for hours, but not always asleep. They eat barley and drink water but do not care much for milk and mash. The worst one has difficulty in breathing and is swollen about the head, the nostrils being nearly closed. They were sick before we noticed it because they are thinner than the rest now, etc. What would you advise?—Subscriber, Greenfield.

Better consult a veterinarian as it may be hog cholera and in that case will go through the herd. One can not tell without seeing them. The most you can do without help is to separate the sick ones from the rest and clean up the place. Then sprinkle plenty of dry lime about, making the place white with the lime.

Period of Gestation of the Cow

I have a cow that was bred June 20, 1920. When could one expect the calf?—Subscriber, Petaluma.

The period of gestation of the cow is 285 to 290 days so in your case you may expect the cow to come fresh soon after April 1.

Sweeny

I have a horse that is sweenied in both shoulders. Is there a cure for it?—Subscriber, Mt. View.

Sweeny, or atrophy of the muscles of the shoulder, is due to a strain. The sooner it is treated the better. External irritants such as liniment or blisters are of little account. An old fashioned remedy is to run a tape under the skin the whole length of the muscle and leave it there until the muscle fills up to its normal size. The tape should be moved up and down every day and some oxide of zinc ointment rubbed on the tape. This remedy is not used much now. A better remedy is to inject the muscle with an hypodermic syringe, using equal parts of turpentine and alcohol. A few drops of medicine should be injected deep into the muscle in several places. This may have to be repeated once in about two weeks but one treatment usually is sufficient. Only a veterinarian should do this as others do not know how to clean the parts or use the syringe.

ARIZONA POULTRYMEN GET BUSY

Maricopa County, Arizona, has an enthusiastic and active bunch of poultrymen cooperating in an association which holds monthly meetings at Phoenix: W. J. Fetterly, president; Mrs. O. F. Temple, vice-president; Arthur G. Freeland, secretary-treasurer.

A committee has been conferring with the state university authorities at Tucson with the object of developing and enlarging the activities of the poultry department. Also egg laying contests and breeding experiments are believed desirable in order to try out all phases of poultry keeping under Arizona conditions of feeding, breeding, incubation and housing.

STORAGE SEASON HERE

The management af the Poultry Producers of Southern California is sending out this notice:

"Market conditions today make it necessary that packing for storage begin at once, and you will therefore discontinue washing or cleaning any eggs from this date.

"Pack all dirty eggs separately and mark plainly."

SWELLHEAD IN TURKEYS

Swellhead in turkeys is cured by opening and cleaning out the swellings under the eyes. Then nostrils, cleft of mouth and opened swellings are sprayed once a day with this mixture: 2 teaspoons castor oil, 1 teaspoon turpentine, 1 teaspoon coal oil. When young turkeys develop leg weakness painting the legs with iodine is found helpful.

The San Juan Union High School at Fairoaks, Sacramento County, has installed a butter fat testing machine.

WEATHER REPORT

San Francisco, Cal., February 26, 1921.

Stations	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	3.22	40.48	31.07	62	38
Red Bluff	.20	23.55	17.38	74	38
Sacramento	.05	14.20	13.77	[illegible]	42
San Francisco	.46	19.82	16.10	69	47
San Jose	...	.....	11.49	76	[illegible]
Fresno	.11	6.26	6.38	72	40
San Luis Obispo	.32	15.05	13.78	86	40
Los Angeles	.02	7.02	10.77	92	47
San Diego	.06	3.37	6.99	88	44

KILL MITES and LICE

Wegner Medicated Poultry Roost

The greatest proposition ever offered to the poultry raisers of this country.

Write us for full information and our introductory trial offer.

We want a Live Wire Poultryman to represent us in every poultry district.

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EFFECTIVE IMMEDIATELY

We will ship you immediately on receipt of order any standard Remco tank of the dimensions or capacities shown below, at the prices here listed:

WATER AND OIL TANKS

Made from 2-Inch Clear Air-dried Redwood

Capacity Gals.	Capacity Bbls. 42 Gals.	Outside Dimensions Diam. ft.	Diam. in.	Height ft.	Height in.	Shipping Wt. Lbs.	Price
500	12	5	5	3	11	440	$ 30.40
750	12	5	9	4	11	580	38.95
1,000	24	6	6	4	11	655	44.65
1,500	36	7	1	5	11	830	57.00
2,000	48	8	1½	5	11	975	66.50
2,500	60	8	4	6	11	1,145	76.95
3,000	71	9	1½	6	11	1,270	87.40
3,000	71	8	5	7	11	1,290	87.40
4,000	95	9	10½	7	11	1,555	110.20
4,000	95	9	2½	8	11	1,580	110.20
5,000	119	10	11	7	11	1,745	124.45
5,000	119	10	3½	8	11	1,790	124.45
6,000	143	11	4	8	11	2,010	140.60
7,000	166	12	1½	8	11	2,160	150.10
8,000	190	12	3	9	11	2,375	165.30
10,000	238	13	7½	9	11	2,770	190.00

Made from 3-Inch Clear Air-dried Redwood

Capacity Gals.	Capacity Bbls. 42 Gals.	Outside Dimensions Diam. ft.	Diam. in.	Height ft.	Height in.	Shipping Wt. Lbs.	Price
10,000	238	13	10½	9	11	4,660	$ 285.00
12,000	285	13	10½	11	11	5,370	327.75
15,000	357	15	6	11	11	6,080	384.75
20,000	476	17	10	11	11	7,280	446.50
25,000	593	18	4	13	11	8,510	522.50
30,000	714	20	2½	13	11	9,800	589.00
40,000	952	23	0	13	11	11,300	705.85
50,000	1190	24	0	15	11	13,400	855.00
60,000	1428	26	3	15	11	15,100	940.50
70,000	1666	28	4	15	11	16,700	1,068.75
80,000	1904	30	3	15	11	18,000	1,168.50
90,000	2142	30	2	17	11	19,800	1,273.00
100,000	2380	30	0	19	11	21,100	1,396.50

All prices are for tanks complete, ready to erect, K. D., F. O. B., Pittsburg, Cal.

The above tanks are standard sizes. We design and manufacture tanks of all sizes up to 650,000 gallons capacity and tanks of special shapes to meet all requirements.

Complete Instructions for Erection Accompany Each Tank.
If Erected in Accordance With Those Instructions
We GUARANTEE the Tank

Remco Pipe Prices Also Have Been Reduced. Write for Details.

Redwood Manufacturers Company

1604 Hobart Building, San Francisco
Los Angeles Office: 308 East Third Street

TOP-DRESSING TALK
No. 8

Don't Waste Time and Labor!

Can you afford to be bothered by a wet lumpy fertilizer that must be crushed and screened before it can be applied?

There is a better fertilizer—one which will greatly reduce your labor of hauling and application.

Arcadian Sulphate of Ammonia has proved itself to be the most economical fertilizer on the market.

Its crop-producing power per pound nitrogen is equal to any other nitrogenous fertilizer.

It contains one-third more nitrogen than any other top-dressing material.

Ammonia 25¼% guaranteed.

It is all soluble and quickly available but is not readily leached from the soil.

Being a by-product of the American coke ovens it is the lowest priced ammoniate obtainable.

From Bag to Fertilizer Distributor

It is the fertilizer for your orchard, meadows, grain and for your truck crops.

Write Desk No. 5 for our free instructive booklet. Ask your local dealer to secure stock or order direct from the larger dealers.

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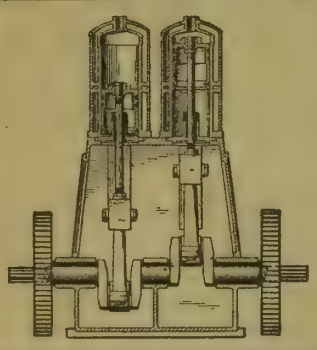
For information as to application write Desk No. 5

The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.



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Brake Test, 15 Horse Power — Weight 700 Pounds

Zenith Gas Engine is a two cycle engine, has no valves or springs, has two explosions to every revolution, giving continuous power. For pumping or any stationary farm power. Write for full information.

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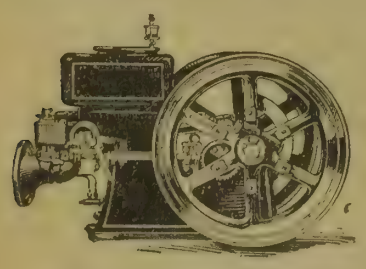

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Installations can be made in wells 10 in. or larger. Produce 300 to 4000 gallons per minute. Ask for Folder No. 4.

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When Writing Advertisers Mention California Cultivator.

National Grain Marketing Plan

THE farmers grain marketing committee of seventeen on February 16 voted unanimously to recommend to the farmers of America a grain marketing plan based essentially on the incorporation of a grain growers cooperative national sales agency. It is proposed to incorporate the national sales agency in the form of a non-stock, non-profit grain growers cooperative membership organization which will provide for the marketing of grain by virtue of contracts with farmers cooperative elevators or with local grain growers cooperative associations.

The growers of grain will take membership in the national sales agency. They will then effect an agreement with their local cooperative elevator or with their local grain growers association to deliver their grain on the basis of either a sales contract or a pooling contract. The local elevator or grain growers association will contract with the national sales agency to handle the grain.

It is contemplated that the national sales agency will control, through ownership of the voting stock, terminal agencies, warehouses, finance and export corporations and service departments.

Branch sales offices will be provided at important grain markets to handle the grain for each natural grain district. Wherever possible use will probably be made of all farmers cooperative machinery such as now exists. Effort will be made to open boards of trade to farmers cooperative agencies desiring to operate through seats on the exchanges.

In connection with the branch sales offices it will be necessary to provide government licensed warehouses, from which warehouse receipts will be issued and used as a basis of credit. These warehouse facilities will be acquired through lease, purchase, or erection.

A finance corporation is contemplated in order to provide adequate farmer controlled credit facilities whereby country elevators may properly finance the moving of the crop in an orderly fashion. The capital stock of the finance corporation will be subscribed when growers are asked to sign up their memberships in the national sales agency. The finance corporation is designed only to supplement existing financial machinery.

The farmer controlled export corporation will provide proper facilities for marketing exportable surplus of grain.

The service departments are designed to furnish accurate information on local, regional, national and world wide conditions which affect the grain trade. Transportation, legal, statistical and other departments will be included.

The membership subscriptions of the growers will provide the national sales agency with the initial working capital necessary for the acquisition of facilities for the immediate handling of grain on consignment. Later the running expenses will be secured by assessing a handling charge on the grain marketed through its offices.

When the plan is finished it will be submitted to a convention of the various farmers organizations interested in approving it as a means of improving the grain marketing of the nation. Meantime the farmer is afforded this opportunity to study the plan and to decide concerning its application to his own business of producing grain and of marketing it in the most efficient manner.

PROTECTION OF AMERICAN AGRICULTURE IS A NATIONAL DUTY

In presenting before the United States Senate the following resolution:

We request of Congress the enactment of a tariff law at once which will give to the farmers of America that measure of protection which may be necessary to equalize the difference between the cost of production of farm products in this country and the cost of competing nations where land is cheap and living conditions far below the standard which prevails in the United States,

Senator Arthur Capper made extended address from which we quote the following four paragraphs:

"Under the policy of protection we have become a mighty industrial nation. Why should protection, with these achievements to its credit, be withheld in the case of the greatest of all our economic activities? Why should agriculture be denied the aid already given to manufacturing and denied it at the time when it is most needed? This question is being asked today not only in the great Middle West, but on the Pacific Coast, on the farms of Pennsylvania, and even in the South.

"The past year, wheat, meats, hides, wool, butter, and many other farm products were dumped into this country through our adherence to free trade. The pages of our departmental reports are full of notes of instances of the ruin that free trade is bringing to American agriculture. It is of first American importance now that we correct these evils. For the sake of common justice and humanity this emergency tariff is all too little for the farmer to ask of his government.

"Practically every line of agricultural industry is today suffering acutely because of the absence of protection offered by this emergency tariff bill. The American farmer stands alone today of all the producers in the world. Other governments, notably those of Great Britain, France, Germany, Italy, and Japan, are helping their farmers, protecting and supporting them, but our farmers must go it alone in competition with all the world. They must sell their grain in markets dominated by the most powerful government commissions. Practically all of Europe today is buying its grain through government commissions, that are working together and that have all the resources, all the ingenuity, and all the brain power possible to hammer down the prices and buy cheaply.

"They say that if we give our farmers the protection which they deserve Europe can not pay its $10,000,000,000 of government debts. I shall say frankly that if the price which we have to pay for the payment of our foreign debts is the destruction of American agriculture, it were better that these debts were never paid."

USES FOR RIPE OLIVES

Even the olive growers have been surprised to find the number of ways in which the olive can be used. It has been found that ripe olives are a perfect substitute for mushrooms and that ripe olives make a delicious ingredient for stews and meat sauces; minced olives make delicious sandwiches while olives served with any kind of meat or salad add immensely to the dish.

California Ripe Olive Day Association has prepared a large number of recipes showing how ripe olives may be utilized. This pamphlet will be sent upon request. Address the association at its headquarters in Oroville.

Horticultural Commissioner Ryan of Los Angeles County reports to date fumigation in that county of 21,999 acres. Careful inspection and recording of various conditions have been made this year by officials connected with the horticultural department. The decreasing power of fumigation, or rather the increasing resistance of black scale to the fumes of hydrocyanic acid gas, is creating a serious situation for the citrus grower.

The ninth annual meeting of the Arizona farm bureau was held at the college of agriculture, Tucson, recently. One of the main topics discussed was the work of the American Farm Bureau Federation.

LEGAL QUERIES

(Continued from Page 333.)

would be based upon the negligence of the party driving the team.

Buying on Contract

A party owns two adjoining pieces of property, one of which he sells upon contract. After the vendee has paid nearly the total amount of his contract he discovers that there is a mortgae upon the property which he is purchasing. Does the existence of such a mortgae prevent the vendor from conveying clear title? If clear title canot be conveyed what is the vendee to do? Is it a criminal action to sell property under a contract like this and be unable to deliver clear title when the whole payment is made? The contract has been recorded and there is still another year's payment. The buyer has had possession during the whole period of time.—Subscriber, Arbuckle.

It is entirely lawful in this state to enter into a contract to sell property, title to which the vendor does not even possess. The vendee, if given possession of the property in which he continues during the period of the contract may be required to perform the covenants to be performed by him or his interest in the contract forfeited. If the vendor cannot deliver clear title (this means a title without any encumbrance such as mortgage, taxes, or other lien), the vendee may bring action against the vendor for the recovery of the moneys paid or, at his option, sufficient to discharge the encumbrance upon the property. The vendor is under no obligation, especially in such a state of facts as that here presented, to clear the mortgage on the property until the date of giving the deed. The reason that lies back of this rule is that the mortgage is recorded and the party purchasing property is presumed to look up the title of the property as it then stands. If the mortgage was not recorded it is worthless as far as such vendee is concerned.

Fig Trees Over Line

A row of fig trees has been found by recent survey to be about four feet from the property line. Large roots are found in my field 35 feet from the line. The limbs extend several feet over my line. To whom do the figs belong? Has the man upon whose land the trees stand the right to cut off the limbs extending over the line?—Subscriber, Kerman.

You have the right to cut the limbs and roots at the line. The figs growing upon the branches extending over your property belong to you. The trees, however, belong to the party upon whose property they stand. He would have no right to cut off any limbs projecting over your property, as such limbs would fall upon your property and thereby constitute a trespass. The right to cut these limbs is solely in you.

Water Rate

Has a city operating a water system the right to force a present owner to pay a water bill which was incurred by a former owner or the tenants of such owner? For that reason could the city attach the property or shut off the water of any present owner?—Subscriber, Santa Cruz.

An exactly similar case has been decided by the appellate court against the city of Los Angeles, wherein the city of Los Angeles had the following regulation: "All water rates shall be charged against the owner thereof, and if sums owing for water become delinquent, the water shall be shut off and not turned on for the same property until the delinquent bills have been paid in full. No change of ownership or occupation shall affect the regulation." The court then held that such regulation was unreasonable and contrary to statutory authority, in that it made one person liable for the debts of another and contravened the duty of the city to serve all inhabitants with water without discrimination. The city was thereupon ordered to furnish water to the new occupant.

Water Right

About eight years ago I purchased land, including a water right. The water is conveyed by means of a pipe line out of a reservoir upon lands in the hills. This pipe line crosses under ground through the orchards of several other persons before it comes to my land. At times it becomes clogged with roots and debris and it is necessary to go into the other orchards to dig down to the pipe and clear it. One of these other parties objects to my going upon his land. What are my rights in the matter?—Subscriber, Hollywood.

The owner of a dominant estate may do whatever is necessary to the enjoyment of the easement and to keep it in proper state of repair, provided it is done without imposing unnecessary inconvenience on the owner of the servient estate and the extent of the easement is not thereby enlarged. He has no right to make repairs in such manner as needlessly to increase the burden on the servient tenement, but the right to repair includes a right of entry upon the servient tenement for the purpose of making repairs whenever such repairs are necessary, and he may thereon do all that which is necessary to fully maintain the operation of his easement. Even though such right of entry is not expressly granted it is necessarily implied as an accessory to the grant of the easement.

Copyright

What are the necessary proceedings to take in order to obtain a copyright; also what is the cost?—Subscriber, Orosi.

The author, or employer of such author, where the work is made for hire, shall publish the work which he desires copyrighted, which shall contain therein a notice of copyright. This notice consists either of the word copyright or the abbreviation "copr.," accompanied by the name of the copyright proprietor. If the work to be published be a literary, musical or dramatic work, the notice shall also include the year in which the copyright was secured by publication. This notice, in case of a book or other publication, shall be placed upon the title page or page immediately following; if a musical work, either upon the title page or first page of music. Thereafter, he shall promptly deposit in the Copyright Office or in the mail addressed to the Register of Copyrights at Washington, D. C., two copies of the best edition published. All copies shall have been produced and mechanical work of printing performed within the limits of the United States. The postmaster to whom the copies are deposited, if requested, must give receipt therefor and mail to Washington without cost to the copyright claimant. In the case of a bank, the copies shall be accompanied by an affidavit made by the claimant or printer, stating therein that the copies have been printed in type set within the limits of the United States or from plates made from types set therein and shall also state the place where and the establishment in which the mechanical work has been performed. The copyrights secured by the act extend for 28 years from the date of the first publication. The register of copyrights shall receive as his fee for the registration of any work subject to copyright $1.00, which includes the certificate of registration under seal.

School Atendance

I am about to move on a ranch between which and the school for three months in winter time high water renders passage impossible. Is it compulsory that the children attend school? What provision is there for getting them across the river? The building of a bridge would be too expensive. Would the county be compelled to build it?—Subscriber, Los Angeles.

This matter should be taken up either with the county superintendent of schools or the trutees of the school district. The trustees are empowered with the written approval of the superintendent of schools to provide for the transportation of pupils to and from school whenever in their judgment such transportation is advisable and good reasons exist therefor, and to contract and pay for such transportation. The compulsory education law provides that in case children reside more than two miles from the school by the nearest traveled road they may be exempted from the school attendance upon written approval of the county superintendent of schools, notice of which approval is filed with the board of trustees of the school district.

"The recollection of QUALITY remains long after the PRICE is forgotten"
—*E. C. Simmons*

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5 from 12 to

FROM five to twelve weeks—that's the time the profit-pendulum swings right or wrong, so far as growing chicks are concerned. That's the time they need momentum to help them "over the top" of their critical period.

What do these lively, hungry little fellows need most—from the time they are five weeks old until they are twelve weeks old? Do they need fat? Not so much! They need bone and muscle. They need a strong, sturdy framework on which to build your future profits. They need a good "boost" uphill.

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — March 12, 1921 — No. 11

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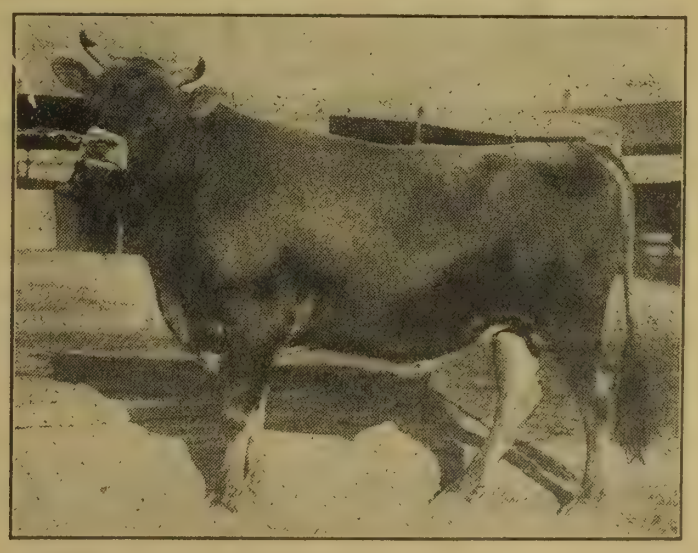
Fat:	171.57 lbs.	261.25 lbs.	358.17 lbs.

Increased Production due to Pure Bred Sires:

Daughters: Milk, 2338.5 lbs. or 64%
Fat, 89.68 lbs. or 52%

Granddaughters: Milk, 4741.7 lbs. or 129%
Fat, 186.6 lbs. or 109%



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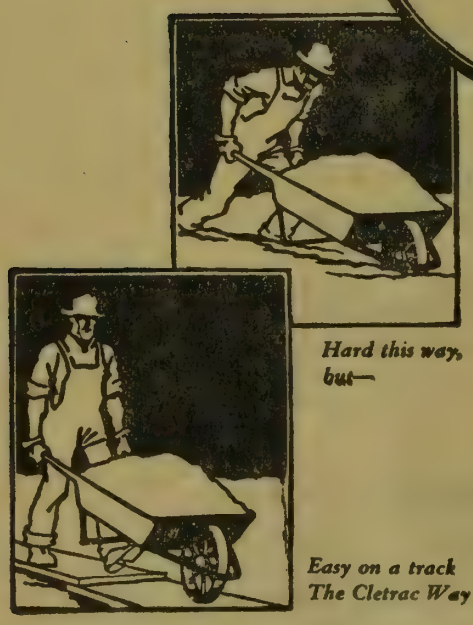

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Length: 96 inches.
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Weight: 3420 pounds.
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Traction Surface: About 800 square inches.
Center to Center of Tracks: 38 inches.
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California Cultivator

Vol. LVI, No. 11 | Los Angeles, March 12, 1921 | One Dollar Yearly

A Community Livestock Association That Pays

By Elwood Mead

COMMUNITY cooperation for the buying, breeding and selling of livestock pays. This has been demonstrated by the members of the state land settlement colony at Durham now entering into the third year of its existence. What the Durham community has done, other communities can do.

The land settlement board decided early in its career that livestock raising should be encouraged in the colony for several reasons. The raising of poultry and hogs afforded one of the quickest means of producing an abundance of home grown food as well as an early cash crop. Dairying, once the proper shelter could be provided and good stock secured, afforded a certain and profitable income. Livestock on every allotment made possible the maintenance of soil fertility and gave additional outlets for some of the field crops and assured proper utilization of what would otherwise have been waste vegetable matter such as is grown on every farm. The board in encouraging the raising of livestock had in mind the settlers' welfare, but it was not altogether unselfish in its action, for quick returns and actual profits for the colonists meant that they could meet their installments with more certainty and be able therefore to pay back their obligation to the state.

Realizing that it would be difficult, if not impossible, for many of the settlers to procure good stock at reasonable prices, if having to buy independently, the board encouraged the formation of a community livestock breeders' association, the constitution and by-laws of which were copied after those of the most successful cooperative associations in Denmark. Every settler was required to become a member of the association.

Before the association was formed the board had written to the animal husbandmen in the leading agricultural colleges of the country asking them what they thought of the idea of the colonists raising but one breed each of dairy cattle, beef cattle, swine and sheep. The replies were all in favor of the plan, and after the formation of the association the members used the advice of the experts in reaching a decision regarding the breeds they should raise. After some discussion, Holsteins for dairying, Shorthorns for beef, Duroc-Jerseys for pork, Romney Marsh for mutton, and Rambouillets for wool, were chosen.

It was a big day in the history of the settlement when its members agreed to concentrate their efforts on a single breed. The reasons for adopting such a policy are, of course, obvious. Buyers of pure bred stock gravitate to those centers where the animals of the breed of their choice can be found in the greatest numbers. Having but one breed in a community makes it easier to maintain a cooperative marketing association. Likewise it makes possible cooperative buying, for by pooling their resources the members of an association can obtain better animals at more reasonable prices because of their wholesale purchasing power. Finally, but not least, having but one breed in a community makes possible the cooperative purchase and use of better sires and the higher prices that necessarily have to be paid for such animals can be met by the community purse.

The Durham Stock Breeders Association naturally had to function through an executive committee and upon this group of five men devolved the responsibility of purchasing the livestock desired by the colony.

The committee's first purchase was a herd of 27 cows and heifers from a tuberculin tested herd. These animals were distributed among the farmers at Durham and it is interesting to note that not a single one of the animals later showed any symptoms of disease. Soon other farmers were desiring cows in numbers large enough to at least supply family needs. The committee was not always in a position to supply animals when they were wanted immediately for they made it a rule to group their purchases and to bring in a herd at a time in order to reduce the expense of buying and transportation and thus to be able to offer the animals to the settlers at the lowest possible cost.

Many of the settlers, in their haste to get established in the dairy business, had bought cows from nearby farmers without having them tested for tuberculosis. Of the 42 animals purchased outside of the association, 35 reacted and their condemnation and forced sale meant serious loss to their owners. The association came to the rescue, however, agreeing to dispose of the diseased animals and to assume, on behalf of the whole community that composed its membership, one-half of the loss incurred. Only communities and states and nations as well, that are similarly organized, can hope to meet threatened dangers and calamities so promptly and effectively. By keeping out all diseased animals and by eliminating those that later prove to be reactors the association hopes to keep the colony free from tuberculosis. Cooperative effort in the enforcement of sanitary measures is much more democratic than having to rely on the police power of the state.

As was mentioned above, one of the first practical benefits of cooperation was the elimination of competitive buying among the members of the colony, the unnecessary running up of prices which would have ensued had each man been acting for himself alone. The committee closely watched the Holstein sales throughout the state and in some instances was able to get practically all of the animals in certain herds. The cows were shipped to Durham, where a home auction was held, each animal being sold to the highest bidder. As the colonists were eager to get the best animals, the bidding was often keen, and practically all of the animals brought more than the original purchase price. A refund was therefore made, and when a $500 cow sold for $625, for instance, the purchaser only had to pay 80 per cent of the price he bid. Through the efforts of the association the settlers

(Continued on Page 362.)

Gypsum

By R. R. Snowden

GYPSUM, or commercial sulphate of lime, contains 18.6 per cent sulphur and 23.25 per cent calcium in combination as follows: Calcium sulphate, 79.1 per cent; combined water (called water of hydration), 20.9 per cent; or,

Lime (calcium oxide, quick lime), 32.6 per cent; sulphur trioxide, 46.5 per cent; water of hydration, 20.9 per cent.

This is typical, or 100 per cent, gypsum. In gypsum of any lower grade the percentage of these components may be found in the following simple way:

Multiply the per cent of gypsum in the material by .186 for the percentage of sulphur; by .23¼ for the percentage of calcium; by .791 for the percentage of calcium sulphate; by .209 for the percentage of water of hydration; by .326 for the percentage of lime; by .465 for the percentage of sulphur trioxide.

High grade gypsum is of somewhat meager occurrence in California but exists in extensive deposits in Arizona and New Mexico.

The agricultural world is experiencing a vivid awakening to the need of sulphur in many, if not most, soils, which need has been too long overlooked.

Sulphur is just as necessary a component of the proteids, and hence just as indispensable to plant development as phosphorus. It is, therefore, a true plant food element, and its compounds —especially the sulphate—are just as surely fertilizers as potassium, phosphorus and nitrogen materials. It is as potent a limiting factor as any of the three necessary elements of a so-called complete fertilizer, since no crop can be grown without sulphur any more than it can be without potassium, phosphorus or nitrogen.

Some crops, such as the legumes and the mustard family, require more sulphur than others, yet all must have it. Gypsum is, therefore, a most important fertilizer for its sulphur content as well as for its lime and its beneficial effects in a number of other respects.

The mechanical effect of gypsum on certain soils is scarcely less important to agriculture than its physiological effects on plants, for besides the latter, gypsum has the valuable property of flocculating the clay particles of stiff clays and adobes, changing entirely the structure of these soils and rendering them more pervious to air and water and much more amenable to tillage. By neutralizing black alkali it is useful in reclaiming alkali land, often rendering it productive where nothing would grow before and raising the surface to the normal level of the adjacent lands.

It increases the availability of most of the plant foods in the soil, and especially potash. Besides this action in releasing potash for the use of plants, it supplies lime, which conserves the use of this expensive plant food, since plants well supplied with lime take up less potash than where lime is deficient, as shown by analysis of the ash of the leaves. Gypsum in several ways facilitates oxidation in the soil, and this Schreiner, Sullivan and Reid find to be closely allied to fertility.

The practical results from the use of gypsum are shown in the following observations:

A navel orange grove in Tulare County, the soil of which was found by analysis to be deficient in sulphur, was reported to have produced a 65 per cent crop after receiving two tons of gypsum per acre, while the neighboring groves produced only a 15 per cent crop.

In field experiments conducted by the Oregon agricultural experiment station, the yield of alfalfa was increased from 300 to 1000 per cent by applications of sulphates including gypsum in soils showing by analysis a deficiency of sulphur. During the last 10 years the writer has recognized this need of sulphur in many California soils.

That harm to vegetation may result from the free use of gypsum is negatived by the fact that to the writer's personal knowledge there was a fine orange grove and the wild vegetation of a Florida forest flourishing on a 60 per cent gypsum deposit in Citrus County, Florida, and the former continued to produce the finest of fruit up to the time of being killed by the freeze of 1895.

To sum up: All vegetation must have sulphur. Gypsum is the best form of sulphur to apply to the soil. No soil is injured, while certain ones are greatly benefited by applications of gypsum. No harm to vegetation can come from its use in any quantity. Gypsum indeed appears to be the good Samaritan of agriculture.

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR
and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
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Regular Contributors

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Saturday March 12, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

A study of the statements appearing on the cover page will, we hope, prove convincing as to the value of the pure bred, and by pure bred we are referring not only to cattle and horses and hogs and sheep, but, so far as possible to apply the principles of breeding to plant life, to all plants and crops which mean California's prosperity and advancement. In plant growth we prefer the term, bud or seed or stock selection, but the principle is all the same, for it is simply the selection of that which will serve man's purpose best. The one big lesson is, select. That can only be done satisfactorily by more general use of that portion of us above the shoulders.

* * *

There never was a time when the rights of the producer to cooperate in the marketing of his product were assailed so viciously as during the past few months. The attacks on the cooperative movement, in addition to freight rates at times prohibitive, are certainly giving to producers one discouraging time. The raisin growers, the prune growers, even the rice growers and the spinach canners are being put upon the rack. The rice growers have secured at least temporary relief from being declared "an illegal monopoly." Certain banks were enjoined from even lending money to the rice growers because of their use of the funds to carry themselves until they could secure a livable return from their last season's production. Besides, the effort was made to dissolve the rice growers association as "an illegal monopoly," but while this effort to destroy the cooperators has resulted in temporary defeat, the plaintiff, an exporting firm, has been given ten days to amend the complaint. One feature of the court's ruling was: "The mere elimination of the middleman through the actions of this association is not illegal," the court said, "because the growers may make an agreement with the ultimate consumer."

* * *

The King bill has been passed by the senate and the assembly and has been signed by Governor Stephens. It was passed without a vote to spare for the fight which was put up against it was the strongest which has been made in this state for many years. If the bill had not been passed we believe it would have been nothing short of disaster for California is advancing as never before and its needs are vastly greater. Notwithstanding that, we believe the remaining days of the state legislature will see very strong efforts made toward material reduction in the demands upon the state treasury. Efficient government calls for efficient and capable men to handle its affairs, but so far as possible let the number of these be reduced.

* * *

The Allied army has taken possession of three additional German cities, announced as one of the steps necessary to make collection of the fund assessed against the Germans in partial reparation for the awful losses to Belgium and France. American troops have not participated in this advance but the eyes of the world are on Secretary Hughes, anxious to learn as to American participation. As a rule the American press expresses gratification because of the firmness of the Allies in demanding that Germany live up to the terms which she signed at Versailles.

PANAMA SAVES THE DAY

As we are going to press, 30 carloads of lemons are being lowered into the great hold of a ship in Los Angeles harbor, ready for a trip to New York by the way of Panama.

It seems impossible to get this fruit or other products to the harbor under economical handling, hence the fruit is going directly from orchard to ship by a great fleet of trucks. This handling by truck and ship means a saving of $240 on each carload lowered into the hold.

California has been bitterly disappointed because of the lack of use of the Panama Canal, but indications during the past few months are that the winter of our discontent is becoming glorious summer. Besides the direct saving it is certainly to be hoped that present examples of economical shipment may result in a livable railway freight tariff. This shipment is being made on the Liberator, a 20 thousand ton vessel, the largest that ever entered the harbor.

Referring to the saving in freight Lemon Sales Agent Powell of the Fruit Growers Exchange says that it totals $7500 on the cargo, or an approximate saving on the f.o.b. value of 25 per cent under existing rail freight rates."

The Liberator will land five carloads

(Continued on Page 248.)

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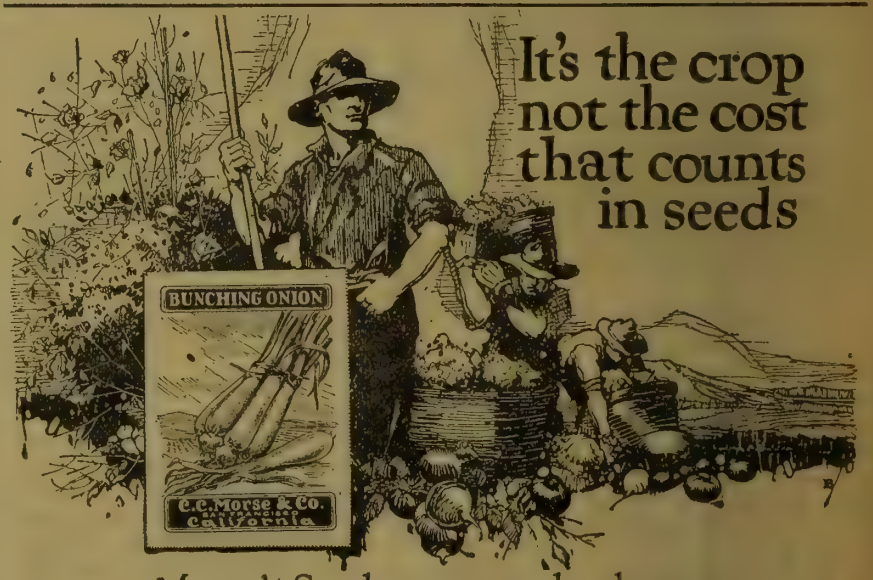

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Arizona Thurberia Weevil

In its issue of January 1, 1921 the California Cultivator gave place to an article on "The Boll Weevil in Arizona," written by Dr. A. W. Morrill. Later a letter came from Dean D. W. Working of the University of Arizona College of Agriculture, requesting publication of a letter written by Dr. Charles T. Vorhies, professor of entomology of the University of Arizona. As the letter was quite long it was not given entire, but very liberal extracts were made from it.

In Dean Working's letter to the editor of the Cultivator was a statement which we construed in an introductory note as follows: "Dr. Morrill was connected with the board of agriculture and horticulture at the time the present line of work was initiated and his association joined in requesting the federal horticultural board to make an effort to study the Arizona situation and plan a campaign of eradication." This Dr. Morrill says is not correct. He says:

"The inference drawn by the editor of the Cultivator from Dean Working's letter to the effect that there is a contention between the federal and Arizona authorities on one side and myself on the other is incorrect. Furthermore, I had absolutely nothing to do with the planning of the eradication work as conducted in the fall of 1919. This was planned more than a month after I severed my official connections in Arizona. Both Dean Working and Dr. Vorhies are well aware of this fact."

Having given Dr. Morrill's statement and one by Dr. Vorhies of the Arizona station, we believe it fair to both parties to give a statement taken from a report of the California state department of agriculture, also read at the recent meeting of the Cotton League of the Southwest, by D. B. Mackie, chief quarantine officer of the California department of agriculture. We regret Mr. Mackie's article is entirely too long to give entire.

IN DECEMBER I addressed a communication to Don C. Mote, state entomologist of Arizona, pointing out the fact that the state of California could not help but view with concern the reported appearance of the so-called Thurberia weevil in the fields of cultivated cotton in the district adjacent to Tucson and requested that he meet with me at some convenient date in Tucson in order that California might observe first hand what was being done to control and prevent the further dissemination of the weevil. I arrived at Tucson January 6 in company with Mr. Mote and Mr. Russell and visited the districts where the weevil had been found. . . . The territory in question is located in the Tucson Valley in Pima County. . . . (Mr. Mackie gave in his address very complete topographic description of infested area, rainfall and other weather conditions.)

The Thurberia, or so-called wild cotton (Thurberia thespesoides) is a malvaceous plant belonging in the same family as the cotton. It is a perennial shrub with a light grayish bark and attains a height of upwards of ten or more feet in older plants and a trunk of four or more inches in diameter. The leaves are rather small and palmate. The flowers are white and conspicuous and are borne terminally. These give place to the small bolls about one-half inch long which are generally divided into three capsules though four divisions are sometimes noted. Each capsule normally contains four small blackish seeds resembling in shape and color somewhat those of the common morning glory. As the bolls ripen they burst, allowing the seeds to be scattered. These bolls, on casual observation, seem practically devoid of any lint, though there appears in the boll a small amount which can be seen with a glass.

The plant ordinarily blooms during the humid midsummer rains, thus with the ripening and bursting of the bolls the seeds are picked up and deposited anywhere along the line of flow, being carried long or short distances according to the extent of the flood. As often happens in seasons of heavy rainfall, seeds are carried far down the wash, in fact some are carried down so far that with the following dry season, either due to insufficient moisture to sustain them, or to the low relative humidity, they lead a precarious existence and finally perish.

This land is all practically adjoining, or is immediately adjacent to either the Rillito or Pantano Washes, . . . to which the cotton areas are in close proximity, . . . within three to five miles (as a crow flies) of the permanent habitat of the Thurberia plants.

This territory, while in general good land and capable of growing cotton, has not heretofore been planted to this crop; however, with the abnormal season of 1920 and the high price of cotton in the early part of the season planting was greatly stimulated, thus areas which had never heretofore been planted in cotton were brought under this crop.

In the district above referred to this area is about 250 acres. Seemingly, however, the crop did not thrive, as I am informed by the general superintendent of the Tucson Farms Gin that the crop did not average one-fourth a bale to the acre, which is considered a low yield.

The following records the inspection and clean-up work done under the direction of the state entomologist: In the year 1919 the commission of agriculture and horticulture of Arizona undertook a survey of the location of Thurberia in the lower canyons and washes of the Santa Catalina and Rincon Mountains, acting, I believe, in collaboration with the federal horticultural board to ascertain the prevalence of this plant. This survey work was carried out in the Santa Catalina, Tanque Verde, Rincon, Santa Rita Mountains, also in the Superstition Mountains. In this latter case the work was, I believe, done entirely by a federal horticultural board scout. The Superstition Mountains are closer to the Salt River project than to Tuscon. According to report the plant was not found to exist in that range. This was later supplemented by a campaign, the object of which was to destroy the scattered plants and seedlings growing in the mouths of the washes to prevent them acting as stepping stones to the cotton lands.

As the plants were located crews were put in the districts and started the campaign of cleaning up by digging out the young seedlings and such older plants as had been able to survive in that territory. Clean-up work was conducted in the washes on the south and west slopes of the Santa Catalina and the washes of the Santa Rita Mountains which drain towards the Canoa land grant at Continental.

In June, 1920, an inspection service was initiated to determine, if possible, if the pink boll worm, or the boll weevil occurred within the state. According to State Entomologist Mote's figures, the work aggregated 605 man days and covered the following: Salt River Valley, 180,000 acres; Graham County, 3000; San Simon District, 250; Yuma District, 27,000; Pinal County, 4000; Pima County, 8000; total, 222,250 acres.

By this inspection the above mentioned infestation of cultivated cotton was found in the Rillito district. Five such infestations were discovered.

In order to suppress, if possible, this infestation, a clean-up was started. The picking of the crop was allowed, such seed cotton being held in the fields, however, which were in quarantine.

Immediately after picking was completed the plants were cut down and the fields thoroughly raked to clean up all bolls that had fallen, all of this being burned.

On January 7 when I visited the entire area the field work was practically completed. The work was thorough and there was little evidence of bolls being left. At this time the seed cotton was still in the fields in heaps waiting to go to the gin.

In the handling of this cotton it was first the intention of the entomologist to have the same brought to the gin house where the cotton is stored, there to be heated to a point sufficient to kill possible weevils, and then gin same. Such procedure had been discussed with Mr. Marlatt of the federal horticultural board and I am informed the plan met with his approval.

On January 7 a conference was had with Superintendent Turner of the Tucson Farms Gin, relative to the handling and disposition of this cotton.

After a consideration of the problem from different angles it was finally agreed that after all other cotton had been ginned the quarantined cotton should be brought in and ginned separately, the seed kept separate and the lint baled, all seed to be crushed and returned to the owners to be fed locally to livestock, the premises to be placed in quarantine meantime. The gin was to be taken apart and cleaned throughout, including receiving house, screens and all apparatus. All such cleanings are to be burned, the entire work being done under the supervision of an agent of the state entomologist.

The above, in brief, represents the status quo of the infested cotton fields and their crop at the time of my inspection.

Opportunity was taken to confer with Dean D. W. Working of the college of agriculture in order to ascertain if the station entomologist, Mr. Vorhies, had collected any data pertinent to this pest. . . . Among the extended data assembled by Mr. Vorhies it is reported by him that during his investigation following the cutting and burning of the plants in the clean-up area a sucker growth appeared which in 1920 produced a crop of bolls. In these it was expected to find a large number of bolls showing infestation. Investigation proved the opposite to be the case. In this regard it is stated that every discoverable plant in the two washes where the clean-up work was carried on has been examined and not yet has been found a single boll infested with the weevil. In this connection, in company with Mr. Mote, the districts at the mouth of the Ventana Canyon were visited and a limited amount of observation work conducted in the examination of Thurberia plants. While there seemed to be a liberal crop of bolls matured in no case was any trace of infestation found.

In this connection Mr. Vorhies points to the fact that the season of 1920 was exceptionally dry, the rains of July and August being abnormally late with a corresponding light precipitation. No flood from the Santa Catalinas reached the Rillito or other districts where the infestation was found.

From observations conducted on the Thurberia it is reported that the blossoming season was abnormally delayed, the weevils not having even the buds (squares) to oviposit on, much less the bolls which they prefer. This resulted in delaying the formation of bolls until late September, it being a rare thing to see even a blossom before August 31. From his observations Mr. Vorhies inclines to the opinion that these abnormal seasonal conditions forced a flight of adult weevils which would not otherwise have occurred, resulting in the appearance of the weevils in the adjacent cotton fields.

While the above gives in brief some of Mr. Vorhies' findings, his conclusions together with other information will be presented to Dean Working in a special report.

The following day was spent at Phoenix and Tempe, and in company with Mr. Mote, we called upon E. W. Hudson. Mr. Hudson is chairman of the Arizona commission on agriculture and horticulture, being also a large cotton grower and the president of the Arizona Cotton Growers Association, and a powerful figure in the cotton industry of the state. Mr. Hudson was formerly of the United States department of agriculture, in cotton investigation under Mr. Cook.

In the course of our conference the fact was brought out that California could not but view with concern the appearance of the so-called Thurberia weevil in the cultivated cotton fields, and that while it was not proposed to take any precipitate action in the matter, our course would in a large measure be determined by the ability of Arizona to furnish assurance that a sufficient personnel was obtained by the commission of agriculture and horticulture to enforce any regulation relative to the proclamation of non-cotton zones.

Mr. Hudson pointed out the powers of the Cotton Growers Association together with his position as head of both the governmental and commercial cotton interests, and the fact that, aside from the forces of the law and a strong public sentiment, a powerful pressure could be brought to bear through the banks of the district to withhold loans from persons who might undertake to test out the state's regulations in the declared non-cotton territory. This, however, was not expected as the conditions in the cotton industry pointed to greatly curtailed cotton plantings, and that the Salt River Valley acreage planting would be less than one-third of that of 1920.

. . . The proposed non-cotton zones in the Tucson district . . . follow no fixed points but include all agricultural lands along the Santa Cruz River subject to wash from the Santa Rita Mountains where they intersect a line drawn west from Twin Buttes.

The above represents, in brief, the findings and observations made in connection with my investigation of the subject, the work of which was greatly facilitated by the action of the Arizona authorities, who did everything in their power to assist in this matter, withholding nothing and earnest in their desire that California be fully advised as to existing conditions. In connection with the cotton industry of California it should be noted that under the existing regulation cotton seed does not move into California from any part of Arizona except Yuma and Maricopa Counties.

The purpose of this investigation was to afford an opportunity to a representative of California to view first hand the conditions as they existed and to convey to the Arizona officials the interest and concern with which California looks upon this question.

In this connection it is plainly evident that the Arizona authorities are not unmindful of the possibilities of the uncontrolled spread of the weevil to cotton fields. The only question at stake is whether they will be able to carry out the provisions of the order prohibiting the planting of cotton in the proposed non-cotton zones.

As matters stand I do not feel that California is in a position to offer at present any suggestion that will assure any guarantee greater than the movement already inaugurated to this end.

Agricultural News Notes of the Pacific Coast

Northern California

Tehama County farm bureau is planning to build a grain elevator.

Central Contra Costa County conducted a squirrel drive March 7.

Loma Rica Ranch in Grass Valley is planting an additional 100 acres to Bartlett pears.

Hop men of the state association have decided to curtail acreage 25 to 50 per cent this year.

A cooperative cannery is to be constructed at Marysville by Sutter County peach growers.

Farmers of the Livermore Valley of Alameda County have complained of damage from crane flies.

The Tehama County farm bureau has decided to discontinue publishing the farm bureau monthly.

The Tehama County farm bureau has incorporated a marketing exchange, with F. T. Robson president.

In the membership campaign in Plumas County the Nuestro center takes the premium with an increase of 60 per cent.

The Nevada County farm bureau plans to hold a Nevada County products show some time in September at Glenbrook Park.

More than 100,000 acres is represented in the Colusa County unit of the Federation of American Farmers, it is stated by Secretary Roy Turner.

The Sebastopol Apple Growers Union did a $1,000,000 business for the year just closed. Over 306,000 boxes of apples were shipped out.

The Sebastopol Apple Growers Union is building a new apple packing house at Garbo Station and a 40 by 60 addition to the Graton house.

The Sebastopol Apple Growers Union recently held its annual meeting and elected E. C. Merritt, president; H. R. Harbine, vice-president; A. Frie, secretary.

The Livermore center of the Alameda County farm bureau at its recent annual meeting elected G. L. Monahan, president; Carl Jorgensen, vice-president; Mrs. C. H. McCoy, secretary.

D. J. Stollery of San Francisco has resigned from the secretaryship of the California Cattlemen's Association. Roy M. Hagen, for some time connected with the university extension service, will take up this work.

A meeting of stockmen was held at Clear Creek, Grass Valley, recently to organize a community grazing department of the farm bureau to acquire grazing privileges in the Tahoe national forest for small ranchers.

Grape growers of the Lodi district of San Joaquin County are planning to organize the Lodi Growers and Shippers League. The committee appointed to plan details is composed of W. H. Thompson, Norman D. Swim, J. V. Bare, James Prentice and W. C. Brown.

Land owners of the Providence, Princeton-Codora and Maxwell irrigation districts are planning to purchase water the coming season from the Glenn-Colusa district instead of providing their own supply. Definite action will not be taken until it is learned from the railroad commission whether a district loses its water right by waiving its use for one or more seasons.

Central California

Effort is being made to build a farmers cooperative elevator at Waterford, Stanislaus County.

Directors of the Stanislaus County fair association have decided to give up holding a county fair this fall.

The first carload of eggs shipped out of Stanislaus County was sent from Modesto to New York the last of February.

Raisin grape plantings have been heavy in the Livingston district of Merced County during the past two years.

Construction has begun on a new creamery for Modesto. It is expected to have it ready for production early in May.

A mass meeting of the Farmers Union was held at Modesto, February 22, to discuss legislation now before the state.

Lockeford, San Joaquin County, will celebrate its annual community picnic on Saturday, May 14, at Lockeford Grove.

The irrigating season has started in the Turlock district, water being turned into the La Grange dam February 20.

Horticultural Commissioner Rutherford of Stanislaus County reports planting of a half million grape vines this season.

The California Hop Growers Association has agreed to curtail its planting this year because much of the 1920 crop is still unsold.

The committee of ten on the marketing and handling of citrus fruits is planning a number of mass meetings throughout the valley.

Sentiment is being aroused through the San Joaquin Valley in favor of restricting number of advertising signs along scenic highways.

March 14 is named as the day for reopening trial of the suit of the Tulare irrigation district against the Lindsay-Strathmore district.

Sites for raisin packing houses have been purchased by the Associated at Livingston, Merced County; Chowchilla, Madera County; Tulare and Bayo, Tulare County.

Commercial secretaries of the San Joaquin Valley have organized an association which will hold monthly meetings in various cities over the valley in order to coordinate their work.

A. W. Tate, Jr., has been appointed county horticultural commissioner of San Mateo County. Mr. Tate was formerly an apple inspector under the state department in the Pajaro Valley.

The California Associated Raisin Company has bought a site for a raisin packing plant at Livingston in Merced County and is planning to construct the house in time to handle this year's crop.

The Waterford-Hickman center of the Stanislaus County farm bureau held an enthusiastic meeting on the evening of February 16 with over 200 members present. Bulk handling of grain was the subject of discussion.

Secretary Lammiman of Stanislaus County branch of the Federation of American Farmers charges that in the recent investigation of the railroad commission sufficient notice was not given the farmers to allow them to prepare their complaints.

Southern California

San Diego County claims to have 2,000 milk goats.

Ventura County last year produced 4,000 tons of walnuts.

Riverside County's honey crop of 1920 was 820 tons, selling for $328,000.

The state university offers a correspondence course in care and repair of autos.

The Riverside district is shipping out approximately 100 carloads of oranges a week.

The Brawley farm center has decided to get expert advice on means of exterminating blackbirds.

Commercial producers of eggs in Orange County are urging a protective tariff against cheap Chinese eggs.

The California Lima Bean Growers Association has sold more than two-thirds of its regular stock of Limas.

The first shipment of strawberries from Imperial Valley was sent to Phoenix, February 1, by a Brawley shipper.

The state highway between Banning and Whitewater is to be finished as soon as possible. Bids will be opened the first of June.

Residents of Palo Verde Valley, Riverside County, are getting ready for a fight against mosquitoes. The campaign last year cost $6,000.

Garden Grove, Orange County, shipped out 413 carloads of pimentos during the last season and 225 carloads of oranges and lemons.

Lemon growers of Orange County are jubilant over news of a cut in water freight rate on lemons from Los Angeles to New York from $1.05 to 70 cents.

Figures given out by County Horticultural Commissioner Call of Ventura show that six times as much sugar beets as beans are grown in that county.

Ranch workers are in ample supply in Los Angeles County, according to a statement by E. H. Hancock, district superintendent of the public employment bureau.

The first week of the membership drive by the San Bernardino County farm bureau showed a gain of 671 members. Chino was the banner district, with a gain of 152.

The largest market for Lima beans is among the Jewish and Polish people. The California Lima Bean Growers Association expects to extend the market through judicious advertising.

A meeting of cattlemen and land owners was held in San Bernardino, February 17, to discuss provisions of a bill now before the state legislature pertaining to the fence law and cattle grazing.

Orange County will take drastic steps to enforce the law governing overloaded trucks on highways. Every truck that has the appearance of being overloaded will be ordered to the nearest scale and weighed. Traffic officers will be supplied with keys to all public scales.

The South Coast Honey Producers Cooperative Exchange met in annual session in Ventura recently and elected Fred A. Parker of Lompoc, president, and Charles C. Orr of Lodi, secretary-treasurer. The exchange is composed of members from San Luis Obispo, Santa Barbara and Ventura.

The Coast and General

Three new saw mills have been put into operation near Riddle, Oregon.

A cow testing association has been organized in Deschutes County, Oregon.

Dry farming sections of Arizona report good yields of hay from Sudan grass.

The Oregon Growers Cooperative Association has placed prune bread on the market in Salem.

Official testing of dairy herds in Washington has increased more than 50 per cent during the last year.

The United States bureau of animal industry has placed sheep inspectors at Lake View and Bend, Oregon.

The March meeting of the Maricopa County Poultry Association, Arizona, will be held at Phoenix, March 12.

Celery growers in the Sanford district of Florida are asking for establishment of federal grading rules for celery.

Attendance at the farm and home week at the University of Arizona at Tucson was greater this year than ever before.

The state division of markets of Wisconsin has presented to the legislature a bill requiring potato dealers to hold state licenses.

Cattle growers of Arizona held their annual state convention at Phoenix, February 8-10, electing E. H. Crabb of Flagstaff, president.

The Texas legislature has passed a bill restricting aliens ineligible to citizenship from buying, leasing or controlling land in that state.

The Maricopa County Poultry Association, Arizona, has forwarded resolution to Arizona congressmen and senators at Washington favoring protective tariff against Chinese eggs.

Maricopa County, Arizona, has a poultry association which is doing some live work. It is now conducting a campaign to increase membership. Arthur G. Freeland, Phoenix, is secretary-treasurer.

Washington claims honors in the butter fat production contest between cow testing associations in Washington, Oregon and Idaho. The tests were carried on under direction of the western office of the dairy division at Salt Lake City.

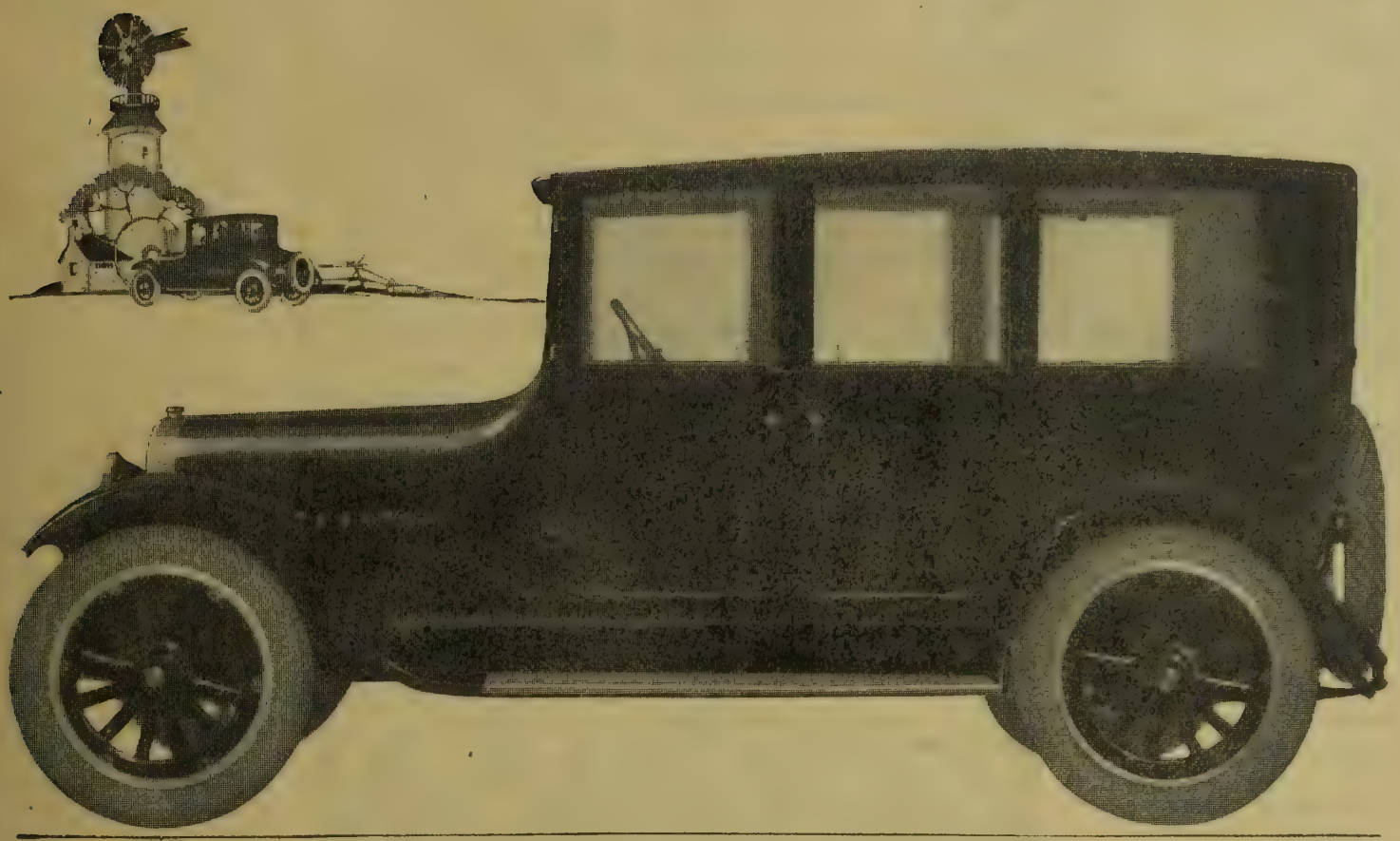
The Oregon Interstate Fair Association has elected officers for the ensuing year. The directors are M. R. Biggs, Ralph Breese, C. C. Berkeley, George Russell and Ed Slayton; officers are: President M. R. Biggs; secretary-treasurer, John B. Shipp.

At the recent annual meeting of the Arizona Cattle Growers Association a resolution was passed opposing any legislation against the packers at this time. Secretary Heinemann of the Institute of the American Meat Packers at Chicago was one of the speakers on the resolution. Former President Dwight B. Heard of Phoenix opposed.

An effort to solve the problem of developing the agricultural resources of the state has resulted in the organization in Seattle, Washington, of a state land settlement association. This is cooperating with the grange, the farm bureau and similar organizations. R. K. Tiffany of Spokane is president and Howard A. Hanson of Seattle is secretary.

Oakland

OAKLAND OWNERS REPORT RETURNS OF FROM
18 TO 25 MILES PER GALLON OF GASOLINE
AND FROM 8,000 TO 12,000 MILES ON TIRES



THIS OAKLAND SENSIBLE SIX SEDAN IS POWERED WITH THE FAMOUS 44-HORSEPOWER, OVERHEAD-VALVE OAKLAND ENGINE

THE Oakland Sensible Six engine is of overhead-valve design—a design clearly demonstrated as superior by its use in all racing car and airplane engines. The cylinders of this engine afford the nearest possible commercial approach to the ideal combustion chamber. As a result of this and other Oakland features, the Oakland owner enjoys more miles from the gallon of gasoline, more power per pound of car weight, quicker getaway, easier hill-climbing and greater flexibility, than are available in any other car at anywhere near the Oakland price.

OPEN CAR, $1395; ROADSTER, $1395; FOUR DOOR SEDAN, $2065; COUPE, $2065
F.O.B. PONTIAC, MICH. ADDITIONAL FOR WIRE WHEEL EQUIPMENT, $85

OAKLAND MOTOR CAR COMPANY
Pontiac, Michigan

OAKLAND
SENSIBLE SIX

The American Beauty Dust Sprayer

For Orchard, Field and Vineyard
100% Efficient

The fastest, most thorough and economical dust sprayer ever built.

Concentrated application saves half the material.

The standard of efficiency in sulphuring vines.

Unequaled in the control of Red Spider.

Our Nicotine-Sulphur Dust is instant death to Thrips, Leaf-Hopper, Aphis and similar insects.

We invite correspondence.

The California Sprayer Co.
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48,000 ACRES SAN LUIS OBISPO CO.

Under arrangements just completed with C. W. Clarke Co., the owner of the well-known Sacramento and other ranches near Paso Robles, I am now in a position to offer for sale in nine subdivisions ranging from 1,000 to 8,500 acres, the 28,000 acres owned by said company, at prices ranging from $18.00 per acre up, and on favorable terms.

These ranches are situated about fifteen miles east of Paso Robles, and included in their areas are thousands of acres of fine land suitable for cattle or general farming, almond growing or other fruit raising.

For further particulars, apply to
WALTER I. BRUSH
Supt. Sacramento Ranch near Shandon, S. L. O. Co., P. O. Address Paso Robles or Shandon. Tel. Paso Robles 6-F-1.

TREAT YOUR SOIL WITH TORO BRAND AGRICULTURAL SULPHUR

It will increase your crop in some instances up to 500%, prevent wire worms, smutty grain and potato scab. For Lime-Sulphur Solution use DIAMOND "S" BRAND REFINED FLOUR SULPHUR. For dry dusting use ANCHOR BRAND VELVET FLOWERS OF SULPHUR. Sold by leading dealers. For rodent control use CARBON BISULPHIDE. Write for circulars 6, 7 and 8, prices and samples.

SAN FRANCISCO SULPHUR CO.,
624 California St.,
San Francisco, Calif.

SEND FOR FREE BOOK ON
LAND CLEARING
WORTH ITS WEIGHT IN GOLD

BULL DOG STUMP PULLER

Pulls in few minutes largest, smallest, low cut, green, rotten, deep-rooted stumps or trees, in swamp or on hills. Made of tough steel. Weighs only 163 lbs. Lasts a life time. Plenty of strong cable. Root Hook FREE. *You alone* can yank out big stumps quickly and cheaply. *Free Trial.*
ENDORSED BY FARMERS, EXPERTS AND COLLEGES. EASY PAYMENTS.
Mohr Steel Co., 2877 26th St., San Francisco, California.

KEROSENE ENGINES
OTTAWA LATEST DESIGN

Durable, Powerful, Reliable, Massive. Built to last; to do hard, heavy work. Uses Cheapest Fuel. Pull ¼ to ½ horse-power more than rated. Lowest Prices. 3 Months Trial. Easy Terms. Sizes 1½ to 22 H-P. Easy to start. No cranking. No batteries. 10 Year Guarantee. Most practical engine ever built. Engine book free. A postal brings it.
THE OTTAWA MANUFACTURING CO.
8121 King Street, OTTAWA, KANSAS

BEEMAN Multi-Service Tractor

Compare Its Cost with Keeping a Horse

You'll find that a BEEMAN is not only the most economical to buy but the least expensive to keep and operate. You feed a horse 1,095 times a year--he eats three meals every day, gets tired, sometimes sick and requires harness and equipment to work in.

The First Successful Small Tractor

BEEMAN is on the job every day you need it and eats only when at work and then not expensively--works where a horse can't--does 4 H. P. stationary work and goes from job to job under its own power. A BEEMAN on your place means bigger profits. It is the lowest priced, most economical tractor you can buy. Write direct to distributor for terms and fully illustrated folder.

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FRUIT TREES

Ask about our JUNE BUDDED TREES also the DOUBLE BUDDED DORMANT STOCKS. They can be planted with splendid results. We still have a limited supply of one year trees. All of them are the leading commercial varieties.

FIG TREES

All the leading varieties such as Black Mission, Calimyrna, Kadota and White Adriatic.

GRAPE VINES

A Choice Selection of First Class Number One Vines.
Emperor, Flame Tokay, Malaga, Muscat,
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—OUR NEW DESCRIPTIVE CATALOG MAILED FREE—

Kirkman Nurseries

FRESNO CALIFORNIA

When Writing Advertisers Mention California Cultivator.

PANAMA SAVES THE DAY

(Continued from Page 344.)

of lemons at Philadelphia and the rest on the docks at New York, where the fruit will be sold at auction.

GEORGE D. KELLOGG

One of California's best known pioneer fruit growers and packers died at his home in Newcastle, Placer County, last week at the age of 77. Mr. Kellogg was a Civil War veteran and has been engaged in growing fruit in Placer County since 1876. In paying tribute to him, Secretary Hecke of the state department of agriculture said: "In his passing California has lost one of its foremost figures in the development of horticultural interests, and one of the staunchest supporters of horticultural advancement. In the development of the horticultural interests of California Kellogg stands as one of the leading figures."

The fruit packing and shipping business of George D. Kellogg and Son will be continued by the son.

CALIFORNIA GOOD ROADS

Californians are highly gratified by the report issued by experts of the United States department of agriculture, bureau of public roads, on the recent study of California's highway system. The gratification is all the greater because of the fact that an effort has been made by certain engineers to discredit the work of the state highway commission. These engineers set up an idea impossible of attainment for many years to come, and because the ideal was not reached, but instead a practical system worked out by the highway commission fulfilling promises made at time the vote was cast for the issue of road bonds, the engineers issued a rather caustic report condemning the accomplishment which had saved California many millions of dollars. Almost the first paragraph in the report of the national bureau of public roads states: "an annual travel of 400,000,000 vehicle miles a year on the state highway system and a return of at least $20.000,000 in 1920 from the $42,000,000 that California has invested in its roads. * * * The total of this revenue has probably paid for all construction costs to date and would have been correspondingly decreased with less mileage." The highway commission has given the greatest possible mileage for the least possible outlay.

REDUCED FREIGHT RATE

Some of California's prune packers, those who are known as independents, have placed themselves in a not very enviable light before their fellow citizens in their endeavor to have the special rate on prunes in sack increased, or rather that it shall not be availed of. The California Prune and Apricot Growers found that it could secure more satisfactory return to the producers of California by sending the dried prunes in sacks to New York and there, equipping a small plant, have them processed, boxed or put in cartons, and hand over to the trade freshly packed fruit at lower cost than was possible to process in California and ship across the continent.

Some of the independents felt that this was an invasion of their rights and claimed that it would work loss to California labor interests, box shook interests, freight handlers and others, so they appealed to all the "loyal" to resist the efforts of the grower to secure a little money.

The effort was made necessary by the enormous increase in freight rates which made it impossible to ship at present prices California processed prunes and leave any return to the grower. Prunes which have been dipped and packed in 25 pound boxes will not stand the long shipment required via Panama, but the dried prunes direct from the trays or sweat boxes arrive in excellent condition, hence the growers, forced into a corner by the railway companies, devised the scheme of processing at the consuming point. Rather than permit this, of course the industry should be crushed. The packing houses and equipment of the cooperative association represent an equipment of $2,000,000, and through these houses pass nearly 80 per cent of California's prune crop. Those who are objecting to this great association's having justice seem to be willing that this $2,000,000 worth of equipment should be scrapped in order to save their own comparatively small equipment.

On his return from the East Manager Coykendall drew attention to some of the above facts and added: "The packers claim that 20,000 girls and thousands of men will be thrown out of employment. Only a few girls are used in packing houses since 'facing' has been done away with in packing prunes.

"The packers claim that California will lose its shook industry. The California Prune and Apricot Growers, Inc., has announced it will send every bit of its shook from California, right along with the prunes. The association, therefore, fails to see where it is cheating California out of any industry.

"If it is a crime to lower freight rates on any commodity, then the California Prune and Apricot Growers, Inc., certainly pleads guilty. We are doing, and shall in the future,. do everything in our power to assist the prune industry in every way we possibly can."

THE NEW ADMINISTRATION

The best of it all is that the new administration of the affairs of the federal government starts with the hearty good will and trust of all the people. This is true not only of President Harding and Vice-President Coolidge, but of the official family of the president. The following are the members of the cabinet for the next four years:

Secretary of state, Charles E. Hughes of New York, former governor, justice of the supreme court, and republican nominee for the presidency.

Secretary of the treasury, Andrew W. Mellon of Pensylvania, banker and financier, member of a family reputed to be among the wealthiest in this country.

Secretary of war, John W. Weeks of Massachusetts, former senator, and in 1916 a candidate for the presidential nomination.

Attorney-General, Harry M. Daugherty of Ohio, who managed Mr. Harding's pre-convention campaign.

Postmaster-General, Will H. Hays of Indiana, chairman of the republican national committee.

Secretary of the navy, Edwin Denby of Michigan, former member of congress, who has served as an enlisted man in both the navy and marine corps.

Secretary of the interior, Albert B. Fall of New Mexico, now a senator.

Secretary of agriculture, Henry Wallace of Iowa, editor of farm publications.

Secretary of commerce, Herbert Hoover of California, former food administrator and leader in various movements for European relief.

Secretary of labor, James J. Davis of Pennsylvania and Illinois, a former union steel worker who has become the highest official in the Moose fraternity.

PRUNE PRICES

Thinking that the following information may be of advantage to prune and apricot growers throughout the state I submit the following: Since Prune and Apricot Growers, Inc., started the reorganization drive independent packers have become active and offer the following prices for spot fruit in hands of independent growers of this vicinity: Prunes 20-30's, 15 cents flat; 30-40's, 9 cent basis; 40-50's, 7 cent basis; 50-60's, 6 cent basis; 60-70's, 5 cent basis; 70-80's, 4 cent basis; 80-90's, 3½ cent basis; 90-100's and up 3 cent basis; apricots that will average fancy Moorpark of good color, 17 cents per pound. These above prices would average about 7 cents per pound for Santa Clara Valley prunes.—P. F. McKinney, San Jose.

Butte County has 2600 acres planted to olives.

WORLD COTTON CONFERENCE

The second world cotton conference will be held in Liverpool and Manchester, England, June 13-22. The American delegates will sail from New York on June 1.

Whoever does less than his share makes it necessary for someone to do more than his.

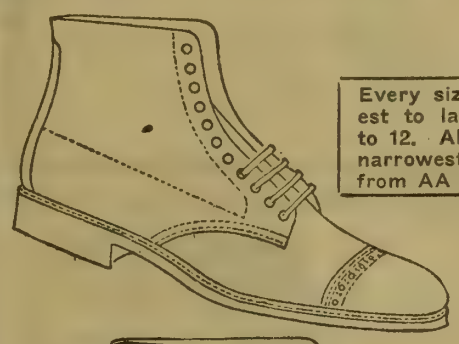
A SHOE SENSATION OF A LIFETIME!
ORDER BY MAIL---TO-DAY---SEND NO MONEY

Men's WALKOVERS $5
REGALS-EMERSONS
and PURITAN SHOES
VALUES NOW BEING SOLD AT OTHER STORES UP TO $15.

An Astounding Sale of About 20,000 Pairs of Finest Grade
Walk Overs
Regals
Emersons
Puritans

All new styles. Fresh stock. Values to $15 and so sold at any regular retail shoe store in any town or city of the United States. Every new Spring and Summer style in Black, Brown or Cordovan Calf and Kid leather. Lace and Button, Bal and Blucher. HIGH and LOW models. don't hesitate. Don't delay an hour. Our last big sale of men's shoes in January we sold $20,000 worth in three days! That proves the values and proves they won't last long. Send in yours.

3 Pairs for $14.00
Send exact size and width. State if you want black or brown, lace or button. Do you want English or broad toe shape?
These values are positively LESS than they cost to manufacture and about one-third the price being asked you at every other retail store.

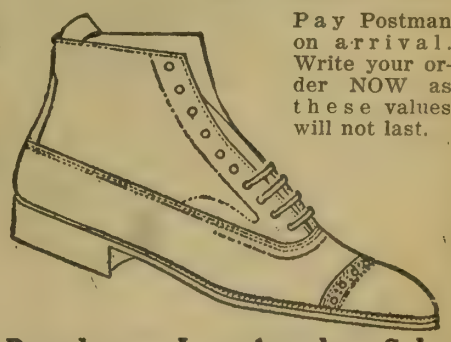


Every size from smallest to largest—from 5 to 12. All widths from narrowest to widest, from AA to EEE.

Some of these shoes are high grade factory checks and are marked "Reject" —a method often used by factories to protect regular dealers in their lines where they sell shoes below cost. EVERY PAIR absolutely guaranteed to give entire satisfaction and to be more than your money's worth. If you don't like them, send them back and don't pay for them. That is how positive we are that they are the greatest money saving value ever offered in shoes.

$5.00 VALUES TO $15.00

VALUES TO $15 FOR $5



DON'T SEND A CENT
Pay Postman on arrival. Write your order NOW as these values will not last.

Emil Olcovich Shoe Co. 227 So. Broadway, Los Angeles, Cal.

New Date Palm for America

ONE of the romances which mark the history of the United States department of agriculture's plant exploration work has resulted in bringing to this country 2800 date palm offshoots of the choicest varieties of the Nile valley and Libyan desert.

These offshoots, mainly from the Saidy, or Wahi, and the Sewi varieties, were shipped from Alexandria to New York by Prof. S. C. Mason, arboriculturist of the bureau of plant industry, who first discovered their sources in 1913, and are now at the bureau's date garden at Indio. This is the headquarters for the date work in the Salton basin, comprising the Coachella Valley north of the Salton Sea and the Imperial Valley on the south, the one region in the United States combining the climatic features necessary to the successful cultivation of the choicest old world varieties of dates.

Search Lasted 20 Years.

For nearly 20 years the department of agriculture has been seeking offshoots of a large fine date known to commerce as the Wahi. These were regarded as the choicest dates obtained in Egypt, ranking next to the famous Deglet Noor of Algeria and Tunis, and with this difference, that while the Deglet Noor produces few offshoots from which young trees can be grown, the Wahi is prolific in this respect, producing from 20 to 30 offshoots in the lifetime of a tree.

Fruit of this variety had been obtained by David G. Fairchild, the department's agricultural explorer, on a visit to the Oasis of Fayum in 1901. It was known that the Wahi came from one of the oases of Western Egypt, but inquiry by Mr. Fairchild and three subsequent expensive expeditions failed to solve the problem as to the source of supply. In the autumn of 1913 and the following winter Professor Mason spent his time in Egypt and the Sudan making a careful study of the leading date varieties and the climatic conditions for their success, covering 1000 miles of the Nile Valley from Rosetta to Khartoum and the two most important Libyan oases, Kharga and Dakhla.

A journey by Professor Mason by rail to Kharga Oasis in October, 1913, and by camel train to Dakhla, found the desert people in the midst of their date harvest, a train of 40 or 50 camels starting from each district for the river every night. The visitor from the "great and friendly country," the United States, was received with true Oriental hospitality, and Abu Bakr, Omda and chief man of Rashida village, with his brother and cousin, became his host. He was the first representative of the United States department of agriculture to visit this historic "inner oasis." When asked about the dates they were sending out in such quantity, for Dahkla has nearly 200,000 date palms, the host explained: "This is the one commodity we have for export in all five of these oases. We can raise rice and wheat enough for our bread, but we must have something to sell to buy tea and sugar and cloth and get some money to pay our taxes. This date packs so well that we can send it on the long journey to the valley." Professor Mason interestedly asked the name and a moment later experienced one of those "thrills that come once in a lifetime," for his simple inquiry solved the problem that had vexed the department for 12 years.

"We desert people call the date by the same name, the Saidy," said the sheik, "but when these Bedouin traders get over to the valley with it, they call it the Wahi." To this friendly sheik was due the discovery of the true name of this valuable variety of date, and the whereabouts of a quarter of a million trees in their home in the fastnesses of the Libyan desert. Here is the key to the mystery: "Wahi" in Arabic means simply coming from "el Waha," the oasis, and the fact that the fruit was sold in the markets under this trade name, while known to the oasis growers only as the Saidy, had kept the Bedouin camel men's secret all these years.

Previous Sources Scanty

Professor Mason was able to obtain only 108 Saidy offshoots on his expedition in 1913, and these, with a very few obtained from an unknown origin by H. A. Rankin a few years previously, were the only sources for the introduction of the variety in the United States up to the time of the recent visit.

After purchasing samples of the fruit and an introductory supply of the offshoots, Professor Mason returned to Cairo where he gave close technical study to the so-called Sewi variety, the chief date of Giza province in the Nile bottom lands above the Great Pyramids and covering the site of the ancient city of Memphis.

This, the favorite packing date of this valley district, proved upon close comparative study to be so nearly like

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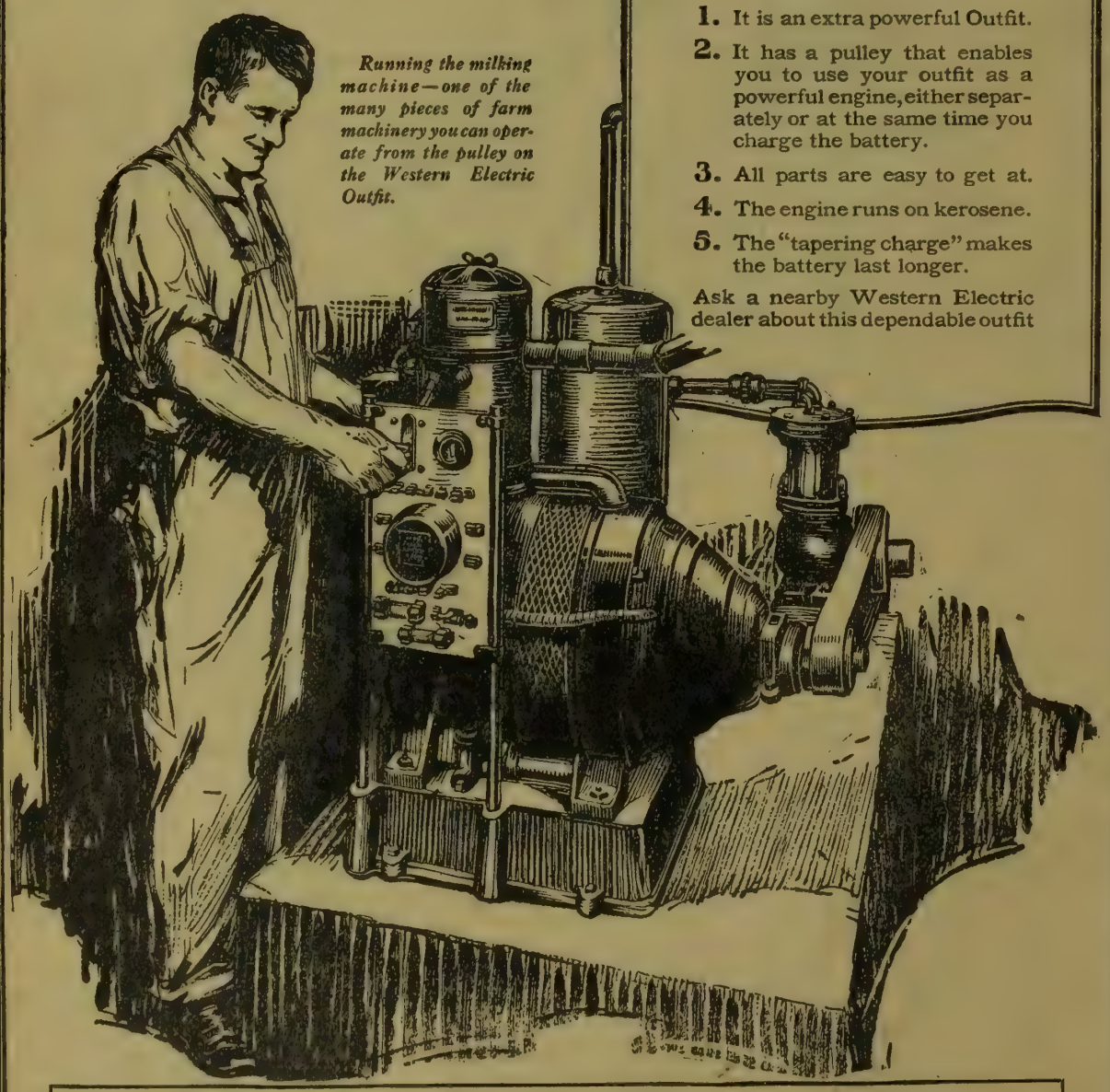

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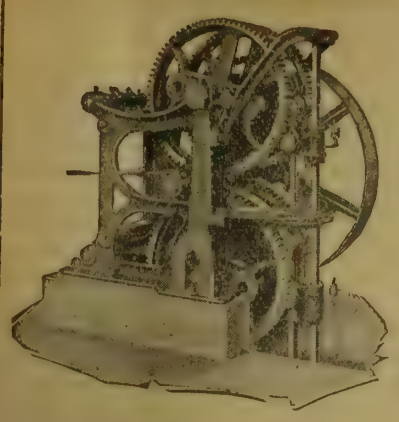

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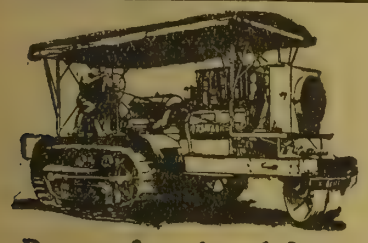

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the Saidy of the Libyan oases that for commercial purposes both may be classed as one variety. This knowledge proved of the utmost importance in introducing the variety into America, as it showed the presence of a large number of trees of offshoot bearing age convenient to railroad transportation and within a short haul from the port of Alexandria. Thus, with the varietal and climatic problems worked out, and the sources of supply of offshoots determined, the journey of 1913-14 prepared the way and made possible this successful trip of 1920.

Professor Mason sailed from New York on March 8, 1920 and landed at Alexandria from Marseilles, April 5, and was soon in touch with the officials of the Egyptian ministry of agriculture at Cairo, to whose generous assistance and hearty cooperation much of the success of the trip, it is said, was due.

With an expert Egyptian gardener from the horticultural experiment station at Giza as intermediary and interpreter, contracts were made in the best localities for 1,000 offshoots of the Sewi date from upper Giza, to be delivered at the horticultural packing sheds. Another contract was made with a reliable Arab sheik whose friendship had been won on the former journey, at Kharga Oasis, for 1,000 offshoots of the Saidy variety to be placed on the cars of the narrow gauge branch railway running from the Nile over the plateau to that oasis.

Native Crate Making

Taking another leaf from the journal of 1913, the packing of these offshoots for their long journey form Cairo to Indio, California, was made in material produced by the date palm trees. Owing to the scarcity of forest timber the Egyptian natives make a great variety of ingeniously constructed crates from the strong midribs, or "gerideh," of the date palm leaves. A supply of such dates was contracted for, to be made extra strong, and of suitable sizes for packing the offshoots, which weighed from 10 to 50 pounds each.

For packing material the strong brown fiber from the base of the palm leaves, the "leef" of the Arabs, was bought by the ton. This new material proved to be ideal for the purpose, as it is at once elastic, moisture-holding and permits a measure of ventilation. During the last week of June, six railway trucks carried the first 2,000 crated shoots to the Alexandria docks, where they were placed on board an American steamship for New York. They were unloaded at San Pedro, California, September 7, and a few days later reached the Indio date garden in the best of condition.

As this variety produces offshoots prolifically, this shipment guarantees to the California date growers, in the near future, a rapid production of offshoots of a type of date not heretofore known to the commercial world, but ranking in desirable qualities second only to the world famous Deglet Noor.

RIPE OLIVE RULING

I would like to have your opinion or that of any other person on the ruling of the state board of health on the home cured olives. So far I have never heard of a case of poisoning from home cured olives. If there has been no poisoning by home cured olives I have formed the following opinion of the new ruling: The new ruling favors the canners and importers by eliminating competition of the home cured olives.

I have my doubts as to the effectiveness of the high temperature required unless good containers are used. The high temperature favors the canners because they can get a better color on the olive. I would like to know whether the temperature regulations cover the imported olives? If it does not they are adulterated the same as the home cured olives.—J. V. Dewhurst, Ojai.

The Cultivator has repeatedly expressed its opinion that it hopes the state board of health will see perfect safety in allowing sale of olives cured on the ranch where they are grown and always kept in open containers.

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In spite of the advanced prices, the barber was dull, and the razor he was wielding seemed to share his discouragement.

"I've just about decided to open a butcher shop," he said, reaching for the powdered astringent.

"And will you close this one?" his victim gasped feebly.—Passing Show, London.

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Cabbage for Silos

Will you tell me if cabbage is a suitable crop for silage? I have several acres and no demand. What is the food value for hogs? Will they eat it?—Subscriber, Halcyon.

This question of making silage out of cabbage is a new one. Will ask any subscribers who have had experience along that line to give us of their information. It certainly would be making sauerkraut on an immense scale, but why make into the form of silage? Cabbages are good keepers and certainly are a good succulent for hogs. Of course one would not find them of much value as a fattener but they would be good for keeping stock in good healthy condition. They analyze a little higher in protein than mangels or other root crops; also somewhat higher in fat formers. The total dry matter in cabbage averages only about 8.9 per cent, protein 1.9, carbohydrates 5.6, fat 0.2. Henry's "Feeds and Feeding" says: "Cabbage is highly prized by shepherds when preparing stock for exhibition and is also used for feeding milk cows, Gill of England considering it superior to rutabagas. Like other plants of the mustard family it should be fed after milking to avoid tainting the milk. When cabbage is raised for market, the small heads and the leaves may be fed to stock."

Sign Your Name

If subscriber at El Cajon will send stamped envelope we will be glad to mail clipping from former Cultivator giving method of measuring hay in the stack. This question has been answered three times in the last few months and it is hardly fair to subscribers to repeat so often. This is referred to in this place to call attention to the signing of name and address in sending in questions. Many such communications go to the wastebasket because they are simply signed "Subscriber." We do not need the name for publication but there are many cases like the present one where the question can be answered immediately from former issues of the Cultivator.

Peas for Cover Crop

What kind of peas is best to plant for summer cover crop in sandy soil? My soil is full of nematodes. Can I raise peas on account of the nematodes and when is the best time to plant?—Subscriber.

The best "pea" to plant at this time of the year is the cowpea. This is, however, nothing more nor less than a bean. See article in the California Cultivator of July 3, 1920, where the methods followed on the Ed L. Dreher place near Claremont are described. Mr. Dreher plants largely to Whippoorwill cowpeas, planted soon after application of comercial fertilizer at the rate of 25 pounds per tree. Mr. Dreher persists in growing year after year cowpeas for summer and horse beans during winter. Other articles appearing in the Cultivator during the last year may be found on page 218 of August 21, 1920; page 270, September 4; page 438, October 2; page 480, October 9; page 563, October 30.

Sweet Potatoes

I am intending to plant about two acres of sweet potatoes this season. My soil is a sandy loam and I have had good success with small lots. I would like to know how many potatoes are necessary per acre for seed, what time should bed be started for early May planting, are first, second and third sprouts all suitable for planting?—Subscriber, Chowchilla.

This question is fully answered in an article which appeared on page 244 of the Cultivator of February 19.

Estray Animals

I have a neighbor who insists on turning his cattle in the road. This morning 11 head of horses came strolling my way and I saw them fussing over the fence at a pair of fine colts I have. I went over to drive them away and here was one of mine in the wire with her foot cut nearly half off; of course she got caught kicking at one on the outside. I want to know if

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I can make the owner pay damages. The wire cut will damage her sale at least $25 to $50. Is there not a law that will constrain him from pasturing his stock continually on our main traveled roads? I have ample proof that his horses, cattle, hogs and goats roam where they please.—Subscriber.

These animals should be taken up as estrays and impounded. See answer to a similar question written by Attorney Stanton in issue of the Cultivator of February 26, page 279. If the owner of the trespassing stock is so situated that a judgment would be of value, and if the damage was really caused by the trespassing stock, there is no question but he would be responsible for the injury done. One should first consider the facts, however, which can actually be established and then place in hands of responsible collector or attorney.

Rabbits Eat Wood

Will you kindly tell me what makes New Zealand Red rabbits eat up parts of their boxes and pens and also tell me how to prevent them from doing it?—Subscriber, Spreckels.

Lack of salt or barks from trees is generally the cause. Feed salt in mash, making it as salty as if for human consumption or put lumps of rock salt in feed crock or use salt spools made for that purpose. Apple tree limbs are a fine tonic. Pieces a foot long are sufficient, say twice a week. Any wood must be protected by scrap iron if one would entirely prevent it, especially if it is a stick or edge of a board which they can get at. Would suggest getting a good book on rabbits which gives full instruction on hutches and feeding.—W. D. W.

Planting Eucalyptus

What is the best time for transplanting eucalyptus trees? — Subscriber.

Think perhaps the best time for transplanting these trees is any time from now until April. At least we have reset them in March and succeeded well with fairly good sized trees. As a rule the seed is planted in midsummer and protected by lath or otherwise from direct sun heat and then they are reset this time of the year.

Shaffer Raspberry

Thirty years ago there was a dark red raspberry called "Shafer's Colossal." Can you tell me if it is still grown and where plants may be procured?—Subscriber, Highland.

A perusal of Pacific Coast plant catalogs fails to reveal such name. Bailey's Cyclopedia of Horticulture states the Shaffer (two f's) is a purple caned variety still grown, so we presume eastern dealers list it.—E. B.

Roses in Gravelly Soil

Will you please tell me what kind of fertilizer to use for roses? I have raised many nice roses in California but the soil was heavier than here. Since coming up here I have had no success whatever. The soil is gravelly and not rich at all. We have used quite a bit of poultry manure on them and perhaps that is not good as they neither grow nor bloom to amount to anything. I keep them cultivated and watered.

Roses revel in the heavier, richer soils. We have seen them grow magnificently in 'dobe. Where one can get some heavier soil and fill in around the roots when they are planted better results will be obtained than where they stand in coarse gravelly soil. In case that is impossible fertilize heavily, mulch so as to keep the ground cool and irrigate by the basin system, thoroughly soaking the ground every week or at most every two weeks. We may add that where one is unable to get richer soil for such plants as roses, that are very particular as to their conditions, an excellent substitute is had in the compost heap. All leaves, weeds and rakings or vegetable matter may be thrown on this heap in which is mixed a portion of the best soil obtainable. Into the same mass should go the garbage from the kitchen, poultry manure, when obtainable, a bit of air slaked lime occasionally, and, in fact, everything which will add to the fertility. It will take a year or two to really make this mass into valuable material which should be at hand at all times to put around all plants or to use as a dressing for the ground. Its value may be made still greater by making a part of the heap of bone meal or even dried blood. During the summer it should be forked over and wetted occasionally In addition to soil conditions bear in mind that roses need sunshine and will not grow in a shaded place.

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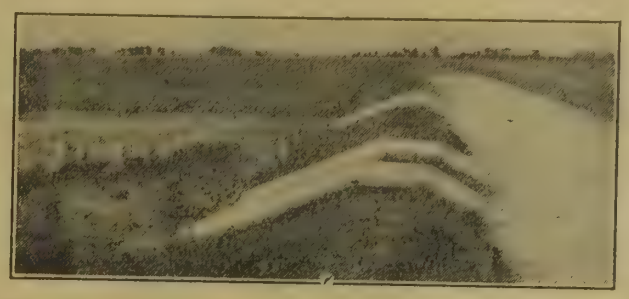

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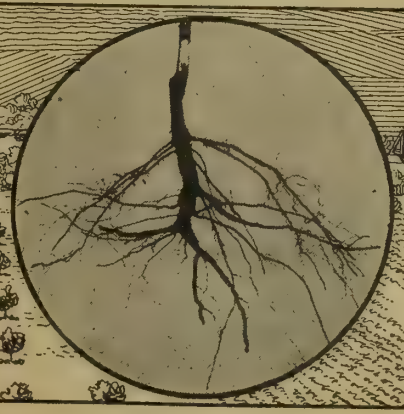

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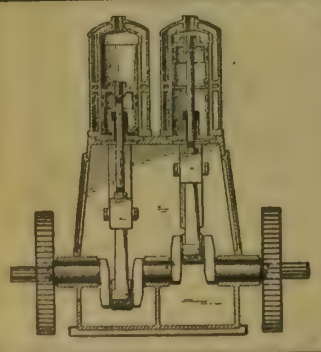

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Growing Cypress from Seed

How may I grow cypress trees from seed? Will cypress trees grow out again after being cut for posts?—Subscriber, Hemet.

Cypress trees are easily grown from seeds. Nurserymen usually sow in August and September, but for the reason that young trees of merchantable size may be ready, in boxes of 100 each, for winter's sales. You may plant seeds now with every prospect of success, in any well drained soil and with ordinary care. Cypress trees will not sprout again if cut for fence posts.

Olive Varieties

Will olive trees be damaged by a temperature of from 15 degrees to 25 degrees Fahrenheit? What varieties of olives are best to plant for pickling? At what age do they begin bearing?—Subscriber, Hemet.

Bearing olive trees will not be injured at the temperatures you note. Mission olives are best for pickling, Manzanillos second best, and if large sizes are desired, the Ascolano. Six years of age is as early as olives can be depended on to bear a crop.

Bitter Almonds

Where can I obtain bitter almond seed to raise seedlings for grafting?—Subscriber, Hemet.

It would be hard to find bitter almond pits for planting; better apply to nurserymen advertising in the Cultivator.

Grafting Walnuts

Is it advisable to graft walnuts or bud them, and why? — Subscriber, Hemet.

Grafting and budding both are practiced by nurserymen but the majority graft (walnuts). It is claimed quicker growth is obtained and a firmer, safer union made by cleft grafting.

Blackberries

I am thinking of putting out two acres of Cory's and Burbank Thornless blackberries, and some tell me they do not bear well and do not have much of a flower and we will not be able to sell them. Will you kindly give me some information regarding them?—Subscriber, San Bernardino.

We have no information as to the Burbank for your section, but a Tulare County subscriber, F. A. Stiles, writes: "In answer to Subscriber of Klink P. O. would say the Cory berries are great bearers if well watered and fertilized on the white ash land south of Fresno. Two crops of plants may be obtained each year. Bury every tip about October 15. These will be rooted by January 10. Cut each cane as near the rooting as possible and bury each end about four inches. By May 1 these will be rooted. Cut these loose from cane and have two good rootings for each cane.

Non-bearing Satsumas

Would you kindly advise me what is best treatment for Satsuma plum trees that bloom heavily but do not set fruit? The soil is a rich sandy loam and the trees are eight years old and very thrifty. — Subscriber, Whittier.

Satsuma plum trees are notoriously self-sterile and need polination from some other variety blooming at same time. The Climax, Burbank and Wickson are the best varieties for the purpose, in the order named. If any one of these proves better than the two others in your district, use it, but Climax is usually the best. In commercial orchards every fourth or fifth row is set to the pollinator. With two or three dooryard trees it may be better to bud a branch of Climax into the top of the central Satsuma.—E. B.

Budding Avocados

What is the best time to bud avocado seedlings? What kind of bud is best and how much wood is left on the back of the bud? Which is best, budding twine or waxed cloth? Subscriber, Oxnard.

Avocados may be budded at any time sap is flowing, but the preferred time runs from the present through June. The bud in no wise differs from that of citrus trees except that avocado buds are larger, as are all parts of the tree. Waxed cloth is used in preference to twine by all the best growers we know. Many prepare their own, dipping in pure melted beeswax.—E. B.

Italian Chestnuts

Please tell me as to soil and water requirements of chestnuts grown in Southern California. I have seen large trees in Orange County. Will they grow well in the Corona district of Riverside County, at 1,500 foot elevation, soil heavy black sandy loam, close to mountains, soil moisture good but cannot irrigate? — Subscriber, Corona.

Chestnuts thrive only in dry sandy or, preferably, gravelly or rocky soils on hillsides. They will not thrive in clays or other stiff soils. Our climate in general is a little too dry in summer. This is found to be true in Italy, Spain and southern Europe generally. Therefore plant on northern slopes or the south side of canyons. If you have such a situation chestnuts will do well and doubtless prove profitable as the nuts bring good prices.—E. B.

Avocado Not Bearing

Will you please let me know through the columns of your paper what I shall do with an alligator pear tree that has blossomed for the past three seasons but has never borne fruit? It blossoms and the blossoms stay on for a time and then fall off. Is there anything that I can do to remedy this? What do you think is the cause of it? The tree seems to be very healthy and is growing well. The soil is a sandy loam. Any information that you can give me will be appreciated. — Subscriber, Willowbrook.

You do not state if your avocado is a seedling or a budded and named variety. Budded varieties are very generally, perhaps universally, self-fertile. Many seedlings are notoriously self-sterile, and examples are known of large trees 20 or 30 years old that have never borne a fruit. Several methods of treatment have brought forth fruit, but success is more certain if all are tried, though even all may not succeed. First, stimulate tree with a small dose of nitrate of soda while in blossom; this will aid in causing the floral parts to function more fully. Second, procure flowering branch from another avocado tree and shake over the flowering branches and then toss branch up in top of tree and leave for a few days—bees and other insects may assist in cross-pollination. Third, ring-bark or girdle a few large branches near the base of each or fairly close to tree trunk. Take out a complete ring of bark, down to the wood, a quarter of an inch wide. One other method remains before a drastic surgical operation or removal of tree, and that is to plant another tree not more than 50 feet distant. If the two flower at same time both may fruit; neither may. If all these means fail have the tree top-worked; that is, grafted or budded to one or more good named varieties. The latter treatment is recommended without recourse to the others, and the work may be done any time during the next three months.—E. B.

"RED TOP"

STEEL FENCE POST

Drives Like a Stake Anchors Like a Rock

"RED TOP" Steel Fence Posts can now be obtained from principal hardware or implement dealers in your territory.

If you are unable to obtain the desired information about these economical fence supports from your Local Dealer, write us at once, giving a description of your property and the name of your dealer.

Harry L. Baylies

431 Pacific Finance Bldg.,
Cor. Sixth & Olive Sts.,
Los Angeles, Cal.
Phone 66297.

Save Money—Buy Pipe From Us

Farmers, Miners, Builders — people in every kind of business are saving money buying used or renewed pipe from us. We sell every kind of pipe. Send in a list of your requirements today and get our prices. We have saved hundreds of people 33 1-3 to 50 per cent on their pipe bills. Here's a partial list of some of the miles of pipe we have in stock for immediate delivery.

8,000 ft. 6 Inch Riveted 16 Gauge
700 ft. 8 Inch Riveted 16 Gauge
5,000 ft. 12 Inch Riveted 12 Gauge
1,000 ft. 18 Inch Riveted 12 Gauge
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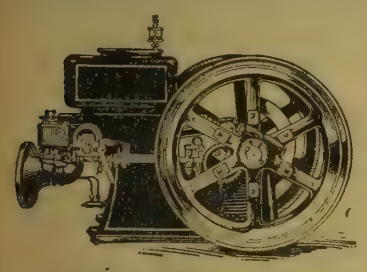
300 ft. 24 Inch Riveted 14 Gauge
500 ft. 36 Inch Riveted 12 Gauge
10,000 ft. light wrought iron 8 inch pipe with cast iron collars.

All above pipe thoroughly overhauled and inspected and ready for immediate use.

We also have large quantity standard pipe and screw casing, pressure tested and guaranteed.

Don't delay—write for our prices on your pipe requirements today.

PACIFIC PIPE COMPANY
237 Howard St. San Francisco, Cal.



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SUGAR BEET GROWERS ORGANIZING

By James P. Britt, State Market Commission.

Considerable impetus was given to the affairs of the proposed beet growers association at a meeting of the organization committee held in Santa Ana, when Fred Bixby, a large land owner, and for many years a resident of Southern California, stated very emphatically that he endorsed the movement.

The proposed organization of sugar beet growers of Southern California indicates that the growers intend to have something to say as to what they shall receive for their beets, instead of, as heretofore, turning their produce over to the sugar refiners and then permitting the manufacturers to tell them what they will give them for the beets.

This does not mean that the consumer will pay more for the sugar, but that the grower of beets will receive a greater proportion for his product than under the conditions existing heretofore.

Mr. Bixby, who owns and controls several thousand acres of sugar beets in Orange County, informed the organization committee that he was very much in favor of cooperative marketing associations as he felt that the elimination of many of the unnecessary distributors between producer and consumer would materially lessen the cost of production and distribution and ultimately inure to the benefit of the consumer.

The sugar beet growers of the state are being organized into a cooperative marketing association by the farm advisors of the different counties, assisted by the state market director.

Cooperative associations of sugar beet growers have been formed in many of the other states outside of California, and doubtless within a short time a national association will be organized, of which California will be a prominent factor.

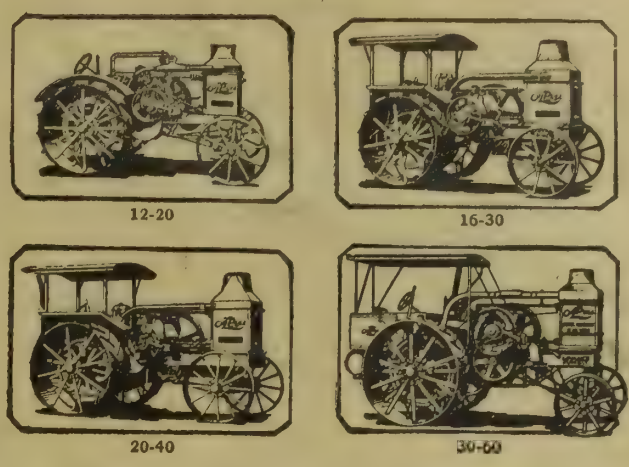
TOMATOES FROM CANARY ISLAND

United States Consul Henry at Teneriffe sends the following report: "An event which may be of considerable importance in the development of trade relations between the United States and these islands took place on December 20 when an American steamship cleared for New York from this port with over 4.000 bundles of Canary Island tomatoes on board, destined for the American market. Of these about 3,000 bundles were taken on at Las Palmas ,while 1,136 bundles, containing 72,507 pounds of tomatoes valued at $3,931, were shipped from Teneriffe. During the month of November another American steamer took a small quantity of tomatoes from Las Palmas, which is reported to have arrived in excellent condition and been sold in New York at very satisfactory prices. It is understood that the Ward Line plans to have one vessel a month stop for tomatoes en route for New York, so that there is every reason to believe that the export of this vegetable will become of considerable importance."

PEANUTS FROM JAPAN

The United States buys from Japan each year about a million dollars' worth of peanuts and more than three million dollars' worth of peanut oil, though the latter is obtained for the most part from peanuts grown in China. In 1919 Japan imported from China 25,000,000 pounds of nuts and exported to the United States a total of 14,500,000 pounds.

RUMELY OILPULL TRACTOR



A Size for Every Need

There's an OilPull tractor to fit *your* requirements, for there are four sizes—from the small 12-20 up to the giant 30-60.

Whether your farm is 80 acres or 8,000, or any size between, there is an OilPull of the correct size.

The OilPull line includes the 12-20, 16-30, 20-40 and 30-60 H.P.— all distinguished by a basic design that has been proved best by 12 years of field use. The features that have come to make the name "OilPull" stand for unequaled quality in tractor manufacture are built into all sizes. Guaranteed kerosene burning, oil cooling, double lubrication, 25% overload capacity—these, and other advantages of which we are anxious to tell you, are to be found in every OilPull.

ADVANCE-RUMELY THRESHER CO., *Inc.*
17-19 Main Street, San Francisco, Calif.
Direct Factory Branch

ADVANCE-RUMELY

Arnott & Company Rumely OilPull Tractor —Distributors— **Los Angeles**

USE **CONCRETE**
FOR PERMANENCE

Your automobile is worth the protection of a fireproof concrete garage—and nearby buildings get protection that way too.

PORTLAND CEMENT ASSOCIATION

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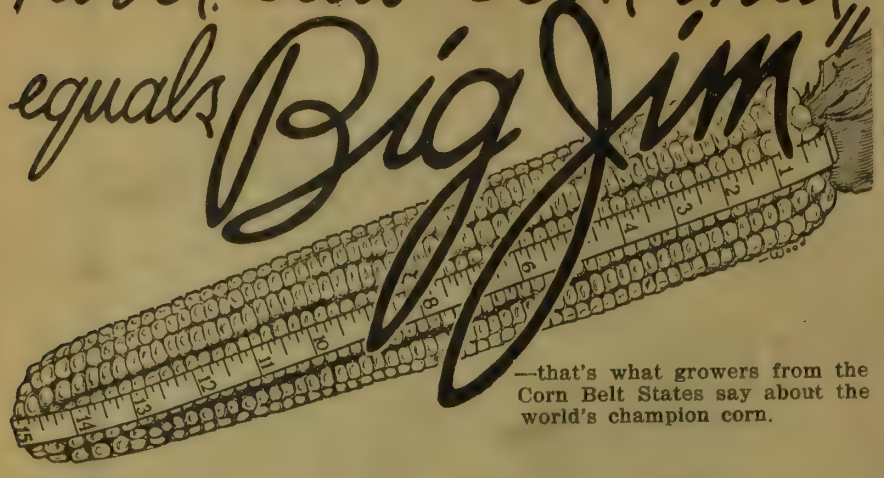
Des Moines	Kansas City	New York	Salt Lake City	Washington

Write for Booklet P-3

"Never saw corn that equals Big Jim"



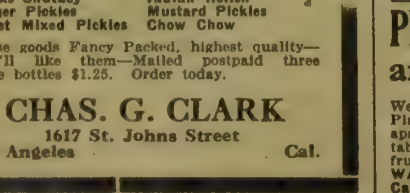
—that's what growers from the Corn Belt States say about the world's champion corn.

Planted side by side, Germain's Big Jim will outyield any other variety grown. Ears average two to stalk and 10 to 15 inches in length. Fine for ensilage—stalks attain mammoth growth and are thickly covered with broad, succulent leaves. Thrives in any soil.

Our red certificate of quality on every sack is YOUR protection. Ask your dealer for Germain's Big Jim Corn.

For detailed description, read page 46 and 47 of Germain FREE 1921 Catalog. Write Dept. 13.

Germain Seed and Plant Company
Los Angeles



Bean Direct-Connected Pump and Motor

An economical, efficient, highly satisfactory pumping outfit. No loss of power. Occupies small floor space. Requires very little attention. The BEAN is the pump with the water-sealed stuffing-box which prevents the loss of priming, reduces friction, and insures a cool free-running shaft at all times. Send the coupon.

BEAN SPRAY PUMP CO.
121 W. Julian Street, San Jose, Cal.
Branches: Fresno, Los Angeles

Bean

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BEAN SPRAY PUMP CO.
121 W. Julian Street
San Jose, Calif.

*Distance to water below surface of ground*_____
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*If water is to be raised above surface of ground, how high? (Length and size of pipe line)*_____
*Volume of water desired (Gals. per min.)*_____
*(Inches)*_____
*If you have pit, give width*_____ *length*_____
*depth*_____
*H.P. of motor or engine if you have that equipment*_____
*Give total depth of well*_____
*Inside Diameter of well*_____
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Save 1-2 on Fuel

CHEAPEST HEAT YOU CAN BUY

The Sievert Oil Burner burns either distillate or kerosene oil in cook stoves, heaters, furnaces, pasteurizers, boilers, prune dippers, dairy sterilizers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Install it yourself. Write for circular and prices on different sizes. Address Sievert Oil Burner Co., 719 North Main St., Los Angeles.

EAT CLARK'S FANCY PICKLES

Mail this advertisement and $1.25 for our Special Trial Carton containing three large bottles of delicious relishes.

Choice of three —

Clarks Chutney
Finger Pickles
Sweet Mixed Pickles
Indian Relish
Mustard Pickles
Chow Chow

These goods Fancy Packed, highest quality—You'll like them—Mailed postpaid three large bottles $1.25. Order today.

CHAS. G. CLARK
1617 St. Johns Street
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The Safe Tonic

embodies elements that restore strength and build up the body via nourishment.

Scott's Emulsion

is a form of tonic-nourishment that makes for a sound body and abundant vitality.

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Take KI-KOIDS for Indigestion.

Plant Winter Rhubarb and BERRIES for PROFIT

We can supply plants—all sorts for large fields. Plant also peaches, plums, prunes, pears, figs, apples, apricots, asparagus, artichokes, etc., for your own table and pleasure. We have a good assortment of fruits of all sorts. Write for price list. J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Cal.

When Writing Advertisers Mention California Cultivator.

Household Department

A CHILD'S LAUGHTER

All the bells of heaven may ring,
All the birds of heaven may sing,
All the wells on earth may spring,
  All sweet sounds together;
Sweeter far than all things heard,
Hand of harper, tone of bird,
Sounds of woods at sundown stirred,
Welling water's winsome word,
  Wind in warm wan weather.

One thing yet there is, that none
Hearing ere its chime be done
Knows not well the sweetest one
Heard of man beneath the sun,
  Hoped in heaven hereafter;
Safe and strong and loud and light,
Very sound of very light
Heard from morning's rosiest height,
When the soul of all delight
  Fills a child's clear laughter.

Golden bells of welcome rolled
Never forth such notes, nor told
Hours so blithe in tones so bold,
As the radiant mouth of gold
  Here that rings forth heaven.
If the golden-crested wren
Were a nightingale—why, then,
Something seen and heard of men
Might be half as sweet as when
  Laughs a child of seven.
—Algernon Charles Swinburne.

HOME HUNGER

I need the sight of a friendly spire
  To cure the longing that troubles me,
  The old-familiar maple tree,
The curling smoke of a cheerful fire,
The little street of my heart's desire.
  There are merry eyes that I soon must see,
  I must take the children upon my knee,
For kisses can't come by mail or wire.
Oh, the wanderer sickens in time of smiles
  Of men and women who come and go,
  And though he walk where rich roses grow,
His heart goes traveling back the miles
To the little place where his loved ones wait,
And he yearns for the joys at his humble gate.—Edgar A. Guest.

STAR LIGHT, STAR BRIGHT

(Continued.)

The most delightful time of all came one Saturday when the sun was out smiling away the cold dampness. Dick heard the larks singing when he awoke and he just felt that it would be a joyous day.

Then Uncle Toteman called fretfully that he had the "neuralgy" and could not go to the shop. So Dick got dressed and hurried off.

He unlocked the shed door and the rabbit hopped out, sniffing the spring breeze contentedly (its lameness had disappeared). Dick picked it up and ran under the trees into the wood. He did not stop until he found an open space among the oaks, with the sun beating down upon the moist ground.

What fun it was to watch the rabbit smell eagerly of each root and twig. It frisked about like a kitten and kicked out its legs until Dick rolled over and shouted with laughter.

And that wasn't all. There was the most wonderful secret you could imagine. That very day the teacher had read aloud a story of a lame white rabbit that came to live with a little boy and on Easter morning the boy was greatly surprised to find a grass nest of eggs outside his door, for he hadn't known at all that it was an Easter rabbit.

So, as Dick munched an end of Bunny's carrot, he was almost too happy. To be sure, his rabbit was black and didn't seem to care about much except eating; but what would prevent it from turning out to be an Easter rabbit? Easter was almost here, and without a trace of self-pity, Dick really thought he ought to be remembered then for Santa Claus had passed him by with only a small bag of candy from the town Christmas tree.

Toward noon, however, the weather grew cooler instead of warmer, and the sun went under a cloud. Dick shivered. He had just been thinking that perhaps Uncle Toteman wasn't so bad after all, maybe he would let him keep the rabbit at home. But as the spring warmth died away, Dick's new hope died also. It didn't seem possible that Uncle Toteman would have a rabbit around, even an Easter rabbit. This probably wasn't an Easter rabbit anyway, but Dick loved it just the same. With a passionate hug he took the pet into his arms and started home through the darkening wood.

He had just had time to close the shed door when Uncle Toteman came limping around the shop.

"It's high time you was appearin'," he called. "A poor man can't stay home from work even if he has got the neuralgy. Hustle and fill your coal pail."

The days got colder after that, though it was almost Easter. Dick used to shiver under his quilt and long for the furry rabbit to snuggle against his back.

A few days before, he had discovered some white hairs on the rabbit's neck and a wild hope again took possession of him. Could it be possible that he really would find a basket at his door Easter morning?

Often Dick looked longingly but vainly for more signs until two days before Easter when the teacher read another story to the class. In this the Easter rabbit was black and didn't change at all until twelve o'clock Easter Eve, when he suddenly stood up, on his hind legs, took a basket from a secret corner and filled it at the Fairy Shop in the deep wood, depositing it afterward before the bed of the child he loved most.

There was no doubt in Dick's mind now. The story really could come true. He fed his rabbit with a new reverence and stroked the glossy fur respectfully.

(Continued next week.)

PLACING CHILDREN IN HOMES

The Children's Home Society of California, located at 2414 Griffith Avenue, Los Angeles, has for more than a score of years been engaged in finding homes for homeless children. Finding the child for the home has been exceptionally easy, but finding the home with door open has not been so easy although thousands have received attractive little folks with possibilities of a great future. The society now wishes to know of more of these homes and, further, in order to carry on its work appeals to those who have property to increase the endowment of the institution and permit its work to be carried on more successfully.

We can conceive of no greater comfort in the sunset days of life than to be assured that the property you have acquired by hard toil, persistent self denial and frugal living — that this life's saving after your passing shall forever be used in child saving. The directors desire to so increase the endowment that the interest upon it shall carry on the work and thus all expensive ways of collecting funds be eliminated. The directors thus present the claims of the homeless children and ask your support. Let it be said of this state that not one child appeals to us in vain. More than 300 children yearly pass through this home to permanent homes.

HOUSEHOLD QUERIES

Potato Cakes and Nut Bread

Seeing in the issue of the 19th a recipe wanted for potato pancakes and in last week's Cultivator a request for nut bread I will send them, as both are very good.

Potato Pancakes—Grate the raw potatoes and to every soup plate full add one egg beaten very light, a handful of bread crumbs, ½ teaspoon of salt. Mix and bake in plenty of hot lard or oil. Do not dip off the water as much of the starch will be lost, and use no flour as that will make them tough. Use no baking powder as the eggs are all that is needed to make them light, and bake slowly to give the potato time to cook. Fry a crisp brown. Meat is not needed with this dish; serve fruit or pickles.

Nut Loaf or Bread—1½ cups flour, 1½ cups cornmeal or corn flour, 2 cups graham flour, ½ cup molasses, ½ cup brown sugar, 1 cup raisins (or ½ raisins and ½ nuts or all nuts and omit raisins), 2 cups sour milk, 2 teaspoons baking powder, 1 teaspoon soda dissolved in a little hot water, 1 teaspoon salt. Bake in loaf; very good for sandwiches.

Lemon Cucumber Seeds

I saw in the Cultivator of February 19 recommendation of lemon cucumber, but am unable to get seeds here. Could the Wasco housekeeper help me to get them?—Reader, Ventura.

Lemon cucumber seed may be obtained from any seedsman advertising

"Standard" PLUMBING FIXTURES

The appeal of a modern bathroom is universal. To have one is to possess a constant source of health and comfort—to lack one is to miss more than you realize. It deserves your careful consideration in the improving of your present home or in the building of a new one.

Better bathrooms make healthier homes.

Write for copy of catalogue "Standard" Plumbing Fixtures for the Farm." It is illustrated in colors, shows complete bathrooms and fixtures, as well as model kitchen and laundry.

Standard Sanitary Mfg. Co., Pittsburgh

In addition to the displays of "Standard" Plumbing Fixtures shown by Wholesale Dealers and Contracting Plumbers, there are permanent "Standard" exhibits in the following cities:

NEW YORK.....35 W. 31ST
NEW YORK (EXPORT DEPARTMENT).....50 BROAD
BOSTON.....186 DEVONSHIRE
PHILADELPHIA.....1215 WALNUT
WASHINGTON.....SOUTHERN BLDG.
*PITTSBURGH.....445 WATER
PITTSBURGH.....106 SIXTH
*CHICAGO.....14 N. PEORIA
*ST. LOUIS.....4140 FOREST PARK BLVD.
*EAST ST. LOUIS.....16 N. MAIN
*CLEVELAND.....4409 EUCLID
CINCINNATI.....633 WALNUT
*TOLEDO.....1002-1016 SUMMIT
*COLUMBUS.....166 N. THIRD
*CANTON.....1106 SECOND, N. E.
*YOUNGSTOWN.....458 W. FEDERAL
*WHEELING.....46 EIGHTEENTH
*HUNTINGTON.....SECOND AVE. AND TENTH
*ERIE.....130 W. TWELFTH
*ALTOONA.....918 ELEVENTH
MILWAUKEE.....426 BROADWAY
*MILWAUKEE.....311 FIFTH
*LOUISVILLE.....323 W. MAIN
*NASHVILLE.....315 TENTH AVE., S.
*NEW ORLEANS.....846 BARONNE
*HOUSTON.....COR. PRESTON AVE. AND SMITH
*DALLAS.....1200 JACKSON
*SAN ANTONIO.....212 LOSOYA
*FORT WORTH.....828 MONROE
KANSAS CITY.....201 RIDGE ARCADE
SAN FRANCISCO.....149-55 BLUXOME
*LOS ANGELES.....216-224 S. CENTRAL
SYRACUSE OFFICE.....303 HERALD BLDG.
ATLANTA OFFICE.1217 CITIZENS & SOUTHERN BANK BLDG.
DETROIT OFFICE.....414 HAMMOND BLDG.
CHICAGO OFFICE.....1010 STANDARD OIL BLDG.
SEATTLE OFFICE.....1714 L. C. SMITH BLDG.
*TORONTO, CAN.....59 E. RICHMOND
*HAMILTON, CAN.....20 W. JACKSON

FACTORIES: Pittsburgh, Pa.; Louisville, Ky.; New Brighton, Pa.; Toronto, Can. POTTERIES: Kokomo, Ind.; Tiffin, O.

Service at "Standard" Branches In the cities marked (*) are carried complete lines of Plumbing and Heating Supplies, also Farm Water Supply Systems. Write or call on nearest branch.

in the Cultivator. A packet is sold at the regular price of other seeds and will be sufficient for a large garden planting.

Raised Doughnuts

I read with much interest your paper, also the home department, and find many good things given there. Would like to know if in your columns some good housewife will be so kind as to give me a recipe for raised doughnuts "like those you buy." Have tried numbers of recipes given in cook books, but without success.

Am sending a devilsfood recipe which I think is great and have never known to fail.—Subscriber, Vacaville.

(For answers to this or any other question asked in this department, published in the Cultivator, we will gladly extend subscription credit.)

HINTS FROM HOUSEKEEPERS

Devil's Food and Filling

First part: 1 cup grated chocolate, ½ cup sweet milk, 1 cup dark brown sugar. Stir and bring to boiling point. When sufficiently cool add to second part.

Second part: Mix 1 cup brown sugar, 3 tablespoons butter, yolks of 2 eggs. Add 1½ cups sweet milk and flour enough for medium batter, sifting with flour 1 teaspoon baking soda, ½ teaspoon baking powder.

Filling: 2 cups sugar (white), ½ cup water. Boil until heavy thread from spoon. Beat whites and add syrup to them when done. Beat constantly and when nearly cool add 1 cup chopped nuts or use plain.—Subscriber, Vacaville.

Recipe for Making Yeast Without Using Yeast Cake.

Cook two ounces (or about two handfuls) best hops one-half hour in nine pints of water and run the liquid through a colander while hot. Add two ounces (about one-half teacup) fine table salt and one-half pound sugar to this. Let the liquid cool to about blood warmth (98 degrees) then sift one pound warmed flour into a crock, make a depression in the flour, pour the lukewarm liquid slowly into this, stirring it in steadily until all is thoroughly mixed. Let this mixture stand for two days in a warm place. During this time thoroughly stir daily three or four times with a spoon. On the third day cook three pounds potatoes, mash or press through a colander and mix in with the first mixture. After the whole has stood one day in a warm place there should develop upon it a thick, dark froth. Thoroughly stir all together, pass it through a sieve or cloth and put into a stone jug, cork well and tie cork on securely with a cord. The yeast must be kept in a cool place. It will keep for months. Every time some is to be used the jug must be well shaken to mix contents. The quantity to be used is about the same as of other yeasts. —A. H. E. S., Santa Barbara.

Another Nut Bread Recipe

In answer to Fullerton Subscriber's request for nut bread recipe would like to send my recipe which is both simple and good: 2 cups flour, 1-3 cup sugar, ½ teaspoon salt, 2 teaspoons baking powder, 1 cup walnuts, 1 cup milk. Sift dry ingredients. Add nuts, chopped not too fine, then add milk to make a soft dough. Put into small, greased loaf pan. Allow to stand 20 minutes. Bake in a moderate oven about 40 minutes.—Mrs. E. C. Parr, Carpinteria.

Household Helps

A splendid "bathrag" is made by saving small pieces of toilet soap, dropping them in a small salt sack which has been boiled. When quite a few have been collected tie the sack shut and use as a cloth. Saves time when taking a bath.

Crumb Cake—Here is a good cake recipe for the busy housewife as it requires no frosting: Two cups flour, 1 cup sugar, ¾ cup butter. Rub these together until it looks like crumbs. Take out one cup of it, mix the rest with 1 cup sour milk, 1 teaspoon soda, 1 teaspoon cloves, 1 teaspoon cinamon, 1 egg, 1 cup raisins, 1 cup currants. Put in pan, sprinkle crumbs on top of cake, put in oven to bake. This cake is good for a busy mother to make, as it requires no frosting.

Nut Loaf—I just noticed a call for nut loaf, so will give mine: Four teacups flour, 4 teacups baking powder, ½ cup sugar, teaspoon salt, 1 cup chopped walnuts. Mix all dry and add 2 cups milk. Put in pan and let rise 20 minutes. Bake 40 minutes.

Caring for Children's Feet—I want to tell all moths of small children something very helpful in caring for small children's feet. Do not cut the corners of the nail of the great toe nor the next toe if you wish to prevent ingrown toenails. Cut the nail straight across. I once read this in a paper when my first child was a baby and I always did this. As I had known the terribleness of ingrown nails myself I also did the same to mine. It took some time to overcome the tendency of the nail to curve down but by patience I overcame the difficulty entirely. My five children are nearly grown now and they have never suffered with the trouble.

Add Dry Yeast Every Other Week

In reply to inquiry from mountain subscriber about making homemade yeast I am sending the following, which I have used and found satisfactory:

Three or four medium sized potatoes, 1 quart hot water, ¼ cup sugar, 1 teaspoon salt, 1 cake yeast soaked in one-fourth cup likewarm water. Grind potatoes through food chopper into hot water. Boil five minutes, stirring constantly. Add sugar and salt and allow mixture to cool. Add yeast as soon as it is lukewarm. Keep at a temperature of about 65 degrees or 70 degrees (ordinary room temperature) for 24 hours, when it is ready to use. A good container for it is an earthenware jar or enamelware pail which should be scalded before using. It should be kept covered and placed in a cool, dark place. About a half cake of yeast should be soaked in lukewarm water and added about every two weeks to keep it growing.

It requires about one cup of this for four loaves of bread. When making a sponge in the evening a pinch of ginger added will help keep it warm and will not be tasted in the bread.—Mrs. Ralph W. Trowbridge, Orland.

SOME USES OF LEMONS

By Martha

For breaking up a cold there is nothing better than hot lemonade taken upon retiring. This is made by putting the juice of two lemons in a pint of hot water and boiling two or three minutes. Sweeten to taste and drink as hot as possible.

One of the best remedies for a cough both for children and grown people, is made with the juice of three large lemons, same quantity of boiling water, sugar enough to make a thick syrup and alum the size of a bean, pulverized. Mix well, let boil up once and take off to cool. Dose, one teaspoon every hour. In case of a sudden hoarseness lemon juice and sugar will often give speedy relief, and for obstinate hoarseness or when croup is feared, lemon juice and honey is an almost certain cure.

Two or three slices of lemon in a cup of hot tea will often ward off a headache.

It Lasts as Long as the Building

Beaver Board walls and ceilings will never need replacing.

Think of it. You will never have worn, unsightly wall paper, you will never have cracked walls and ceilings, you will never have falling plaster if you use Beaver Board in your new home.

But rather you will have sanitary washable walls, beautifully panelled and decorated, walls that will be as permanent as the wood-work and hard-wood floors.

And besides there are other advantages of Beaver Board on the farm. The question of labor will be a simple one. The workmen who do the rest of your building can erect Beaver Board. You can do it yourself if you wish. There'll be no long waiting for plaster to dry. The same men can stay on the job from beginning to end. Time saving and money saving.

Beaver Board comes to you in large flawless panels ready to nail to the studding of new buildings or directly over old cracked plaster and wall paper. The pictures here show what an easy operation Beaver Boarding really is and what an attractive result you will get provided you use genuine Beaver Board.

Beaver Board is sold by lumber and building material dealers. The next time you come to town visit the Beaver Board dealer. Write for our new book "Beaver Board and Its Uses," and ask for a color card of Beavertone, a velvety flat paint made especially for decorating Beaver Board.

THE BEAVER BOARD COMPANIES

Administration Offices, Buffalo, N. Y.; Thorold, Ont., Canada; London, Eng. *District Sales Offices at* Boston, New York, Philadelphia, Baltimore, Atlanta, New Orleans, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, Minneapolis, St. Louis, Kansas City, Dallas, Denver, and San Francisco. *Sold by Lumber and Building Material Dealers Everywhere.*

BEAVER BOARD

You can't expect Beaver Board results unless this trademark is on the back of the board you buy.

BEAVER QUALITY

FOR BETTER WALLS & CEILINGS

The Cultivator Patterns

BE SURE TO SEND SIZE

3504. Frock for the Young Miss.—Cut in 3 sizes: 12, 14 and 16 years. A 14 year size will require 4⅜ yards of 36 inch material. Price 10 cents.

2939. Girl's Dress. — Cut in 4 sizes: 6, 8, 10 and 12 years. Size 10 requires 3⅛ yards of 38 inch material. Price 10 cents.

3178. A Simple House Dress.—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 6 yards of 36 inch material. Width of skirt at lower edge is 2 yards. Price 10 cents.

3526. Girl's Dress.—Cut in 4 sizes: 4, 6, 8 and 10 years. A 6 year size will require 3⅛ yards of 36 inch material. Price 10 cents.

3498. An Attractive Gown.—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 3⅞ yards of 40 inch material for the dress, and 2¼ yards of 27 inch material for the guimpe. The width of the skirt at the foot is about 2 yards. Price 10 cents.

3506. Girl's Dress — Cut in 4 sizes: 6, 8, 10 and 12 years. An 8 year size will require 1⅝ yards of 36 inch material for the guimpe, and 2½ yards for the dress. Price 10 cents.

3361. A Popular "Cover All" Apron.—Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. A Medium size will require 6¾ yards of 27 inch material. Price 10 cents.

3521. Girl's Coat.—Cut in 4 sizes: 4, 6, 8 and 10 years. A 6 year size will require 2⅝ yards of 44 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very best **NEW YORK** styles, all patterns ordered are filled in **NEW YORK.** Therefore, we promise to deliver all patterns ordered within **TWO WEKS;** we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

Lemons shoudl be an indispensable article on a woman's toilet table. The finest of manicure aids is one teaspoon of lemon juice in a cup of warm water, and one of the best lotions for the hands is equal parts of lemon juice and glycerine in which a little boric powder is dissolved. To rub the feet with lemon juice when they are tired and burning refreshes them wonderfully, then a little dry boric powder sprinkled in the shoes gives much ease and comfort, and if this treatment is kept up every day the feet can be kept in fine condition.

A good and harmless remedy for freckles is made with four parts of lemon juice, two parts sugar and one part boric powder well mixed and applied occasionally. The juice of a lemon rubbed on the skin and allowed to dry is excellent for clearing the complexion of blotches as well as improving the texture of the skin. It also prevents tan and freckles. A good and safe powder to use on the face and hands after using lemon juice in any way is made with equal parts of boric powder and pulverized starch.

One can have the hands in strong soap suds without injury if the hands are rubbed with lemon juice immediately after.

A lemon sliced and served skin and all after eating onions will destroy both the taste and odor of the onions, and the skin seems more effective than the juice.

The squeezed halves of lemons are excellent cleaners of forks, knives and spoons.

TRIMMINGS FOR SMALL DRESSES

"For the busy mother who wishes ta make her children's clothes attractive with as little expenditure of time and money as possible, the novelty braids and trimmings offer an easy solution," says Charlotte E. Carpenter, of the Colorado agricultural college. "They simplify the making and add to the charm of the garment without increasing the laundry problem."

These trimmings come in colors, all white or white and color. They may be had with one fancy edge and used in place of facing, lace or embroidery, or with the two straight edges and used as banding. The bandings are decorated with fancy stitches. Some have tiny animals, birds or other figures which delight the small child.

The trimmings are put up under various trade names in small packages containing three, four or six yard lengths. The price ranges from 15 to 25 cents a package.

There are also the six yard packages of bias lawn and cambric in white or color which come in different widths and should have a place in every woman's work basket.

WHIPPING CREAM

There are a few facts to remember in whipping cream. In the first place it should contain from 25 to 30 per cent butterfat; second, it should be from 12 to 24 hours old; and third, the temperature should range around 50 degrees Fahrenheit or lower, the nearer the freezing point the better. Before beginning have cream cold, chill vessel in which cream is whipped as well as beater, and do whipping in cool room. Another factor very important to a stiff whip is the aging of cream from 12 to 24 hours at low temperature. This allows a small percentage of acid to develop, thus rendering the cream more viscous. In this condition air is more easily incorporated into the cream and as a result a stiff whip is produced.

It is often necessary to whip fresh cream, that which just comes from the separator. In this case add one and one-half teaspoons lactic acid to each pint of cream and the aging effect is the result. It is possible to purchase lactic acid at the drug store.

RAISIN PIE

One and a half cups seeded raisins, 1½ cups boiling water, grated rind and juice of half a lemon, 1 tablespoon flour, ½ cup sugar, ½ cup finely chopped walnuts. Cook raisins in boiling water until tender, mix flour and sugar and add to raisins, stirring until thick. Beat the eggs, add lemon and combine mixtures. Let cool slightly and bake between two crusts.

Order Direct from This Ad

Montgomery Ward & Co.
Satisfaction Guaranteed or Your Money Back

Send Your Order to Portland

Buy by Mail—Save Money!

Here is another remarkable series of values. You can save a great deal on all your purchases for the farm or home by buying from our new complete Portland Store. These are only examples of the thousands of surprising bargains in our big catalog. Order direct from this ad. Give article number, color and size. Remember 49 years of dependable merchandising and our guarantee of complete satisfaction insures every order.

Lowest Prices Ever Offered on 6000 Miles RIVERSIDE TIRES

Over a million satisfied users of the famous Riverside tire is ample proof of the quality. So that you may satisfy yourself on this truly remarkable offer, we ask that you order one, two, three or four of these splendid tires. Give them a trial. If they do not satisfy you in every way, we will be glad to refund your money. Every Riverside Fabric tire is guaranteed full 6,000 miles service. We recommend Road Grip Tread for rear wheels—a sturdy, gripping, thick tread covered with hundreds of non-skid angles The Driving Tread, with center groove design is very suitable for front wheels.

NOTE THESE PRICES:

Size	Road Grip	Rib Tread	Gray Tube
30 x 3*	$10.15	$ 9.25	$1.42
30 x 3½*	11.95	11.85	1.95
32 x 3½	15.25	15.05	2.18
33 x 4	19.95	19.75	2.55

*Clincher style only. Shipping weight 10 to 17 lbs.

Auto Supply Book FREE We can save you worthwhile amounts on all of your auto supply purchases. We have issued a catalog of auto supplies which we will be very glad to send you a copy. Write today. Ask for Auto Supply Book.

PAINTS AT BARGAIN PRICES

Dependable Coverall House Paint. Materials carefully chosen and combined. Pure white lead, zinc, linseed oil and other ingredients. One gallon covers about 300 sq. ft. Choice of 30 colors.

Ask for DV7715. 50 gal. bbl. Ship. wt. 850 lbs. Per gal. **$2.50**

75DV7713—5 Gal. Can Ship. wt. 85 lbs. Per gal **$2.70**

COVERALL BARN PAINT Made of wear-resisting pigment and oxides. Four colors. Yellow, maroon, red or slate. Ask for 275DV7724. 50 gal. bbl. Ship. wt. 700 lbs. Per gal. **$1.68**

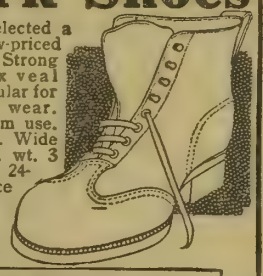
FENCING PRICES REDUCED

Poultry Fencing—2 in. mesh

Our netting carefully manufactured. Uniform mesh, double selvage. Does not sag or bulge. Tough steel wire. Thoroughly galvanized. Rust resisting. 36 inches high. Ship. wt. 36 lbs. Ask for 184DV5325. Price per bale (150 lineal ft.)..... **$4.75**

Special Tree Sprayer Lever handle. 6 gallon capacity. Easy operating pump. Pump all brass with malleable iron handle. 3 ft. dependable hose. 3 interchangeable nozzles. Ask for 587D6022. Ship. wt. 15 lbs. Price **$15.65**

Work Shoes



We have selected a splendid low-priced work shoe. Strong brown wax veal leather, popular for everyday wear. Ideal for farm use. Sizes 6 to 12. Wide width. Ship. wt. 3 lbs. Ask for 24-DV1835. Price now **$2.98**

Spraying Solutions Dry lime sulphur. Kills sucking and scale insects. Can be used for any purpose, same as liquid sulphur. Meets government requirements. Dissolves in Water. Adheres to foliage. Easily mixed with other compounds. To prepare, just add water. 53DV7160—1 lb. ship. wt. 1½ lb. 40c. 85DV7161—5 lbs. ship. wt. 6¼ lb. Price **$1.50**

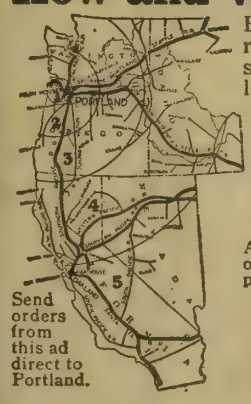
SOX 15c

We offer a popular priced, medium heavy half hose. Made of good quality cotton. Toes and heels are reinforced, giving extra wear at these vital points. At the price quoted it will pay you to buy several pairs. Sizes 9½ to 11½. Ship wt. 4 oz. Ask for 30DV-1344—Black. Special sale price **15c Per Pair**

OVERALL SPECIAL Overall and Jacket. Heavy weight white back, indigo blue denim, made with triple lock-edstitched seams. Jacket extra full cut. Regular coat style. Round corners. Detachable buttons. Wear resisting high bib front overalls. 42DV6122—3 seam jacket. 42DV6126—Carpenter style overalls. Five pockets. Both..... **$1.89**

Work Shirts Here is an ideal work shirt—one that will give extra wear and comfort. Material—closely woven chambray. All seams double stitched. Made coat style. Flat color and extension neck band. One pocket. Cut full size. Ship. wt. 1 lb. 39DV645. Now ... **99c**

How and Where to Send Your Order



Send orders from this ad direct to Portland.

Here are the postal rates on territory served by the Portland House:

Zone	1st lb.	Each add. lb.
1st	.05	.01
2nd	.05	.01
3rd	.06	.02
4th	.07	.04
5th	.08	.06

Any item weighing 4 ounces or less can be sent by parcel post for one cent an ounce.

Send your order direct from this ad to Portland. The big new complete house of Montgomery Ward & Co., offers fresh stocks from the markets of the world. For nearly half a century Montgomery Ward & Co., has been a leader in the fight to give the customer utmost value for his dollar. Our big general catalog offers many attractive bargains. If your copy has failed to arrive, write for another. Ask for catalog DV00.

Montgomery Ward & Co.
Satisfaction Guaranteed or Your Money Back

Dept. N, PORTLAND, OREGON

Poland China Breed Promotion Assured

Of particular interest to those who favor Poland Chinas is the announcement that a general promotion plan has been worked out for conducting activities for the breed during the current year. The decision was made last fall to pool the resources of the three record associations and for the general administration of the money by a representative committee of three directors from each of the three associations. The raise in recording fees provides the funds necessary to carry on this work, and a budget has been arranged on which to base expenditures for the coming year. A total available fund of $60,000 is provided.

A meeting of the Poland China Breed Promotion Committee, held in St. Louis, Missouri, January 25, resulted in the appointment of P. W. Young, W. O. Garrett and C. G. McCahan as an executive committee to take active charge of this work. Headquarters are to be opened at once in Peoria, Illinois, where Mr. Young expects to devote all of his time to the work. Mr. Garrett and Mr. MaCahan will not move to Peoria, but will devote attention to active field work.

The multitude of details has not, as yet, been completely worked out, but at last it can be said definitely that both the futurity shows for the state fairs and the promotion shows for the county and district fairs will be continued for the coming year, that there will be some bright, readable literature available to send out to those interested in Poland Chinas, and that a definite program of support for the pig club boys and girls will be conducted.

At the California Holstein-Friesian Association

Guaranty Sale

Thursday, March 17, 1921, State Fair Grounds, Sacramento, Cal.

You Have the Opportunity to

Pick a Plum

By buying DEAN FAYNE SEGIS 320932, a young bull 14 months old—with the best of breeding—splendid type—whose five nearest dams average more than 30 pounds butter in 7 days—he is almost white and large for his age.

Buy a Pearl

And you will if you bid last on PEARL NA DEAN DE KOL 601299, that has just finished a 7 day record of 24.01 lbs. butter from 581.3 lbs. milk in 7 days, freshening at the age of 2 years and 7 days. She is a beauty, a prize winner at 1920 California State Fair in three classes.

Wear Diamonds

is a certainty with such stock as DEAN FAYNE SEGIS and PEARL NA DEAN DE KOL, as they are always worth more money than you pay for them. See them and judge for yourself.

PEARL NA DEAN DE KOL'S DAM has two 31 pound full sisters, and she is now on yearly test with 554.5 pounds butter from 12,659.7 pounds milk in 188 days, and will qualify in the 305 day division.

See her before the sale, and call and see her full sisters in blood at

Shady Glen Stock Farm

Dean Beeman, Prop. Woodland, Cal.

MRS. NETTIE ANDREWS POLAND CHINA SALE

The sale of Poland China bred sows and gilts held by Mrs. Nettie Andrews, Modesto, Monday, February 28, was successful in every way. While the crowd in attendance was very small, they were there to buy and the prices received were satisfactory and profitable. The present price of pork and the low price of feed, as well as the fact that the feeding of hogs is not only the most profitable way to market the cheap feed available, but practically the only way it can be marketed at the present time, is causing the farmers to support the sales of pure bred hogs. At the present time hog feeding is more attractive than it has been in years. As in other sales practically everything sold went to new men, many of whom were buying their first hogs at auction.

Colonel George Bell, assisted by John Davis, sold the offering to the following buyers:

1, Clyde Ayers, Modesto, $85.
2, John Glusing, Winton, $57.50.
3, C. E. McKnight, Modesto, $60.
4, G. A. Allen, Modesto, $57.50.
5, P. E. Mitchell, Atwater, $60.
7, C. M. Clary, Watsonville, $270.
8, E. L. Orchard, Hughson, $80.
9, C. E. McKnight, $65.
16, E. R. Byers, Tracy, $57.50.
17, Miller & Lux, Dos Palos, $60.
19, P. E. Mitchell, $80.
21, H. R. Briggs, Modesto, $52.50.

HUGH C. SHINN DISPERSAL SALE

The dispersal sale of the Fortuna herd of Poland China hogs held by Hugh Shinn, Tulare, Tuesday, March 1, failed to attract buyers from a distance and as a result much of the stock sold below its real value. A small crowd was present, hardly enough to absorb so large an offering. However, the average of $60 per head on 50 animals, including fall pigs, was not far below Shinn's expectations. There was keen competition for some of the gilts in the 1920 show herd and

COMPLETE DISPERSAL

Jane Garden Farm

Registered Holsteins

180 COWS and HEIFERS 180

Jane Garden Farm, Sacramento, Cal.

April 6-7, 1921

Due to the death of his father, who resided in the state of Utah, Mr. Fred W. Kiesel, owner of Jane Garden Farm, Sacramento, is required to devote a large portion of his time to estate affairs, which demand his absence for long periods.

He has accordingly decided upon an immediate dispersal of his unusually fine herd of purebred, registered Holstein-Friesian cattle, realizing that a herd brought up to its present standard of breeding and efficiency must continue to have much of his attention to maintain this standard.

It has been decided to hold an auction sale on Jane Garden Farm, in the Natomas District, about 12 miles north of the city of Sacramento. The entire herd of 180 females and the four herd bulls will be sold without reserve or limit, guaranteed to be breeders, but not tuberculin tested. No young bulls will be offered in the dispersal, as the regular patrons of this herd will absorb the young bulls on hand.

The herd has for years been under official test, and practically every female of mature age has a 7-day, 30-day or yearly record. This is an unusual opportunity for breeders, dairymen and beginners to obtain the results of real development all at one time.

Mr. Kiesel announces that he is prepared to extend buyers any accommodation required, consistent with financial responsibility.

Applications for credit in this sale may be made now, either in person or by letter, to Fred. W. Kiesel, California National Bank, Sacramento, California.

REAL DAIRY COWS

DISPERSAL SALE A. E. GREENE HERD

36 High Grade Holstein Cows and Heifers

State Fair Grounds, Sacramento, Cal.

Friday, March 18, at 1 P.M.

To make room for purebreds, Mr. A. E. Greene, Hood, Calif., will disperse at public auction his widely known herd of high grade Holsteins. In the Sacramento-Yolo Cow Testing Association this herd won:

Highest average for herd of any size, 393 lbs. butterfat.
Highest average for herd of 20 to 50 cows.
First and second for highest individual production, under 5 years, both grades and purebreds competing.
Second for individual production over 5 years.

THERE ARE 18 COWS IN THIS SALE, 15 of which have cow test association records averaging 11,198 lbs. milk and 422.7 lbs. butterfat.

THERE ARE 9 HEIFERS MILKING WITH FIRST CALF IN THIS SALE, all out of the high producing dams of the herd, and practically all sired by a grandson of King of the Pontiacs.

THERE ARE 9 SPRINGING HEIFERS IN THE SALE, also out of the big producing dams, and bred to a son of King Mead of Riverside out of a granddaughter of King of the Pontiacs that made over 850 lbs. butter from over 18,000 lbs. of milk in one year as a 3 year old.

PRACTICALLY EVERY FEMALE IN THE SALE, except those just fresh, is bred to the son of King Mead of Riverside just mentioned.

THE SALE INCLUDES BROWNIE MEAD 2ND, the noted unregistered daughter of King Mead of Riverside that made 686.6 lbs. butterfat from 18,160 lbs. milk in the Sacramento-Yolo Cow Testing Association, also her daughter and yearling son.

A WONDERFUL OPPORTUNITY

Remember that this is the highest producing herd in the Sacramento - Yolo Dairy Cow Competition, and we believe it to be the highest record grade herd ever sold in California. Sell half a dozen boarder cows and buy one of these profit makers, it's good business.

Auctioneer: COL. BEN A. RHOADES, Los Angeles
Owner: A. E. GREENE, Hood, California.
Sales Manager C. L. HUGHES, Sacramento

in the September pigs that were being grown for this year's shows. The top of the sale was No. 10, Orange Lady, the 1920 junior champion bought by R. F. Guerin, Tulare, at $230. Bassett Bros., Hanford, A. J. Elliott, R. F. Guerin, Clyde Horr and Willis Rehard, all of Tulare, were heavy buyers, Bassett Bros. and Elliott buying the show prospects. Colonel George Bell, assisted by John Davis, sold the offering in rapid order. Following are part of the sales:

1, J. M. Crawford, Fresno, $105.
3, Geo. V. Beckman & Sons, Lodi, $150.
4, J. M. Crawford, $165.
5, Bassett Bros., Hanford, $100.
6, Chas. McNeil, Fresno, $90.
7, Clyde Horr, Tulare, $60.
10, R. F. Guerin, Tulare, $230.
11, A. Buckland & Son, Fresno, $75.
12, Clyde Horr, $95.
13, Clyde Horr, $75.
17, Clyde Horr, $75.
27, A. J. Elliott, Tulare, $110.
28, A. Buckland & Son, $60.
31, A. J. Elliott, $115.
32, A. J. Elliott, $55.
35, Bassett Bros., $75.
37, Bassett Bros., $65.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Necrotic Stomatitis

What are the causes and remedies for pigs having nacrotis (bull-nose)? —Subscriber, Arizona.

Sore Mouth. Lack of appetite. Causes: Improper feeding. The kind of feed continued for a long time is likely to bring on conditions that will encourage the germs that cause the sore mouths. The stomach is affected as well. Remedies: Change the feed. Give sour milk if possible. The lactic acid in the sour milk spells death to the germs and will encourage a healthy action of the stomach. Fresh, sweet milk from a separator is not good for hogs: put it in a barrel and let it sour; just before feeding mix plenty of good meal in it—corn meal is best. To heal the sores about the mouth and in the mouth dissolve one ounce of powdered alum and four ounces of common borax in a gallon of water. Apply this in and around the mouth with a swab. It will not hurt if they swallow some of it. Give some bicarbonate of soda in the feed three or four times a week, enough so each animal will get about half a teaspoon of it.

Cold Abscess

Will you kindly tell me through The Cultivator what to do for a lump that came on my mule's shoulder about three weeks ago? At first it was large and is swollen some now, but has not changed in the last seven days. It is hard and seems to be a part of the bone. Animal has not been worked since lump appeared. — Subscriber, Somerton, Arizona.

Your description is too short. You should give symptoms more fully, but gleaning from your brief note we believe it is one of those deep abscesses caused by a bruise from the collar. There is very little pus in them and what is there is deep down below a thick muscle. They do not come to a head and do not go away. Some of the best authorities call them "cold abscesses." Because they get hard and stay so some think they are tumors and should be cut out, but that should never be done. Any flesh removed will not fill in right again. A skillful surgeon would cut straight down to the pus and drain it out then it would get well in time and be as good as before. There is but one liniment that will cure it that I know of. Here is the formula: One dram of corrosive sublimate, two ounces of alcohol, two ounces of oil of spike (artificial) and turpentine enough to make one pint. Mix, shake and apply once a day enough to wet the parts. This may not seem to have much effect at first but be faithful and apply it as directed and you will get the answer. This may bring the pus to the surface and you can feel a soft spot, open it and the end is near.

Congestion of Cow's Udder

Jersey cow with second calf, fresh about two weeks, not letting down milk properly. Front quarters inclined to be feverish. Not milk fever as udder is not caked hard but seems to be too hard to let the milk down as she should. Would injection of something into the udder be proper treatment? Milk has increased somewhat since freshening but is not more than half what she should be giving. Anxious to do the right thing at once so that cow will not be injured as milk producer.—Subscriber, Burbank.

Bathe the udder with warm water and rub it carefully but not too hard. Milk her out clean, all you can get every time. Dissolve one pound of epsom salts and one-half pound of common salt in two quarts of boiling water. When cool give it all at one dose as a drench. Be careful and do not strangle her. Feed light for a few days and give her plenty of water to drink. These powders will help to bring her to her full amount of milk again. Get them of your druggist: Four ounces of powdered gentian, two ounces of powdered nux vomica and four ounces of bicarbonate of soda. Mix and divide into 16 powders. Give one powder every evening in a mash feed. Never inject anything into a cow's udder at any time except in cases of milk fever, and then it should be done by one who is an expert and has the proper instruments. It is very easy to ruin an udder by injecting medicines into it. From your letter you seem to think that in cases of milk fever the udder is swollen hard. That is not the case, usually it is not swollen at all but the cow gets weak in the hind quarters, falls down, becomes comatose and sleeps a hard sleep until relieved or dies. In these cases we inject the udder with sterilized air. This is a job for a veterinarian and others should not try it as they usually do more harm than good.

IRRIGATED BOTTOM LANDS

Ready For the Farmer—

SUTTER BASIN--THE COMPLETE PROJECT

Irrigation, Drainage, Transportation and Rich Soil

Ask Us About—

( ) 1 Alfalfa
( ) 2 Wheat and Barley
( ) 3 Pure-bred Stock
( ) 4 Dairying and Hogs
( ) 5 Fruit Growing
( ) 6 Poultry Raising
( ) 7 General Farming
( ) 8 Double Cropping
( ) 9 Beans
( ) 10 Vegetable Growing
( ) 11 Irrigation and Drainage
( ) 12 Sugar Beets

SUTTER BASIN CO.

(This project has been submitted to the State Real Estate Commissioner and has been approved by him.)

Sutter Basin Company
Land Department
California Fruit Bldg.,
SACRAMENTO, CAL.

SAN FRANCISCO OFFICE: Balboa Building, 593 Market St.
LOS ANGELES OFFICE: 509 Security Building.

Are You Ready?

In the marked expansion of the dairy business which is now taking place in California, pure bred registered Holstein-Friesians are taking a most important place.

As an established breeder are you ready to enact fully your part in furnishing the right kind of breeding animals as foundation for the future new herds?

In improving your own herd the most important single factor is your herd sire. What he is so will fifty per cent or more of your calf herd be.

PRINCE ALCARTRA KORNDYKE

This is the oldest son of Tilly Alcartra, the calf she was carrying when we bought her, and he is unquestionably transmitting in marked manner the great production of his dam.

His sire, KORNDYKE QUEEN DE KOL'S PRINCE, with 90 A. R. O. daughters and 28 proven sons, is recognized throughout the breed as one of the great transmitting bulls, in spite of the fact that his opportunity was comparatively limited.

His dam, TILLY ALCARTRA, whose tremendous long time production has made her the outstanding cow of the breed in that respect for several years.

PRINCE ALCARTRA KORNDYKE is a proven sire. His first five daughters to finish yearly records at an average age of 2 years 5 months, milking with first calves, average 669.35 lbs. butter from 15,245.4 lbs. milk. Two of his daughters have made over 30 lbs. butter in 7 days as 4 year olds, and one of them made 1,014.27 lbs. butter from 21,756.2 lbs. milk in one year, and another made 778.32 lbs. butter from 17,781.6 lbs. milk in 305 days.

PRINCE ALCARTRA KORNDYKE still has a large number of young daughters yet to freshen with first calf, and they promise to add much to the production records of the breed in California. He heads the high class herd of registered Holstein-Friesians owned by

THE J. S. GIBSON CO.
Williams, Cal.

Is your present herd bull good enough to breed to the cows and heifers you are making records with? Has he the breeding that should result in an improvement in his calves over their dams?

If you are in doubt about your present herd bull, come to us with your problem. If we do not have the bull to fit your needs perhaps our experience will be of help to you.

The demand for top bulls from our herd has for a long time exceeded our supply, and if you want to make sure of securing one of our best young bulls, so that you will be ready when you actually need him, it will be well to keep in close touch with us.

An investment in a real herd bull bred in the lines of our great long distance families, is one of the greatest safeguards you can throw around your herd. These families are not fads. Their worth is founded upon several successive generations of great producers closely related, and forming one of the largest proven family groups of the breed. We invite your visit or correspondence.

A. W. Morris & Sons Corporation
Woodland, California

NEVADA HEREFORD RANCH

We always carry a large herd of high-class Herefords and at the present time we are offering:

A splendid lot of young cows with Harris Standard 2nd calves at foot, and many of them rebred.

A nice selection of young cows and heifers bred to our herd bulls.

A choice collection of open heifers.

A lot of good rugged range bulls. These are the real money making kind, and they are priced to make money for the buyers. We will sell them in car lots or in lots to suit buyers.

We also have some choice young bulls of herd-header caliber that we will sell well worth the money.

We invite your inspection.

John H. Cazier & Sons Co.

Otis Cordell, Herdsman — Wells, Nevada

Our ranch is on the main line of both the S. P. and W. P. railroads and only a twenty minutes drive from Wells.

SIERRA VISTA HEREFORDS

One of the largest herds in the West. Built on a Repeater and Fairfax foundation. At present we have to offer 24 choice young bulls ready for service.

Sierra Vista Vineyard Co. Minturn Madera County Cal. On Highway 2 Miles North of Chowchilla

Use Hereford Bulls

The Hereford is the range bull without a peer.

My Herefords have size, bone, constitution and are notably thick fleshed. Visit my ranch and get my prices. Send for free literature.

Mission Hereford Farm

John A. Bunting

Mission San Jose Cal.

DIAMOND G HEREFORDS

A few choice young bulls, big, heavy-boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.

H. H. Gable Esparto, Cal.

Anxiety Bred Herefords

We are now offering a few choice range bulls of serviceable age. These youngsters are well bred, well grown, thick-fleshed and heavy-boned—just the kind you need. The prices are conservative. Visit our herd.

E. A. Noyes & Son

Sutter Cal.

MERRITT-BOWERS COMPANY, Tagus Ranch, Tulare, California

have just got in two carloads of registered Shorthorns and Hereford bulls, and have a large assortment of draft stallions of all breeds, work horses and mules, as well as Mammoth Jacks, Duroc-Jersey Hogs and Poland China Hogs for sale, with a guarantee on every animal.

Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

BURR FARM

Box 220, Route 2. East 26th and Downey Road, Los Angeles

King Segis Pontiac Jannek

A proven sire of show winners and high producers is available for service to high class Holstein cows.

SANTA MONICA DAIRY CO.

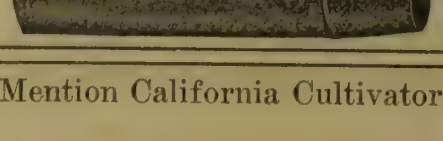
Farm is on Washington Blvd. 2 miles east of Venice. Santa Monica

SURFACE IRRIGATION PIPE

PROMPT DELIVERY
Write for Catalog and Prices
Manufactured by

Woolwine Metal Products Co.

Eighth St. & Santa Fe Ave., Los Angeles, Cal.



COTTONSEED MEAL FOR BEEF CATTLE

The importance of feeding a balanced ration is being emphasized just now by Dr. G. S. Fraps of the Texas agricultural experiment station. Dr. Fraps, after calling attention to the unsettled and low prices of agricultural products, and the necessity, therefore, for the farmer or feeder to get the greatest possible value from feeds consumed by his herds, points with force to the opportunity for profit in the use of cottonseed meal in the ration. At present cottonseed meal is the cheapest protein feed on the market and is usually worth twice its weight in corn in balancing a ration. Cottonseed meal containing 43 per cent protein is perhaps the most economical cottonseed meal on the market, since the required protein can be had with less outlay for freight than would occur in the purchase of a meal or other feed of lower protein content. Gluten feed containing 25 per cent protein is selling higher than cottonseed meal, and linseed meal, 34 per cent, is selling about like cottonseed meal.

Cottonseed meal is valuable as a fertilizer and is used extensively for that purpose. It can be fed, however, to cattle, and if the manure be carefully saved and applied to the soil a double purpose will have been served and the value of the meal to the farmer increased according to the care used in saving the manure, probably 70 per cent over its use as a fertilizer only, or, for that matter, as a feed only. It would seem, therefore, that the farmer would profit by feeding every pound possible of cottonseed meal, being careful to save the manure for fertilizer. At present the manurial value of cottonseed meal is equal to its feeding value.

At present prices cottonseed meal is a cheap fertilizer and will furnish a cheaper source of nitrogen than any other fertilizer. Feeders will do well to consider this aspect of the matter, as is so largely done by European farmers.

Corn silage is low in protein and cottonseed meal is an excellent supplement for it, as well as for the grasses of the range.

FOUR WORLD'S RECORDS BROKEN

The distinction of having broken more world's records than any other individual in 1920 goes to the Carnation Stock Farm with headquarters in Seattle. The most phenomenal record was made by Segis Pietertje Prospect, 221846, daughter of King Segis 10th, who produced 37,381.4 pounds milk and 1,448.68 pounds butter in 365 days. This enormous quantity of milk indicates that she produced her own weight (1.650 pounds) more than 22 times in a year and averaged 12 gallons of milk per day for the entire period. She is a show ring animal and one judge is quoted as having stated that she would not be at the end of any show ring in the country. She is a sister of Matador Segis Walker, senior herd sire on Carnation Farm.

A COMMUNITY LIVESTOCK ASSOCIATION THAT PAYS

(Continued from Page 343.)

at Durham have been able to obtain 380 pure bred and high grade Holsteins.

Another benefit of a community breeders' organization has been demonstrated by the association's purchase of pure bred bulls. The settlers decided that they would not allow a scrub sire in the colony and that they could save money by having that dairy association buy and own the bulls. Prof. G. H. True of the University of California was asked to help select the bulls and he, through the generosity of A. W. Morris & Son of Woodland, enabled the association to obtain King Marco Alcartra VIII, grandson of Tilly Alcartra, to head the colony herds. The association raised the money for the purchase of this bull by selling $10 debentures payable in one year. The rapid growth of dairying throughout the colony soon demanded the service

RHOADES & RHOADES

Expert Livestock Auctioneers
1505 So. Main St.
Los Angeles, Cal.
Sales Pavilion
Stock Yards at
Hynes, Cal.

¶ ¶ ¶

WE CONDUCT SALES OF REG. DAIRY CATTLE GRADE CATTLE GEN. FARM SALES in all parts of Calif. and adjoining States. Satisfaction guaranteed. Write for dates and terms.

JERSEYS

The Profit Breed

"The Key to Dairy Profits" and "Jersey Facts" — two important books, telling how farmers are making real profit today with Jerseys—how anyone can do it anywhere. Whether you are interested in one cow or a hundred, these books will show you how to make money. Free—Write today
American Jersey Cattle Club, 324-HW, 23 St. New York

Venadera Herd

Offers some excellent young bulls ready for service. Sired by Japs Perfection Owl. Out of cows with Register of Merit records. Also a few heifer calves.

GUY H. MILLER
Route 1 - Modesto, Cal.

Young Jersey Bulls

FOR SALE

One at the head of your herd will pay big dividends on his cost. Write to

W. J. Hackett

Modesto Cal.

ABSORBINE

TRADE MARK REG. U.S. PAT. OFF.

Will reduce Inflamed, Strained, Swollen Tendons, Ligaments, or Muscles. Stops the lameness and pain from a Splint, Side Bone or Bone Spavin. No blister, no hair gone and horse can be used, $2.50 a bottle at druggists or delivered. Describe your case for special instructions and interesting horse Book 2 R Free. ABSORBINE, JR., the antiseptic liniment for mankind, reduces Strained, Torn Ligaments, Swollen Glands, Veins or Muscles; Heals Cuts, Sores, Ulcers. Allays pain. Price $1.25 a bottle at dealers or delivered. Book "Evidence" free. W. F. YOUNG, Inc., 244 Temple St., Springfield, Mass.

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DOG DISEASES
And How to Feed
Mailed free to any address by the Author
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MACHINERY

OF EVERY DESCRIPTION
Bought, Sold and Rented
BUTTRESS & McCLELLAN
205-7 N. Los Angeles St., Los Angeles

Milking Time Tells The Health Story

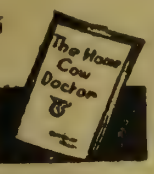
How often have you wondered why—in spite of the best of feeding and general care—some certain cow kept falling far below her normal milk yield?

Nearly always such a cow is suffering from lost vitality of her milk-making organs. Get a package of Kow-Kare and follow directions. You'll see a quick return to full production, because Kow-Kare acts directly on the milking cow's producing organs.

In cases of Barrenness, Abortion, Retained Afterbirth, Scouring, Lost Appetite, Bunches, you'll find the Kow-Kare treatment a reliable aid in restoring complete health.

Sold in 70c and $1.40 packages by feed dealers, general stores and druggists.

DAIRY ASSOCIATION COMPANY
LYNDONVILLE, VT.



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KOW-KURE AND BAG BALM
Distributors for California
GERMAIN SEED CO.
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Blackleg

MAY BE PREVENTED BY USING PARKE, DAVIS & CO.'S SCIENTIFICALLY PREPARED

Blackleg Vaccines

BLACKLEG VACCINE (BLACKLEGOIDS)
THE OLD RELIABLE BLACKLEG VACCINE IN PILL FORM

BLACKLEG AGGRESSIN
(GERM-FREE BLACKLEG VACCINE)
A NATURAL AGGRESSIN

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(GERM-FREE BLACKLEG VACCINE)
AN AGGRESSIN MADE FROM CULTURES.

Write for free instructive booklet on Blackleg Prevention.

ANIMAL INDUSTRY DEPARTMENT OF
Parke, Davis & Co.
DETROIT, MICH.

Cattle Owners!

Save Your Calves

We will send you absolutely free valuable information on

Abortion in Cows

We will tell you how this disease can positively be prevented and overcome—why two treatments a few days apart are sufficient and how you can apply it yourself at small expense.

We Guarantee Our Treatment

WRITE TONIGHT

THE STREBOR LABORATORIES
27A East Monroe Street Chicago, Ill.

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

of another bull, but the association had no funds and could not sell any more debentures. A friend of the colony came to the rescue, however, when Fred W. Kiesel of Sacramento, owner of the famous Jane Garden herd of Sacramento, gave the association the very fine bull, Jane Garden Perfecto Walker. Later the association found a market for additional debentures, and this money, with that which they were able to borrow from the Durham bank, was sufficient to purchase three other bulls from the Jane Garden herd and one from the University of California.

Now that dairying has become firmly established in the colony three settlers have purchased their own herd sires and the association bulls have been sold to groups of three to five dairymen. This localizes the responsibility for the care of the animals and is a more satisfactory arrangement for all concerned.

Better marketing facilities and greater returns was mentioned as another advantage of community cooperation. That this is true has been demonstrated by the Durham cream center. The first dairymen in the colony had to sell their products independently and as best they could in the nearby cities. A few sold whole milk, while others, who had obtained separators, sold sour cream. All found, however, that the price they received did not cover much more than the cost of production. The first step in cooperation was to pool their milk by sending it to the community separator established with association funds and arranging with a Sacramento firm to take all of their sweet cream at a reasonable price. Four dairymen in the colony who made a specialty of whole milk did not join the association at first, but when the mounting costs of feed and labor began to cut into their profits they too found the association helpful in obtaining a just price for their milk.

Now all of the dairymen in the Durham settlement are members of the Dairymen's Association. The milk is brought to the community skimming plant where the buyer, a Chico firm, comes daily to get the sweet cream. The settlers are relieved of the drudgery of hand separation and the association takes the samples and makes the cream tests to the satisfaction of both the buyer and the producer. All have benefited by the change, for the buyer now obtains a superior, standardized product and is thereby enabled to pay the members of the association a premium for their butter fat.

From the foregoing it will be seen that there has been no compulsion on settlers on the part of the board. All it did was to gather certain information, place it before the settlers and advise them regarding the action to be taken. When the Delhi settlers came to organize they had the benefit of the Durham experience, and instead of taking any backward steps in regard to community action their constitution and by-laws makes this action more efficient. They have adopted one breed of dairy cattle and one breed of hogs and are to have the help of the officers of the associations of these two breeds in securing the sires and in securing favorable prices. They have strengthened the position of their stock breeders' association in regard to combating tuberculosis, and the board is holding up their hands by a rule to the effect that no loans of money will be made to any settler who does not agree to abide by the rules for the testing of all animals bought and for disposing promptly of all animals found to be tubercular.

The reason for this action by the board is that it feels that it must protect the whole settlement from infection. Durham's experience has shown that tuberculosis is a highly contagious disease, and the board does not think it fair that any reacting animal should impair the health of the livestock of all the community and its action is taken as a health measure.

Although Delhi is in a fruit growing section it seems certain that in its earlier years dairying will be the most important source of income and that, like Durham, it is to be a center of sound healthy animals of good breeding and a distinct influence for good in the development of the livestock industry in the state.

Save *on your silo*

ORDER NOW *and get early buyers' discount*

We are offering a special early buyers' discount for a limited time on the famous Indiana Silo.

We want to keep our plant operating at full capacity during the spring months. If you have ever considered building a silo, it will be money in your pocket to see our local agent or to write us at once.

Build Your Silo Early

It pays to build your silo early. You get a special discount and besides save labor, time and money. The job is out of the way when the rush season comes. You can plan your work ahead, get in your ensilage crop and have plenty of time to handle it properly. Decide now and write for full information.

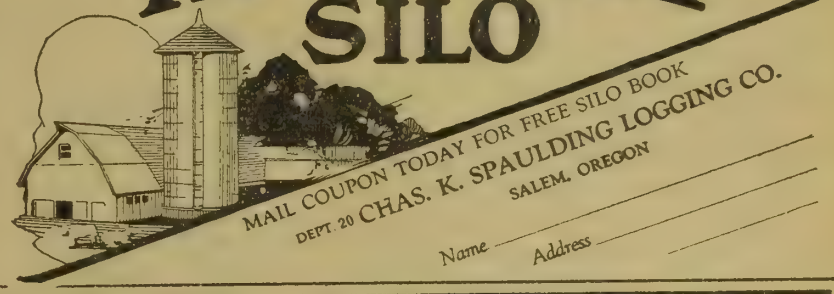
20,000 Indiana Silos

Indiana Silos have made good for 22 years. Twenty thousand sold Pacific Coast farmers. Manufactured of highest grade Oregon fir, including shingle roof, rafters and sheeting cut to fit, built-up door frame, hoops bent to form, wrenches and draw rod. Full building instructions.

To take advantage of this special discount you must act at once. See our local agent or use the coupon.

Chas. K. Spaulding Logging Co.
Salem, Oregon

INDIANA SILO



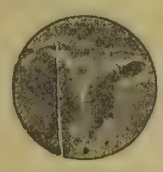
MAIL COUPON TODAY FOR FREE SILO BOOK
DEPT. 20 CHAS. K. SPAULDING LOGGING CO. SALEM, OREGON
Name _____ Address _____

We are going to disperse our entire herd of Guernseys. We offer you one or all.

50 GUERNSEY FEMALES

with records up to 751 lbs. in A. R. Springing heifers and heifer calves. Bull calves of all ages. All tuberculin tested and guaranteed breeders.

Hollow-Hill Farm
COLTON, CAL.



Sunny Side Holstein Dispersal

I am dispersing my good Holsteins on April 14, 1921. These will include the daughters of Sir Veeman Korndyke Pontiac and a yearling son of King Korndyke Pontiac 20th out of K. P. Tola who made 36.16 lbs. of butter in 7 days and 1000 pounds in a year.

R. F. Guerin **Visalia, Cal.**

ALL RISKS ELIMINATED

Nothing left to chance when you buy one of our Holstein bull calves. Every one guaranteed free of tuberculosis. Every one guaranteed to be a breeder. Every one from an official tested dam, A. R. O.-A. R. S. O., yearly semi-official and cow testing association records. (All made under normal dairy conditions in string with 100 others.' Sires from the most popular high producing strains in California. Offered at Bargain Prices. Phone, Downey 42

LOS ANGELES COUNTY FARM **Hondo, California**

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Karlray Ormsby Alcartra

The world's record junior two year old for combined milk and butter production in 305 days. Has just finished her 365 day record with 916 pounds butter and 22,947.1 pounds milk. Consigned to the Guaranty Sale, Sacramento, by Bridgford Holstein Company, Patterson.

Paul Na Dean De Kol

Freshening at two years seven days of age and put on official test 25 days after calving, she has just made 24.01 pounds butter from 581.3 pounds milk in seven days. Consigned by Dean Beeman.

Chief Abbekerk Paul

Sired by a son of Adirondac Wietske Dairy Maid and out of a 39.12 pound junior four year old. His dam and sire's dam average over 40 pounds butter in seven days, and will average right around 1,200 pounds butter in one year. Consigned by Bridgford Holstein Company.

Italian Vineyard Company
Big Type Berkshires

We are offering for sale some fine big sows and gilts bred to our great herd boars for early litters. Some very special bargains to farmers and new breeders.

Everyone tuberculin tested and cholera immune.

Alex. M. Wilson, Supt. **Guasti, Cal.**

CALIFORNIA DAIRY PRODUCTS

Mr. Hecke of the state department of agriculture has occasion to be proud of a thoroughgoing report of California Dairy Products for 1919-20 made by C. F. Royt, supervisor of dairy inspection, and H. G. Asselstine, factory inspector. It is issued as Circular No. 3 of the department. Regarding the report Director Hecke writes: "I am impressed with the vast good that could result to California in the legitimate exploitation of her resources and possibilities along dairy industry lines, especially such features as inviting interstate capital to invest and stimulating settlement by those of other than Oriental origin."

In addition to the very complete list of the butter, cheese and other dairy industries of California there is an appendix containing a complete list of creameries, cheese factories, cream depots, condensaries, dried milk plants, and ice cream manufacturers. These are arranged by counties. From the first paragraphs in the report we quote:

"The historians of states in the past wrote largely of battles and wars and the doings of rulers. The material for a history of present day states consists rather in facts relative to the magnitude and condition of the arts and industries. It is desirable, therefore, merely from a historical standpoint, that facts and figures on the dairy industry be accumulated and cast into durable form as a matter of comprehensive record. As these figures are accumulated year after year, developments or movements in the industry may be noted and studied, the prosperity or development of the industry may be determined, and legislative or other action may well find a working basis in such figures.

"Facts and figures on the dairy industry have an immediate value for those engaged in it. Many inquiries are received concerning such items as the production of various dairy products in different sections of the state, the names and addresses of concerns operating, etc. This circular, therefore, is an attempt to fill such a need and to answer some of these many questions. For our own people in California the figures showing production of the various dairy products in the state as well as in local communities should be of great interest. For the prospective settler seeking reliable information, such figures may have an even greater value. For all those engaged in disseminating information about the state or given localities reliable figures are desirable and they should give added impetus to the growing movement by which we hope to settle Americans on our soil and further develop the untouched resources of California.

"The fame of California fruits has spread throughout the country, indeed, one might say throughout the world. So exclusively is this the case that beyond the borders of the state, dairying has hardly been associated with its name. Even our own people, as a whole, are but faintly conscious of the vast possibilities of the industry. We manufacture a variety of dairy products that is equaled by few if any other states in the Union and we have centers of production and of manufacture that, for volume of product, are surpassed by few other sections in the country."

Thank God every morning when you get up that you have something to do that day which must be done whether you like it or not. Being forced to work and forced to do your best, will breed in you temperance and self control, diligence and strength of will, cheerfulness and contentment, and a hundred virtues which the idle will never know.—Charles Kingsley.

PRICES REDUCED

— ON —

Remco Tanks

EFFECTIVE IMMEDIATELY

We will ship you immediately on receipt of order any standard Remco tank of the dimensions or capacities shown below, at the prices here listed:

WATER AND OIL TANKS

Made from 2-Inch Clear Air-dried Redwood								Made from 3-Inch Clear Air-dried Redwood							
Capacity		Outside Dimensions				Shipping Wt. Lbs.	Price	Capacity		Outside Dimensions				Shipping Wt. Lbs.	Price
Gals.	Bbls. 42 Gals.	Diam. ft.	Diam. in.	Height ft.	Height in.			Gals.	Bbls. 42 Gals.	Diam. ft.	Diam. in.	Height ft.	Height in.		
500	12	5	5	3	11	440	$ 30.40	10,000	238	13	7½	9	11	2,770	$190.00
750	18	5	9	4	11	580	38.95	10,000	238	13	10½	9	11	4,660	285.00
1,000	24	6	6	4	11	655	44.65	12,000	285	13	10½	11	11	5,370	327.75
1,500	36	7	1	5	11	830	57.00	15,000	357	15	6	11	11	6,080	384.75
2,000	48	8	1½	5	11	975	66.50	20,000	476	17	10	11	11	7,280	446.50
2,500	60	8	4	6	11	1,145	76.95	25,000	593	18	4	13	11	8,510	522.50
3,000	71	9	1½	6	11	1,270	87.40	30,000	714	20	2½	13	11	9,800	589.00
3,000	71	8	5	7	11	1,290	87.40	40,000	952	23	0	13	11	11,300	705.85
4,000	95	9	10½	7	11	1,555	110.20	50,000	1190	24	0	15	11	13,400	855.00
4,000	95	9	2½	8	11	1,580	110.20	60,000	1428	26	3	15	11	15,100	940.50
5,000	119	10	11	7	11	1,745	124.45	70,000	1666	28	4	15	11	16,700	1,068.75
5,000	119	10	3½	8	11	1,790	124.45	80,000	1904	30	3	15	11	18,000	1,168.50
6,000	143	11	4	8	11	2,010	140.60	90,000	2142	30	2	17	11	19,800	1,273.00
7,000	166	12	1½	8	11	2,160	150.10	100,000	2380	30	0	19	11	21,100	1,396.50
8,000	190	12	3	9	11	2,375	165.30								

All prices are for tanks complete, ready to erect, K. D., F. O. B., Pittsburg, Cal.

The above tanks are standard sizes. We design and manufacture tanks of all sizes up to 650,000 gallons capacity and tanks of special shapes to meet all requirements.

All tanks banded with round steel hoops and malleable iron lugs.

Remco Tanks will keep the water cool and free from either taint or odor.

Complete instruction for erection accompany each tank. If erected in accordance with those instructions we guarantee a tight tank.

Remco Pipe Prices Also Have Been Reduced. Write for Details.

Redwood Manufacturers Company

1604 Hobart Building, San Francisco
Los Angeles Office: 822 East Third Street

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 17, Holstein Guaranty Sale, Sacramento.
April 6-7, Fred W. Kiesel, Sacramento.
April 14, R. F. Guerin, Tulare.
April 21-22, Santa Anita Rancho.
April 21 and 22—Santa Anita Rancho.
May 5, Victory Herd, Carruthers.

The Shorthorn Congress show and sale held at Chicago, February 22, 23 and 24, resulted in a general average of $430. The seven head consigned by Caledonia Farms, West Sacramento, which were the first Shorthorns ever sent to an Eastern sale from this state, made an average of $530. The five females sold as follows: Fayette's Heiress, $750; Spicy Princess, $600; Bapton Princess, $725; Gay Marquis, $425, and Broadhook's Princess, $510. The Cruickshank Broadhooks bull, Assyrian, a red three year old, sold for the extremely low price of $450, and the good white calf, Polonaise King, brought $250.

At the annual meeting of the American Berkshire Congress, held at Philadelphia, D. J. Bastanchury of La Habra was elected president and it was decided that the 1922 congress meeting will be held at Riverside. This is the first time that the American Berkshire Congress has met in the West and it is expected that the Western Berkshire Congress will cooperate in the management of the event.

Princess May 12th, a Berkshire sow entered by the Italian Vineyard Company, Guasti, in the recent American Berkshire Congress sale at Philadelphia, sold for $150. The general average of the sale was $127.

The annual meeting of the Pacific Coast Hereford Cattle Breeders' Association was held at the university farm, February 23. The following officers were re-elected: J. I. Cazier, Wells, Nevada, president; H. M. Barngrover, Santa Clara, vice president; John A. Bunting, Mission San Jose, secretary-treasurer. During the meeting a resolution was adopted binding the members to an assessment of $2.50 per head for each registered female 18 months old or over owned by the members. The money so raised is to be used for defraying the expense of a fieldman. It is expected that all members will sign the agreement and that the services of the fieldman will be available at an early date.

Following a banquet at Sacramento, February 24, the Western Berkshire Congress held its annual meeting and elected the following officers: James Mills, Hamilton City, president; J. Francis O'Connor, Santa Rosa, vice president; Chas. M. Talmadge, Salem, Oregon, vice president. The directors are: W. M. Carruthers, Live Oak; H. C. Muddux, Sacramento; A. B. Humphrey, Escalon; Geo. Murphy, Perkins; Alex. M. Wilson, Guasti, and D. J. Bastanchury, La Habra.

C. O. & C. B. Lowry of Pomona were among the buyers at the Duroc sale held at Longview Farm, Missouri, and paid $260 for Miss Bob Orion, a daughter of Big Cherry King Orion and carrying the service of the popular boar, Stilts.

H. C. Muddux of Sacramento, a prominent breeder of Shorthorn cattle and Berkshire swine, is making plans to visit his old home in England within the next few weeks. Muddux says that he will visit the leading breeding establishments of England and Scotland and that he may make purchases of both cattle and hogs.

Announcement is made this week of the complete dispersal of the famous Jane Garden herd of Holsteins owned by Fred W. Kiesel of Sacramento. This herd has been in existence for nearly seven years and during that time has come to be regarded as one of the very best collections of Holsteins in the entire country. The decision to disperse the herd has been reached because of the increasing demands upon Mr. Kiesel's time by other interests and his reluctance to in any way lower the high standard upon which the herd has always been maintained. This sale will mark the passing of a herd and the withdrawal of a breeder that have been powerful factors in the development of the Holstein industry in this state, and it is entirely within bounds to add that without the Jane Garden herd the breed would not now occupy the high place accorded it in this state. The sale will occur April 6 and 7 and will be under the management of C. L. Hughes of the California Breeders Sales and Pedigree Company, Sacramento.

Dr. L. J. Anderson of Placerville has purchased 20 head of Ayrshires from J. P. Walker of Visalia and has established them at the Viking Ranch.

F. S. Borror and Son of Tipton in their first seven day official testing have made some splendid records. A junior two-year-old, Evelyn Walker Hawkeye Hengerveld, daughter of their senior sire, Prince Gelsche Walker Alcartra, made in seven days 476.6 pounds milk 20.76 pounds butter. Milking 37 days before starting test, Daisy May Belle made 647.4 pounds milk, 21.14 pounds butter. Lassie Pledge West DeKol, daughter of Lad Legend of Kakenstein, gave 518.3 pounds milk, 25.21 pounds butter. A junior four-year-old, Edith Pontiac Segis, daughter of Segis Pontiac Crane DeKol, started test 44 days after calving and made the splendid record of 565.6 pounds milk 26.34 pounds butter. Another two-year-old daughter of Prince Gelsche Walker Alcartra will soon finish a year's record of approximately 550 pounds butter and 14,000 pounds milk. In the Borror herd of 23 cows 19 have either made records or are now on long time test so we may expect some good records in the future.

H. E. Spires, Caruthers, writes: "Am pleased to report the sale of a son of Sir Piebe De Kol Segis Pontiac out of a 27 pound three year old dam to head the grade herd of Chris Layton and W. R. Boddy of Caruthers; also sale of a son of Sir Aaggie De Kol Acme 2d to W. F. Spicher of Lanare, who is starting a purebred herd at that place."

W. S. Hart Ranch At Auction

Wednesday, March 16th at 1 P.M.

51 ACRES CITRUS GROVE

Located at Fontana, Near San Bernardino

To be sold as a whole or divided in sections. Bearing trees—excellent soil—5 acres in Washington Navels, modern bungalow, also complete furnishings; chicken houses, equipment for 2,000 chickens. Implements, team horses, 60 chickens, registered hogs. 46 acres located in West Rialto has splendid grove of 8 year old navels and 5 acres in choice grape fruit.

Abundance of Water

Be sure to Investigate. Call N.W. corner Foothill Blvd. and Cypress, Fontana.

C. H. O'Connor & Son
AUCTIONEERS
626 Pantages Bldg., 7th & Hill
LOS ANGELES
64282

Gombault's Caustic Balsam

A REMARKABLE TESTIMONIAL TO THIS WELL KNOWN EXTERNAL REMEDY—RESULTS ALMOST BEYOND EXPECTATION. COULD WE ADD MORE CONVINCING PROOF OF ITS MERITS?

A Safe and Reliable Treatment

Des Moines, Iowa, December 30. 1920.

Time and again I have threatened to write you but have neglected. I wish you would give your "Caustic Balsam" greater publicity along several lines.

About fifteen years ago a horse bit the first finger of my right hand entirely off between the end and first joint and I asked my wife to clip a few threads of skin holding it, when I thought of Caustic Balsam which we always kept in the house, and I held it in place, while she bound it with gauze, wet it well with Caustic Balsam, kept it wet for a week or more before removing first bandage, and upon removing we found the end had grown fast. And outside of its not being on straight, there is not a trace of a scar, nor did I have one particle of pain.

My wife had a growth in her left breast the size of a goose egg, when shooting pains to the back and shoulder blade gave alarm; prior to this, she had said nothing to me, but had been doctoring with one of the best physicians, who told her it was a tumorous growth and might be cancerous. After weeks of treatment, I persuaded her to let me try Caustic Balsam. I began rubbing briskly, then rubbing in all it would absorb; this gave relief. Pains grew less. And then I soaked a wool pad, kept it over the breast for about six weeks, when it was entirely gone and no trace of it since. I recommended it to a friend for growth on the lip and he was able to entirely remove it. I used it in three cases of pneumonia in my family and it worked wonders, relieving the suffocation and pains of pleurisy. I use it half olive-oil for pneumonia, soak a wool pad large enough to cover entire chest, and leave it on a week or two or until patient has recovered.

Yours truly, THOS. J. RICE.
MAYOR OF URBANDALE, IOWA

A remedy of unequaled value. Sure in results. $1.75 Per bottle at all druggists or sent by parcel post on receipt of price. Requests for information on special cases given careful attention. A standard remedy in this country for over forty years.

The Lawrence-Williams Co., Cleveland, Ohio

LENDORRIS RANCH
Big Type Polands

We are offering a number of fine gilts by Lendorris Liberty Bond bred to Lendorris Liberator—a half-brother to the grand champion of this year's National Swine Show—for March litters.

W. L. Haag and Son, Hanford, Cal.

McNeil's Big Type Poland Chinas

Herd headed by Giant Prospect and Mc's Challenger. My sow herd is composed of a great lot of choice matrons including Polandale Betty, first prize junior yearling at Sacramento. Correspondence solicited.

CHAS. McNEIL, Route H, Box 166, Fresno, Cal.

Eastman Ranch Poland Chinas

Herd headed by Buster Bob, Grand Champion at the strong Los Angeles Livestock Show. He is the largest junior yearling in the state and is siring some great pigs. Young stock for sale at all times. Satisfaction assured.

H. L. Graham, Mgr. San Fernando, Cal.

Fortuna Herd Poland Chinas

Special prices on gilts sired by The Californian, either open or bred to The Skipper by The Pilot. Two sisters to Orange Lady, first prize senior gilt at Sacramento. Also some choice weanling boar pigs. Satisfaction assured.

Hugh C. Shinn Tulare, Cal.

Johnson's Defender Jr.

Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

H. C. WITHEROW Live Oak, Cal.

For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

D. G. Cummins & Son
Route 1 Visalia, Cal.

TIM ANSPACH
Livestock Auctioneer
30th & R Streets Sacramento, Cal.
Write or Wire for Sales Dates

When Writing Advertisers Mention California Cultivator.

Developing a High-Producing Herd

By Frank L. Morris

The following paper was prepared and read before the dairy meeting held at the University Farm, Davis, during Stockmen's Week, by Frank L. Morris of Woodland. No man in California is better qualified to discuss this subject than is Mr. Morris, a member of the firm of A. W. Morris and Sons, Woodland. The sound practices of the Morris' have brought success to themselves and honor to the state of California.—Editor.

EXPERIENCE covering a period of years in an effort to breed a high class herd has suggested some things to me which I will endeavor to mention.

It would seem that the three most essential points in the development of a herd of pure bred dairy cattle are selection, care and breeding, or in terms which are often used; weeding, feeding and breeding.

A herd of high production and individual quality is the ultimate goal toward which we are all striving, and it is impossible to outline a definite course by which it may be reached. It's the man behind the gun who counts after all. Better stock comes from better sires, better cows, better feed, better care, better dairymen. It is from the ranks of the dairymen that our successful, constructive breeders usually come. The man who has started at the bottom with limited means and by the application of efficient methods has succeeded in developing a profitable dairy herd is invariably best qualified to carry on successfully the important work of building a high class herd of pure breds.

World famous herds have been founded in numerous instances upon a few animals of mediocre quality and these stand out as illustrious examples of constructive breeding. To my mind the breeding of pure bred dairy cattle holds out wonderful possibilities to the young fellow that has some good, sound, practical knowledge and experience in the feeding, milking and handling of the common dairy cow; the ambitious fellow who is willing to get down and work and work hard for a few years. It is a business in which the big fellow can have no advantage or monopoly. Practical knowledge and good management are prime requisites to successful breeding. It may be possible to go out and buy the result of the other fellow's efforts, but the big job will be to maintain and improve upon this high standard.

After founding the herd with a few well selected cows of good type, with good udders and with the outward indications of production, comes the all important task of selecting the herd sire. We must look to him entirely for the improvement in the future herd; he is to contribute 50 per cent to every animal that is to be born in the herd, and his influence is going to be in proportion to his inheritance of the qualities that we wish to reproduce. Animals carefully selected through many generations for one particular quality will transmit this quality with greater certainty than others with which less discrimination has been exercised in breeding, and it is therefore imperative, in order to be sure of improvement, that we select a sire carrying a greater inheritance of these good qualities than is present in the cows on which he is to be used. This great transmitting power of well bred animals is the fundamental principle in all breeding operations.

The sire should carry, to as great an extent as is possible to find, the type which the breeder is striving to attain. He should be particularly strong in the places where the herd is deficient and, of greatest importance, every ancestor, both sire and dam in the first two or three generations must show evidence of unusual production. If necessary in order to secure a sire in which these essential qualities are present, a breeder is warranted, in my judgment, in paying one dollar for every dollar invested in females.

The first procedure in the line of herd development will be to place the cows as rapidly as possible on official test in order that we may have some concrete evidence of production to offer to the prospective buyer. The judicious expenditure of time and money in test work is the best investment a breeder ever makes and is absolutely essential to the successful development of the herd. It furnishes an index to the production and capacity of each individual, so necessary to intelligent selection and culling. It immediately supplies a knowledge of feeding and a greater interest is at once instilled into everyone concerned, resulting in a desire to see to every detail that tends to increase production. The objection to testing often advanced is, "We cannot afford the cost," while as a matter of fact no breeder can afford not to test. The increase in production, due to greater interest and better methods, will usually take care of the cost, to say nothing of the added value of the herd and subsequent offspring. I believe I am conservative in saying, if properly applied, that the official test will add 100 per cent to the value of a good herd.

There is frequently hidden away in the herd of some small breeder a great cow with wonderful possibilities, which with proper development might have brought fame and fortune to the owner and untold benefit to her breed but lives her life in obscurity due to the fact that no testing or development is ever undertaken by the owner. I recall an instance of a certain family that has exerted a great influence on the Holstein breed—a cow and one or two daughters, well bred, attractive individuals, showing every outward indication of capacity and production, that were purchased without official records at very moderate prices. Under the skill and care of the purchaser they responded with marvelous records year after year and transmitted their conformation and production through their sons and daughters with great certainty. Their fame spread throughout the breeding world with the result that their owner was asked for a price by a man of wealth seeking for what he regarded as the most popular family for foundation purposes. The owner was taken by surprise, having had no intention of selling the heart of his herd. After due consideration it was decided that they were worth in his own herd $25,000 each, and he put that figure on them, not caring whether it was accepted or not. They were sold and it has proved a good investment for the purchaser.

As further evidence of the results of official testing I might mention a family well known in this state. The foundation cow, an animal showing every evidence of great capacity, was purchased at a very ordinary price as a heifer. She made in official test a few years later better than 1,000 pounds of butter in a year, and her daughter by a great sire made a world's record in long distance test. She in turn was bred to a son of a noted producer, and the mating resulted in a world record two year old, the three generations averaging 1,140 pounds butter in a year. The result of mating this heifer with a sire of exceptional breeding was a bull calf which sold in public sale for $41,000. These are only two of many similar instances and are only mentioned to show the part that official testing plays in herd development.

LOOK FOR THE

Carnation Holsteins

at Sacramento Sale, March 17, 1921

Carnation Stock Farms

Matador's Record

Matador Segis Walker is a proven sire in production as well as in the show ring. Three of his daughters broke world's records in 1920. Carnation Matador, senr. 2 yrs. old, 305 day Milk and Butter record. Carnation Matador Leda, 365 jr. 2 yr. old for Milk. Carnation Pioneer Segis, jr. 2 yr. old 7 day Butter record.

Matador is brother to Segis Pietertje Prospect New World's Record cow —37,381.4 lbs. Milk in 365 days.

A son and daughter each won grand champion at Portland Show 1920, in addition to Get of Sire.

5 Cows in Calf to "Matador"

E. T. No. 164. Female. Born October 28, 1914. Has a record of 20,504.3 lbs. Milk and 922.3 lbs. Butter in 365 days. PRINCESS PIEBE JEWEL, No. 271867. Bred June 11, 1920 to Matador Segis Walker. An unusually good cow of large type —of large capacity and excellent quality proven breeding cow.

E. T. No. 828. CARNATION GELSCHE SEGIS, No. 383968. Born May 3, 1917. 2 yr. 5 mo. 4 d. She produced 18,230 Milk and 701.85 Butter in 365 days. She is sired by Johanna McKinley Segis son of the famous King Segis. She is a young cow just coming to her prime of good capacity and has a nicely balanced udder and will no doubt materially increase her production on yearly test. Bred June 5, 1920 to Matador Segis Walker.

E. T. No. 500. PRINCESS MERCEDES FAYNE, No. 318898. Record as 3 yr. old 15,076.3 Milk, 645.5 Butter in 305 days and 20.415 Butter in 7 days. She is about half white with even markings, medium size and of good type. Her sire is Paul Mooie Fayne and her Princess Mercedes Piebe 3d, with a 25 lb. Butter record at the age of 5 years. Mated to Matador July 3, 1920.

E. T. No. 2068. LACONNER NETHERLAND PONTIAC GIRL, No. 541431. Born Feb. 18, 1918. She is a big, strong, springing heifer that shows a great deal of promise. She is backed by strong breeding. Sire Segis Pontiac Acme and her dam Netherland De Kol Mutual Friend with a 22.37 Butter record in 7 days. She is ¾ black, nicely marked and bred August 13, 1920 to Matador Segis Walker.

E. T. No. 2184. HOLLYWOOD LILITH PALMYRA ABBEKERK, No. 400491. Born Dec. 24, 1916. At 2 yr. she had a record of M—477.9. B—19.84. At 3 yr. 6 mo. 27 d. Milk 546.3. Butter 22.892. She is now on yearly test and her figures will be announced at the time of sale. Her dam is Hollywood Abbekerk Korndyke with a record of 19,224.1 Milk and 818.95 Butter in 365 days. Bred December 10, 1920 to Matador Segis Walker.

See Catalog for Full Description

A Son of "King" the $106,000 Sire

At this sale we will offer Carnation King Tillie Denver. Born November 9, 1920, a son of Carnation King Sylvia. The dam at 7 yr. made a record of 558.4 Milk, and 28.906 Butter in 7 days; and Milk 2,308.4 in 30 days. This son of King Sylvia is very typey, is an unusually vigorous, growthy calf and very large for his age; heavily boned, straight and deep with a fine head. ¾ white and attractively marked.

Consider seriously tying up with this popular May Echo Sylvia breeding, — world's record from 7 to 120 days. 10 sons of King have already been placed in representative herds.

MATADOR SEGIS WALKER—CARNATION'S SENIOR HERD SIRE

We have several good sons of MATADOR SEGIS WALKER ranging from $500.00 up, according to the record of the dam. We will be glad to send you price lists upon request.

If you are not familiar with the breeding of the Carnation Stock Farms we will be glad to send you copy of our publication the Carnation Stock Farm News. Address Carnation Stock Farms, 1035 Stuart Bldg., Seattle.

There has been much discussion of late as to what kind of records furnish the most reliable index to production, short or long. Both are good and each have resulted in much benefit to the breeding business. Much might be said on the subject of feeding and handling and preparation of cows for test, but this is knowledge that is best gained from experience. It must be recognized, of course, that many things are going to affect the production of cows in official test. Proper breeding and development are of first importance, but after all man is going to play an important part in providing the opportunity and conditions under which the cow can do her best work. The public is going to judge her value by her official record in comparison with other great records, and there is no possible means of comparing opportunities or just what part man had in the making. It therefore behooves the breeder to leave nothing undone to provide the most favorable conditions and environment.

A great deal has been said on the subject of abnormality in the making of official records. We hear of "cow-made" and "man-made" records, and, while we all realize that a cow cannot be expected to transmit production, due to any artificial conditions, it is difficult to draw the line, and nothing should be left undone in the way of providing opportunity. There is a growing tendency along practical lines, and I venture to say that in the very near future more consideration will be given to the average production of a herd or a family of cows than will be given to a few tremendous individual records made possibly under somewhat artificial conditions.

In general there are just two means by which results may be achieved, first by keeping high class animals as a result of good breeding and rigid culling, and second by giving proper care and attention to those we have.

The breeding business should be taken up as a life work; it is a big job, and we cannot expect to accomplish much in a short time. The man that undertakes it with the idea of sticking through thick and thin is the man who will succeed. Next in line of importance after good management comes the building of the reputation for the herd and its owner. Good, clean, wholesome advertising must be resorted to. We must first get something to offer and then let the public know about it. A reputation must be built for fair dealing. Good will is the breeder's greatest asset.

As owners of pure bred dairy cattle we owe it not only to ourselves and our breed, but to the world, to lead in the economic production of dairy products. We should put particular stress on the raising and breeding of cattle that are of correct breed type, properly grown and cared for at all times. We should study and understand the principles of animal breeding and practice its teachings. Great care should continually be exercised in selection, and no animal retained or permitted to be used for breeding purposes which does not measure up to breed standard. Too much stress cannot be laid on this last point. No owner should use or sell for breeding purposes animals which are unprofitable or of incorrect breed type. There will always be some of this kind of pure breds and they should find their way to the butcher rather than to the unsuspecting and inexperienced buyer.

STATE DAIRY COW COMPETITION

List of cows producing 50 pounds of butter fat or over during January, 1921:

Adohr Stock Farms, Guernseys and grades: C-269, 1,539 pounds milk, 87.72 pounds butterfat; Yeksa Martin, 1,042, 69.81; C-33, 1,104, 68.45; Leota of S. S., 1,113, 66.78; C-60, 1,156, 65.89; C-93, 1,122, 58.34; C-443, 822, 57.54; C-210, 1,401, 54.64; C-88, 1,011, 53.58; C-2, 1,076, 53.80; C-29, 1,190, 53.55; C-114, 1,070, 53.50; C-329, 955, 53.48.

Anita M. Baldwin, Holsteins: May Alt. Pontiac, 2,746 pounds milk, 98.56 pounds butterfat; Marken Louise, 2,942, 92.67; Mutual DeK. Joh., 2,493, 89.74; Anoakia Walker Pont., 2,270, 78.30; Anoakia Gelsche P. W., 2,300, 77.26; Anoakia Alc. Segis, 2,108, 72.09; Mabel Aonda, 2,242, 69.95; Anoakia Walker Joh., 1,615, 58.48.

Dean Beeman, Holsteins: Johanna Heng. Cap., 1,913 pounds milk, 59.48 pounds butterfat; Jean NaD. DeK., 1,695, 56.29; Naomi NaD. DeK., 1,640, 56.10.

Bonnikson Bros., Jerseys: Financial C's Lor. D., 985 pounds milk, 62.46 pounds butterfat; Bonnie's Fin. Lor., 999, 59.84.

Burr Farms, Holsteins: Zampa Annie L., 2,382 pounds milk, 78.35 pounds butterfat; Heilo Bess Korndyke S., 2,447, 69.02; Dorothy Korndyke B., 2,199, 68.15.

D. F. Conant, Modesto, Jerseys: Lady Kate's Rosette, 1,714 pounds milk, 101.27 pounds butterfat; Lambert's Glory P., 1,349, 60.85; Lady Kate's Belle, 1,158, 56.39; The Owl's Nymph, 1,097, 51.98.

Marguerite Conant, Modesto, Jerseys: Hecla's Margery, 1,065 pounds milk, 59.94 pounds butterfat.

J. W. Coppini, Jerseys: Noble's Sayda Polo, 890 pounds milk, 66.36 pounds butterfat; Olga Fern Smith, 997, 57.31.

R. H. Davis, Holsteins: Ciruela Mecht. Col., 1,403 pounds milk, 50.63 pounds butterfat; Bonita Pontiac, 1,472, 50.18.

M. J. and B. A. Edwards, Holsteins: Sarcastic Dora of M., 2,192 pounds milk, 79.68 pounds butterfat; Squaw Queen DeK. 2nd, 1,661, 58.12.

C. E. Fisher, grade Jersey: Minnesota, 879 pounds milk, 50.10 pounds butterfat.

S. G. Gambonini: Jersey, 34, grade J., 840 pounds milk, 59.6 pounds butterfat.

Earl Graham, Holsteins and grades: Cora Jarie P., 2,290 pounds milk, 99.15 pounds butterfat; Alice, 1,897, 96.70; Gamma Sarc. of L., 2,846, 85.37; Montana, 1,980, 81.18; Brownie, 1,630, 74.98; Peg, 1,754, 73.67; May Walker G. K., 2,250, 72.90; Rose, 1,680, 72.24; Tomie, 1,850, 70.30; Maud, 2,126, 65.90; Spot, 2,040, 65.28; Jersey, 1,311, 59.00; White Emma, 1,590, 58.83; Miss Segis, P. W., 1,701, 55.62.

H. G. Gross, Jerseys: Cynthia of Butter V., 1,289 pounds milk, 70.39 pounds butterfat; Raleigh's Peggy M., 991, 67.85; Cynthia's Raleigh G., 881, 54.73.

A. B. Humphrey, Guernseys: Calla Grove Itchen May, 1,525 pounds milk, 75.79 pounds butterfat.

L. A. County Farm, Holsteins and grades: Whittier Pont. Neth. 4th, 2,169 pounds milk, 92.40 pounds butterfat; Amador, 516, 1919, 86.34: Mariposa, 734, 2,080, 85.27; Modoc, 733, 1,547, 83.54; Sunland Pearl T. K., 2,276, 79.67; Butte, 85, 1,466, 71.97; Princess, 731, 1,754, 71.89; Alameda, 82, 1,589, 65.13; Bluebell, 503, 1,559, 62.35; Blossom, 87, 1,769, 59.81; Ventura, 576, 1,799, 59.35; Orange, 88, 1,207, 56.50; Whittier Segis, P. M., 1,561, 55.87; Domino, 84, 1,483, 51.90.

J. Henry Meyer, Ayrshires: Finlaystone's Annie L., 1,660 pounds milk, 72.21 pounds butterfat; Bright Eyes of H., 1,667, 60.84; Baron's Milly, 1,459, 55.29; Willowmoor Heath., 1,399, 50.91.

Guy H. Miller, Jerseys: Gladys of Venadera, 1,224 pounds milk, 77.36 pounds butterfat.

Napa State Hospital, grade Holsteins: No. 651, 2,277 pounds milk, 81.07 pounds butterfat; No. 663, 1,941, 68.71; No. 760, 1,967, 59.59; No. 786, 2,011, 53.69.

F. F. Pellissier, Holsteins and grades: No. 1946, 1,931 pounds milk, 73.38 pounds butterfat; No. 2642, 1,422, 65.41; Brudoim, 2,058, 64.83; No. 1681, 2,061, 63.89; No. 2065, 1,546, 63.39; No. 2150, 1,832, 62.29; No. 1899, 2,303,

(Continued on Page 369)

The 1921 Guaranty Sale

"The Pacific Coast Holstein Classic"

50 Registered Holstein Tops

State Fair Grounds, Sacramento, Cal. Thursday, March 17, 1921

CONTRIBUTORS TO SALE:

AGEE BROS., Rivera, Calif.
ANITA BALDWIN, Santa Anita, Cal.
DEAN BEEMAN, Woodland, Calif.
BRIDGFORD HOLSTEIN CO., Patterson, Calif.
BURR FARM, Los Angeles, Calif.
CARNATION STOCK FARMS, Seattle, Wash.
ROBT. N. CLAPP, Nuevo, Calif.
R. L. HOLMES, Modesto, Calif.
FRED W. KIESEL, Sacramento, Calif.
A. W. MORRIS & SONS CORP., Woodland, Calif.
R. C. STURGEON, Tulare, Calif.
TOYON FARM ASSOCIATION, San Francisco, Calif.
ALEX WHALEY, Tulare, Calif.

We have outlined in previous announcements the outstanding individual animals in this sale, and no more need be said on that score, except that when you inspect them on the sale grounds you will find their type fully in keeping with their other excellences.

Now, just how are you going to turn this event to your own advantage? Will it be through the purchase of one or more of the great females, or will it be the purchase of one of the seven wonderful young bulls in the sale?

Keep in mind the real object of this sale — to afford buyers of top Holsteins an opportunity to make selections in an offering composed only of tops. There are many, many animals in this offering that the sellers are positively not justified in letting go from their own herds, and would not part with them except in a sale such as this.

EXTRA!

Latest News

KARLRAY ORMSBY ALCARTRA, the world's record junior 2 year old for combined milk and butter in 305 days, consigned by Bridgford Holstein Co., has completed her 365 day record with 916.1 lbs. butter from 22,947.2 lbs. milk.

PEARL NA DEAN DE KOL, a beautiful 2 year old consigned by Dean Beeman, Woodland, placed on test 25 days after calving has made 24.01 lbs. butter from 581.3 lbs. milk. Take another look at that milk flow, and she was only 2 years 7 days old at calving.

SIR TOYON FLETA JOHANNA MERCEDES has been added to the sale. He is a son of Sir Pietertje Ormsby Mercedes 43d, and out of Cascade Fleta Johanna, one of the only two heifers that ever made over 30,000 pounds milk in one year.

Keep this thought in mind also—Beyond question of reasonable doubt there will be more new breeding herds of registered Holsteins established in California during this spring sale season than have ever before been started through an entire year in this state.

There is a tremendous movement back to dairy cows right now, and this movement is going to be more widespread within the next ninety days for throughout the length of the state there is the greatest lot of green feed we have had for years; there is a bumper hay crop coming on; there is prospect of a bumper barley crop; and there is a world of last year's alfalfa and barley on hand on the farms.

Right now a great many men who have the old crop of alfalfa and barley on hand, are bemoaning the loss they are going to sustain when they sell. Some of them are finding out that they will have no loss if they buy good dairy cows and market their feed through them, and others have gone still deeper into the subject and have decided that as long as they must buy cows they may as well buy registered Holsteins.

In this large expansion of California's Holstein breeding business, the man who builds right is going to build upon just as much quality as he can possibly get in his foundation, and this sale affords a most excellent opportunity for selection of the right foundation.

Spend at least part of the day before the sale in looking over the individuals, catalog in hand. The various owners or their representatives will extend every courtesy in affording you complete information about their cattle.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.

Auctioneers:

Col. Ben. A. Rhoades, Los Angeles
Col. Geo. W. Bell, Tulare
Col. John A. Davis, Manteca

Classified Liners

The direct selling method from producer to consumer, and a clearing house for over 40,000 subscribers. Weekly Liner rates: Single insertion 4½ cents per word; 45c per issue minimum charge. Cash with Order

Mail all classified copy to Los Angeles Office.

POULTRY

Best Chicks Grow Into Greatest Winter Layers, cost little more, yield greatest profit. Our White, Brown, Buff Leghorns, Andalusians, Anconas, Reds, Rocks, Minorcas, Wyandottes (ducks, turkeys), bred 20 years to lay winters and 180-290 eggs yearly, often clear customers $5.00. "Pullets raised from your chicks averaged 209 eggs last year"; "114 hens cleared $612 in 12 months." "Fourteen pullets laid 300 eggs January, 330 February." "Get more winter eggs from 60 your hens than from 200 formerly;" 140,000 electrically hatched. Half booked, yet nearly every week open for thousands, reasonable. Former customers take half. Don't delay. Write (rarely home) Profitable Poultry, 19 North Fair Oaks, Pasadena.

Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

Buy Early Chicks—Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, California.

S. C. White Leghorn Baby Chicks from heaviest laying (Hoganized) stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June $5.00 per 25, $9.00 per 50, $14.00 per 100. Special prices 500 and 1000 lots. Largest electric hatchery in the World. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh Street, Petaluma, California.

Sly's Old Mission Strain Rhode Island Reds. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. SLY, 1642 (D) Middleton Place, Los Angeles, California.

Baby Chix—S. C. White Leghorns from open range standard bred parent stock of utmost utility. Protect yourself in having your order booked early. Prices, etc., on application. I. X. L. Hatchery, 519 Upham Street, Petaluma, Sonoma County, California.

S. C. White Leghorn Baby Chicks from my carefully selected, pure-bred stock of S. C. White Leghorns. Orders for spring delivery booked now at $15.00 per 100, $140.00 per 1000. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks — Barred Plymouth Rocks and Rhode Island Reds in 25, 50 and 100 lots 20c each. Hatching eggs $2 per 15. We ship by Parcel Post, pay all charges. Write for circular. Hargett & Son, Route 2, Compton, California.

Baby Chicks hatched to order from Black, White and Buff Minorcas. Eggs for sale. Also 4 White Minorca Cockerels $5.00 and $10.00 each. Black Cochin Bantam Eggs. Horace W. Crowell, 58 N. Craig Avenue, Pasadena, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, California.

For Sale — Hoganized White Favorolle with laying records 230-240. Setting of 15 eggs $5 and $10. White Favorolle Poultry Farm, Andres Stammerjohann, Ontario, California.

Light Brahma Eggs for Setting — Stock from University Farm, Davis. $5.00 for 15. Also two cockerels, same stock. Mrs. C. W. Keys, El Monte, California.

Purebred Buff Orpington Eggs $3.00 per setting of 15. Incubator lots to suit. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

Single Comb Black Leghorns—Combine beauty and utility. Why? Write for circular. Hatching eggs, etc. Fred Turnbull, Box 108, Alameda, California.

Exhibition Quality Reds, trapnested, bred to lay. Write for descriptive circular. Satisfaction guaranteed. T. S. Caldwell, 335 B West Broadway, Glendale, Calif.

Hoganized Rhode Island Red Eggs for hatching, $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Baby Chicks—Can book a few more orders S. C. White Leghorns, McFarland strain. Mrs. F. C. Reineking, Inglewood, California.

Partridge Wyandottes, some superfluous cockerels, well matured birds. Mrs. J. L. Dunn, Valley Home, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jesch, Fallon, Nevada.

POULTRY

White Leghorn Hatching Eggs now hatching 75%. Bred for over ten years for vigor and heavy egg production. During high priced season we shipped more eggs to market than any other ranch near. We have more hatching eggs than necessary to fill contract with big hatchery which has taken our eggs for several seasons, which we will sell during March and April in 100 and 1000 lots at $6.00 per 100. No baby chicks. Verity Egg Ranch, 511 West Broadway, Glendale, California.

Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made such a remarkable record in the state laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

For Sale—10,000 W. L. Baby Chicks every week from California's heaviest layers. Each year some customer reports 200 eggs average in large flocks from our pullets. Lay large eggs from the start. $14.00 per 100, $130.00 per 1000. Rocks and Reds $17.50, Pekin Ducklings 30 cts. We ship everywhere. Free circular. P. Cook Chick Ranch, Alhambra. P. O. Los Angeles. Rt. 8 Box 45.

Baby Chicks—We have 8,000 selected Hoganized hens, all on free range on different ranches, all mated to Tom Barron roosters. We guarantee full count of strong, healthy chicks. Book your orders with us now and avoid disappointment, as orders are coming in fast. 30 years in the business. Lasher's Hatchery, Petaluma, California.

Get Chicks Now and have layers for next winter when eggs are high. Hatches every week. Prompt reliable service. Safe arrival of vigorous chicks from good layers guaranteed. Hatched by electricity. White and Brown Leghorn, R. I. Red, Barred Rock. Reasonable prices. Stubbe Poultry Ranch and Hatchery, Box 67-D, Palo Alto.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

White Leghorns—hatching eggs our specialty, produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the West. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R. 1 Box 29, Gardena, California.

Chicks — Eggs — Hoganized White Leghorns, Brown and Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, Calif.

White Leghorn Baby Chix from heavy-laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Price for April, May and June, $14.00 per 100. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

Baby Chicks hatched from our utility S. C. White Leghorns, a result of many years selecton and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

"Better Hatched Chicks"—S. C. White Leghorns, R. I. Reds. Our chicks are Bred Right, Hatched Right, Priced Right, Delivered Right and they Grow Right. Hatch each week. San Diego County Hatchery, San Diego, California.

For Sale—Baby chicks every week. Barred Rocks, R. I. Red, Black Minorcas, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Barred Rocks That Lay—Records 210, 220. Customers quote 196 and still laying. Eggs $2.50, 15 eggs; chicks 30c, limited number. Mrs. M. A. Warren, P. O. Box 517, San Jose, California.

Baby Chicks—White Leghorns and large breeds. For prices and description address Sunny Stanislaus Hatchery, Riverbank, California.

Baby Chicks: thousands of them. S. C. White Leghorns, also other varieties and breeds. X-L Electric Hatchery, 351 Soquel Ave., Santa Cruz, California.

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Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Minorcas, Black, White and Buff—Utility and Exhibition. None better. Catalog free. Hatching eggs. C. E. Murray, Route No. 1, San Diego, California.

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Successful Chick raising accomplished, using Petaluma Electric Incubators and Brooders. Electricity is life. Modern poultrymen are rapidly adopting our methods with splendid results. Safe, efficient, economical, better chicks. Hatch for yourself, or get chicks from hatcheries using our machines or we will furnish chicks ourselves. Ask for free catalogue or any information desired. Petaluma Electric Incubator Co., Petaluma, California.

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25 to 5,000
PARCEL POST or EXPRESS
FULL COUNT—SAFE DELIVERY
GUARANTEED Selected heavy laying
HOGANIZED
Mcfarlane, Tom Barron, WHITE LEGHORNS, Anconas, Barred Rocks, Rhode Islands, Minorcas, Buff, Brown Leghorns, ORDER EARLY. Write for prices.
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Hillview Buff Plymouth Rocks — An American bird for Americans. Splendid layers, fine broilers and fryers, beautiful in color, the ideal for the farm, city lot or show room. Blue ribbon winners 1920 in Oakland, Riverside and San Diego shows. **Eggs for hatching from our best matings** $5.00 per setting of 15, commercial eggs $3.00 per setting. Hillview Poultry Ranch, Chatsworth, California.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

Booking Orders For Eggs from our wonderful utility and prize stock of Bronze turkeys, geese, Pekin ducks, Muscovy ducks, White King pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, guineas. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

White, Light Brown and Dark Brown Leghorn Hatching Eggs from highest class exhibition stock, competitive with any flocks in the United States. Splendid layers. Eggs $3.00 per 15, $15.00 per 100. From best pens, $5.00 per 15. Mahajo Farm, P. O. Box 597, Sacramento, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Eggs from Hens that lay and pay. R. I. Reds and Brown Leghorns. Fertility guaranteed. Price low. Eva Conklin, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

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For Sale Reg. Duroc Boars—1 by Imperial Type and Flower Queen farrowed Apr. 15, 1920. 1 by Imperial Type and Princess Pat, farrowed Apr. 27, 1920. 3 by Crescent Prince and Princess Lady, farrowed Apr. 12, 1920. Montana Land Company, So. Bellflower, Los Alamitos.

Big Type Durocs; herd headed California Orion King. Am offering excellent young boars at right prices. Inquiries solicited. Harvey M. Berglund, Dixon, California.

Bred Sows and Gilts and young stock. Pathfinder and Great Wonder I Am breeding. Monthly payments if you wish. Derryfield Farm, Capital National Bank Building, Sacramento.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

For Sale—2 fine young boars, 10 months old, sire Ace of Pathfinder; weigh 500 lbs. Also 2 bred sows. Prices reasonable. J. C. Curtis, Chino.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

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Grape Wild Farm—Berkshires, Guernseys, Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

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Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

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Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

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Pedigreed Fleming Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California.

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Mammoth White Pekin Duck Eggs for hatching. $1.00 per dozen. A. Surtman, Petaluma, California.

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Pure Bred Polands shipped on approval. Contracts sent on request. Sires, Iowa Pilot, Smooth Clansman. We breed nothing but the best. California Swine Corporation, Escalon, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

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TEN PER CENT CASH FOR REAL FRUIT LANDS.

10, 20 to 100 acre farms, $375.00 to $450.00 per acre, with abundant cheap water, on terms 10% cash and easy annual installments. Double profits here from products and rapidly increasing values. These lands now sell, this district $2,000 per acre and up, with matured orchards.
EARLIER and BETTER crops because of soil, water and climatic conditions. Three and one-half tons of peaches per acre from three year old trees; seven and one-half tons of apricots per acre from ten year old trees, three-fourths ton walnuts per acre from ten year old trees.
Carloads of trees now being planted by recent buyers, all practical fruit growers. Many well known fruit experts from Orange County, Los Angeles County and Fresno County.
BEST BUY IN CALIFORNIA considering quality and assured increase in value. Close to prosperous town, on borders of splendid lake, State highway and railroad pass through property. Seventy miles from Los Angeles. Many experts believe this will be the highest priced land in Southern California in ten years. Acreage in district is limited. Write for descriptive information prepared by the Elsinore Chamber of Commerce, under supervision of the Elsinore Farm Center, or come to our office. Best crops are walnuts, grape fruit, oranges, peaches, apricots, grapes, olives and alfalfa.
South Elsinore Development Company,
214 Story Bldg., Los Angeles.

For Sale — Foothill poultry ranch; two acres of land; three shares water stock; 465 Tom Barron White Leghorn hens; coop for housing 800. Barn and four room house. Alta Loma, ½ mile N. E. Pacific Electric Station. Mrs. E. K. McKeig, Alta Loma, California.

For Sale—27 acres, plenty water for irrigation, good house, garage and chicken house. Lots of shade trees, good schools, ½ mile from town of Manzanar. For further particulars write owner. Address Box 11, Manzanar, California.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192, Indio, California.

For Sale—Beautiful residence lot, clear of incumbrance. Sightly location on High Street, Oakland, California. Address 1342 Sherman Street, San Jose, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

For Rent—20 Acres. Will sell 5, no improvements. Cash Nursery, Sebastopol.

TURKEYS

Turkeys — "Goldbank Boy." Champion Giant Bronze young tom. First Prize Cockerel at the New York, Madison Square Garden Show, the premier show of America, with 4311 poultry exhibits, held January 18th to 22nd, 1921, has just been imported by us, arriving at our mountain ranch February 26th. His sire, "Goldbank VIII," was grand champion at the same show, winning first in Cock class. We have mated this young champion bird to a limited number of twenty and twenty-one pound fancy, highly colored, eastern bred hens, also just imported. No eggs of this strain for sale this season at present.
A thirty-six pound yearling son of "Copper King V," the famous thirty-eight pound yearling giant bronze grand champion of the 1919 Madison Square Garden Show, will head our other flock—having mated him to our choice twenty pound hens. Egg prices reasonable. Two young toms of this last strain on hand for immediate delivery. For further particulars address: Bronze King Mountain Farm, Box 308, Calistoga, Napa County, California.

"Points on Successful Turkey Raising"—Our illustrated pamphlet gives benefit of 25 years' experience in turkey raising. It includes: Our method of feeding by which we raised every poult last year, not counting accidents, always raise 90%. Positive cure for blackhead. Plans of the "Stafford Turkey Hatcher"—a great labor saving device. And other valuable things that can be secured from no other source. Price 50c. If convenient, no stamps. R. M. Dodge & Son, Stafford Farm, Route 2, Bakersfield.

Turkey Eggs—Purebred Mammoth Bronze "Gold Nugget" and other strains. You are safe with our guarantee. Write for folder. Eggs $25 per 100. Best 60c each. Special rates on 500 and 1,000 egg lots. Turkey Raisers not Brokers. Andrews & Andrews, Bo-K-Haunt, Hemet, California.

Bourbon Red and Mammoth Bronze Gobblers, 1 hen, largest pure breds $16.00. Also Bourbon Red Hens $10.00 each. Eggs in season. No. 27, Shawmut, California.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

"Goldbank" Strain — Giant Bronze turkey toms. Partridge Plymouth Rock chickens. Chicken and turkey eggs in season. M. M. Reiman, Planada, California.

Burbon Red Turkey, Buff Orpingtons. The Ferris Ranch, S. Reservoir, Pomona, California.

For Sale—Only choice White Holland toms. Place orders soon. Eggs at 75 cents each. L. A. Robinson, Hemet, Calif.

Mammoth Bronze Turkey Toms — Have two good cockerels to sell. Mrs. C. W. Keys, El Monte, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 286 Court St., Los Angeles.

SEEDS AND PLANTS

For Sale—1,200 Grape Vines — Muscat, Malagas, Thompson Seedless, Zabalganski, and Emperor 10 cents each. 500 Burbank Thornless Blackberry plants 20 cents or 6 for $1.00. 10,000 Strawberry crossed wild with Brandywine (None Better). 5,000 Arizona Everbearing $1.00 per hundred, $8.00 per thousand. I pay parcel post. B. E. Wilhite, Aguanga, California.

For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

Rhodes Grass—The season for planting Rhodes Grass is with us again. This is the grass that makes Imperial Valley famous and will make any other place famous if planted and given a chance. Write Imperial Valley Seed House for literature, etc., El Centro, California.

Berry Plants — Strawberries, Loganberries, Currants, Gooseberries, Blackberries and Raspberries, for immediate delivery. All stock first class and strictly true to name. Write for prices. M. J. MONIZ, Berry Specialist, Sebastopol, California.

Cory Thornless Mammoth Blackberry—Guaranteed true plants from Cory Ranch where first discovered and propagated. Dozen $3.00 postpaid. Also Loganberry, Phenomenal, Currant, Gooseberry, Giant Rhubarb. G. S. Wills, Jamestown, California.

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Tomato Seed—Improved Stone, San Jose Canner. 25 cents oz., $3 pound, postpaid. Stamps or Money Order. Thomas Murray, 3209 West Washington St., Los Angeles, California.

Rhubarb Plants—Wagner's Giant 1 year, per dozen 50c; per hundred $4.00. Wagner's Giant, 2 year, per dozen $1.00; per hundred $8.00. Seed per pound $5.00. Currier Bulb Co., Santa Cruz, California.

R*O*S*E*S $1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue C. KAVAN NURSERIES, San Bernardino, California.

Brandywine Strawberry Plants from stock which produced $3,000 worth of berries from acre this season. Price reasonable. Lon King, 1158 West Fourth, Riverside, California.

$500 Per Acre—Rhubarb—That's the crop that did it between my tree rows. Why not interset your orchard? Write me for prices in sub-divisions. Fred W. Kelsey, Route 1, Box 491, El Monte, California.

Peas—"Blue Bantam" earliest and sweetest of all table peas. Heavy yielder, 15c per lb. SEVIN-VINCENT CO., Seedgrowers. Established 1860. 512 Washington Street, San Francisco, California.

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Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch—767 S. Central Avenue, Los Angeles, Cal.

For Sale—Strawberry Plants "Improved Oregon" Big Plants—Big Berries, $8.50 per 1,000. "Superb" Everbearer $2.25 per 100 prepaid. R. M. Crisman, R. 1 Box 54A, Sebastopol, California.

Large Returns quickly, small investment, tree blueberry, easily grown throughout South, markets everywhere. Southern Blueberry Co., Tampa, Fla.

50,000 Vines, rootings, Thompsons, Emperors, Sultana, Muscats, $30.00 a 1000. Fruit trees, berry plants, farm and garden seeds. Box 501, Fowler, California.

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Durango Cotton Seed for sale; small lots, 4c a lb.; 1000 lbs. or more, 3½c. F. O. B. Coachella, California; C. M. Devore.

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For Sale—Limited supply of mountain grown Strawberry plants. Write for particulars. B. Bryan, Camp Baldy, Cal.

For Sale—6000 rooted Mission vines. Special price. Apply to FRANK A. TETLEY & SON, Riverside, California.

California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

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"Go-For The Gopher." The Star Gopher trap is the best. Positive acting wire trap you can use. Interlocking jaws, very easy to set, right principle. Price 30 cents postpaid. Stamps accepted. Four for $1.00. Agents wanted. Star Manufacturing Co., 3802 Sunset Boulevard, Los Angeles.

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PRICES ON FRUIT TREES ARE REDUCED
We offer to clean up
No. 1 Home Grown French Prune 6-8 ft. 45c; No. 1 Home Grown French Prune 4-6 ft. 40c; No. 1 Home Grown French Prune 3-4 ft. 35c; No. 1 Home Grown Jefferson Plum 6-8 ft. 45c; No. 1 Home Grown Jefferson Plum 4-6 ft. 40c; No. 1 Home Grown Jefferson Plum 3-4 ft. 35c; No. 1 Home Grown Bartlett Pear 6-8 ft. 45c; No. 1 Home Grown Bartlett Pear 4-6 ft. 40c; No. 1 Home Grown Bartlett Pear 3-4 ft. 35c. Prices on other trees are reduced also. Write or phone your order. We ship on approval. Return if not entirely satisfied. J. F. MILLER & SONS, Healdsburg, California.

Fruit Trees of dependable varieties and quality. Santa Rosa, Satsuma and Beauty Plums; Elberta, J. H. Hale, Krummels Oct. and other varieties freestone Peaches. Tuscan, Phillips and Strawberry (McClure) Cling Peaches. BARTLETT PEARS on Japan Root. FRENCH and SUGAR PRUNES, PERSIMMONS. Early Red Nectarine Stock in perfect condition, large well rooted trees. Submit list of your requirements. Phone 692. Los Nietos Valley Nursery, Downey, California.

PLENTY OF TIME TO PLANT
Our fine dormant trees. Our clean-up sale is now on and you can well afford to plant at prices we are making on French, Sugar, Silver and Robe de Sargent prunes, Bartlett pears, plums, Jap. persimmons and other trees, grapes and berries. Write today list of your wants. Don't send any money, we ship on approval. J. F. MILLER & SONS, Healdsburg, California.

For Sale—Fruit trees, all leading varieties, including Bartlett Pears, Royal Apricots, Tuscan Cling and Phillip Cling Peaches, Satsuma and Santa Rosa Plums, Eureka and Placentia Perfection Walnuts. Write for catalog and price list. Orange County Nursery Co., Anaheim, Calif. Salesyard: North Los Angeles Street.

For Sale—All kinds of citrus nursery stock, one and two year buds, fine roots. Y. Yamaguchi, Upland, 10th Street and Cucamonga Avenue. Phone 386-W.

10,000 Valencias; 2,000 Eureka lemons; 3,000 Texas Umbrellas; 3,000 Mission olives; 500 Wonderful Pomegranates; 100,000 sweet, 100,000 sour orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colorado 6352.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

Cling Peaches, Apricots, Almonds — All varieties and sizes. Concord, Mayette, Franquette Walnuts, Cory Thornless Blackberry; large stock. State your wants and let us quote. Ekstein Nurseries, Modesto, California.

Walnut Trees—Closing out balance Placentia and Eureka grafted on black root; choice trees; reduced prices. Terms to responsible parties. Nurseries Ventura and Los Angeles Counties. R. E. PIERCE & A. G. SNOW, Oxnard, California.

Budded Avocado Trees. Leading varieties. Order early to secure best selection. Dr. Stonebrook's Avocado Nursery, 15 N. Raymond Ave., Pasadena. Phone Colorado 208.

For Sale—Walnut trees, fine stock, Eurekas grafted on black root. Prices, 8 to 10 feet in height $2.50 10 to 12 $2.75. La Puente Walnut Nursery, Puente, California. Phone 103.

We Have Deciduous and Citrus Trees, berry plants, tomato plants and garden seeds. California Wonder Corn and Elephant Grass are big producers. Send for Catalog. Bishop's Nursery, Highland.

For Sale — Peaches, Cherries and other fruit trees. Full line of shrubbery and roses, also flowering plants. Write City Nurseries, 109A Orange St., Redlands, California.

For Sale — 100,000 Florida Sour Orange Seed-bed Trees; 100,000 California sweet seedling orange seed-bed trees. SOUTHLAND NURSERIES, 1941 East Colorado Street, Pasadena, California.

For Sale — 10,000 Florida Sour Orange Seedlings, very fine. Two year old Valencia Orange and Eureka Lemon Trees. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Fine Straight Rooted Florida Sour and Sweet SEED BED STOCK, 10 inches to 15 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

For Sale—Three thousand Phillips cling peaches; also a few Tuscans. Special prices to clean up. Burke's Nursery, Lodi, California.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

Bartlett Pears, Spitzenburg Jonathan apple trees 30c, 100 25c. Cash Nursery, Sebastopol.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited.

Citrus Seed Bed Stock—Orange, Lemon, Grapefruit trees. L. A. Tuttle, R. 1, Box 385, Pasadena.

Walnut Grafting Wood for Sale—All the leading varieties. Dr. W. W. Fitzgerald, 625 N. Madison St., Stockton, California.

For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

TREES

Home Grown Budded Eureka, Placentia and Chase Walnut Trees, 50 cents and up. None better. Choice lemon trees $1.00 each. Balled. Bartlett Pear, etc., 50c each. Trees of all kinds for sale. We deliver. Tel. 122-J, Burbank, California. Opposite High School (West), Burbank, California. Snyder Nurseries.

WANTED

YOUNG FARMER WANTED

As assistant motor truck salesman. We are organizing local sales force in every locality and want farmers, mechanics, or good drivers to assist traveling sales managers all or spare time; experience not necessary as our men will be coached and trained. Unusual opportunity to attain position paying $50 to $100 a week in the next big business of the country.

Address Peerless Commercial Co.,
Department C,
409 So. San Pedro St., Los Angeles, Cal.

Wanted—A Farmer for 24 Acres—Dates, grapes, alfalfa, garden. Remuneration $100 a month; good house of three rooms, bathroom and screen bedroom, plumbing and electricity. Share in garden and chickens. No Sunday work, no swearing, no tobacco, Christian preferred. References. Owner lives at Arabah Farm, Coachella, California.

Young Man who understands orchard or general ranch work desires steady job. Seven years experience California conditions. Good irrigator. Best references. Agricultural education. H. Comaford, 1043 N. Campus, R. No. 2, Ontario, Calif.

Want to Hear from party having farm for sale. Give particulars and lowest price. John J. Black, 116th St., Chippewa Falls, Wisconsin.

Wanted to Buy—Combined side hill harvester—16 to 20 foot cut complete with motor. Box 5, Cultivator.

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

MACHINERY

For Sale Rebuilt Windwills, Tanks, Pumps, 50 Brass Cylinders, Rods, Piping. Why Pay More?
Guaranteed do same work as the new ones you pay so much for. We make new galv. tanks, 300 gal. $17.50; 600, $27.25; 1,000, $43.25, 2,000, $59.25; used Redwood and Galvanized, various sizes. Save you 60% on windmills. Several small single acting deep well pumps, also double acting Ames pumps, handles 20-inch at 100 ft. Piping, Rods, at 40% 1st cost. Send for bargain sheet. Demmitt Co.'s. Office, 120 No. Main, L. A. 15191.

AGRICULTURAL IMPLEMENTS
Land Levelers—You will save money and time by getting our proposition before you buy a land leveler. We manufacture the Throop Leveler for every size and make of tractor and also can supply horse drawn levelers. Ask for Catalog and Agent's discount. Conley Hewitt Machinery Co., 120 South Aurora Street, Stockton, California.

For Sale—Lisle Powers improved motor driven Well Boring and Drilling Machine up to 24 inch hole, 500 feet. Everything complete. Sacrifice. Sickness. Mrs. I. W. Geer, Woodland, California.

For Sale—Complete plowing outfit, two International 8-16 tractors, plows, double disk; 20 ft. harrow, wagons and tools. Price very reasonable. G. F. Crowell, Box 623, Newman, California.

For Sale—One No. 6 centrifugal pump—35 ft. 8 in. suction discharge and check valve complete. A bargain. Jas. Hughan, Downey, California.

For Sale—New Moline double disk power lift tractor plow. Has never been used. Cost $238. Will sell for $138. Owner, P. O. Box 29, Inyokern, California.

MISCELLANEOUS

STOP THAT SLIP

In 5000 PUMPING PLANTS
Those SLICK, SHINEY, "SLIPPY" Pulleys are taking MONEY out of your BANK ACCOUNTS.

$6.50 Package of MASTER-GRIP PULLEY COVERING, sent to you by mail, ready to put on the pulley, will "Stop that Slip" and also deliver more power with a loose belt.

SO EASY AND QUICKLY PUT ON A BOY CAN DO IT.

Tell us the sizes of your pulleys, or send for a package of "MASTER-GRIP" Pulley Covering — "THE CORDED SURFACE THAT STOPS SLIPPAGE."

MASTER-GRIP MFG. CO.,
Masonic Temple, AUSTIN, TEXAS.

Distributors to appoint agents and sell Powerene at wholesale. Agents make $30 a day. Special terms to distributors. Equals gasoline at 5c. The equivalent of 20 gallons, express prepaid, $1.00. P. Barnes, H424, Santa Rosa, California.

For Sale — Finest white orange blossom honey, 60 pound can, $10.00, f. o. b. Dinuba. Louis Sinn, Dinuba, California, R. F. D. 3/75.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

For Sale — Vegetable plants, all kinds. Ancona hatching eggs, 7c each, chicks 20c. Ancona Farm, Ontario, California.

White Mesquite Honey—Five gallon can, 60 pounds, f. o. b. Parker, Arizona, $6.50. G. E. Striplin.

LIVESTOCK

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

For Sale—Team of Mares—Would accept good young two year old mule in exchange. W. D. Friend, R. F. D. 3, Box 80, Burbank.

CATTLE

Guernsey Bulls of all ages at bargain prices. Bulls out of imported and high record dams are filling space we need. Priced low to move quickly. Grade dairymen take advantage of this to raise calves that will increase your butter fat production. Hollow-Hill Farm, Colton, California.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

For Sale—Jersey bull 6 months old out of imported bull Helen's Oxford Son. Price $75.00. J. R. Carhart, Fullerton, Calif.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Ayrshires—A few well marked and well put up bull calves from high producing stock. Wyndham Dairy, Redding, Cal.

TRACTORS

For Sale—Union Tool Sieve-Grip 12-25 h. p. tractor only slightly used and in absolutely A-1 condition. Also 3 bottom 14 inch P. & O. powerlift plow in first class condition. Complete outfit for $2,250. Would accept team of first class young draft mares or mules as part payment and would sell plow or tractor separately. C. F. Seccombe, R. 2 Box 110, Van Nuys, California. 19801 Ventura Blvd., ½ mile east of Chalk Hill. Phone Van Nuys. 119-R-5.

Avery Orchard Tractor with magneto and Ensign carburetor installed. Motor overhauled recently. Price $250. Ten-twenty-five tractor in good running order. This is a tractor that will pull an eight horse load easily. Price $350. Wm. Peckstein, Oxnard, California.

Merry Garden Tractors — Circulars and demonstration free. Dwight E. Smith, Southern California Distributor, 1645 North Normandie Avenue, Los Angeles.

For Sale—Two brand new ten horse power wheel tractors of standard make, one an orchard model. To be sold at greatly reduced cost. Full information on request. E. H. Richardson, 77 O'Farrell Street, San Francisco, California.

For Sale—Oldsmar Tractor, practically new, liberal discount. Box 65, Santa Ana, California.

For Sale—Holt 75, also Holt 30. Good condition. Also tractor tools. C. E. Newman, Chowchilla, California.

PHEASANTS

Pheasants — Three pair Chinese Ringnecks $8.00 per pair. Eggs $3.50 a setting. El Nido Pheasantry, Fairoaks, California.

FOR EXCHANGE

For Exchange — 500 Acres, stock ranch. Owner, Box 25, Valley Springs, California.

STATE DAIRY COW COMPETITION

(Continued from Page 367.)

62.18; No. 921, 1,370, 60.30; No. 1910, 1,512, 58.96; No. 1943, 1,841, 58.91; No. 2373,1,289, 55.43.

J. E. Thorp, Jerseys: Sonny's Benedita, 1,281 pounds milk, 59.59 pounds butterfat; Silver Pearl of M., 788, 50.77.

University of California, Ayrshire grade: Woodland, 1,259 pounds milk, 51.62 pounds butterfat.

University of California, Guernsey grade: Ramona, 2,118 pounds milk, 74.55 pounds butterfat; California Questa Queen, 1,083, 52.09.

R. H. Walrath, grades: Pansy, 1,770 pounds milk, 86.73 pounds butterfat; Minnie, 1,509, 83.01; Guernsey, 1,179, 66.00; Fern, 1,116, 50.10.

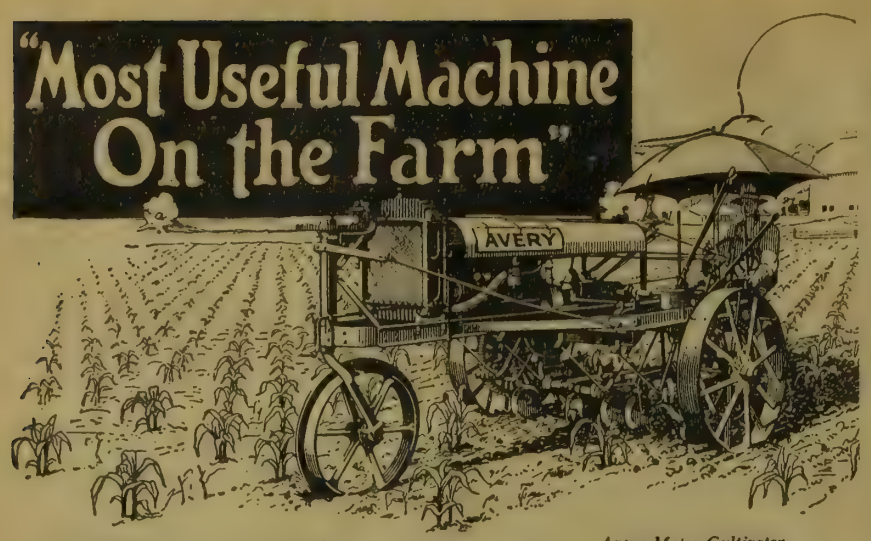
Winsor Ranch, grade J.: Teresa, 1,247 pounds milk, 62.60 pounds butterfat.

The reports for January so far received show that 210 cows in milk during the full month produced an average of 1,275 pounds milk and 5,380 pounds butterfat during the month (average number of days in milk at beginning of month, 88).

The largest production of butterfat for the month was made by the purebred Jersey cow Lady Kate's Rosette, owned by D. F. Conant of Modesto, viz., 101.27 pounds; 4 cows produced

(Continued on Page 373.)

"Most Useful Machine On the Farm"



THIS Avery machine is more than a motor cultivator and more than a tractor. It is, as one owner says, "the most useful machine on the farm."

Not only plants and cultivates all row crops such as corn, cotton, peas, beans, beets, successfully, but also pulls plows, harrows, grain drills, manure spreaders, hay loaders, etc., runs feed grinders, wood sawing outfits, pumps, silo fillers, small threshers and other belt machines. Does all that any small tractor can do, and a whole lot more than is ever expected in a motor cultivator.

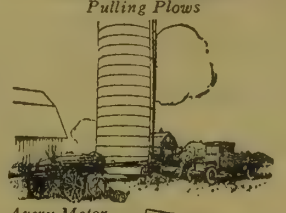
Here's the practical machine for all-around work on any size farm. Built in 6-cylinder two-row and 4-cylinder one-row sizes and sold at a surprisingly low price.

Write for the Avery Catalog showing this and other machines in the complete Avery Line, including tractors in nine sizes, tractor plows, harrows, drills, grain-saving threshers, motor trucks, etc.

The new Avery adjusted prices are based upon what materials cost now regardless of what we paid for them. Write for Avery 1921 prices.

Avery Motor Cultivator Cultivating Corn

Avery Motor Cultivator Pulling Plows



Avery Motor Cultivator Filling Silo

Write for the 1921 Avery Catalog

Avery Company, 39 Iowa St., Peoria, Ill.

Branch Houses:
Sacramento and Los Angeles, Cal.

AVERY

Tractors, Trucks, Motor Cultivators, Threshers, Plows, etc.

Wonderful New Hay Crop
SUDAN GRASS

First Introduced into the U. S. in 1909 from the Sudan in Africa. Tests by the department of agriculture have proved it to be of the greatest value in the Southern and Western states, where rainfall is deficient.

Culture—Sudan Grass is strictly an annual. It may be drilled or broadcasted. If drilled 8 to 12 lbs. per acre is ample; for broadcasting 15 to 25 lbs. should be used. It grows 8 to 10 feet high and yields from 3 to 8 tons per acre. You are sure of two cuttings, and if irrigated three or four cuttings.

Sudan Grass for Pasture—During the months of August, September and October all other grasses are dry, then is the time Sudan is most valuable for fall pasture, and by having it fenced in small fields it will yield food for six times as much stock as any other forage will without irrigation. For milk cows and hogs, there is no better and more abundant pasture than Sudan Grass. It will solve the hay proposition as nothing else can or will do in this climate. A good silage and balanced ration. This seed was grown on our own farm, and is free from Johnson Grass.

Price Per Pound:

10 lb. lots, 20c — 250 lb. lots, 12c
100 lb. lots, 15c — 500 lb. lots, 11c
1000 lb. lots, 10c

Bowman's Hardware and Implement Company
721 J. Street Sacramento, Cal.

WRITE US FOR PRICES ON

Tanks, Well Casing, Riveted Water Pipe and Surface Irrigation Pipe with Double Lock Seam

AMERICAN STEEL PIPE AND TANK CO.

354 Pacific Electric Bldg. LOS ANGELES, CAL.
1228 H Street FRESNO, CAL.

Proposed Auto License Fees

Assembly bill 945 proposes to repeal all of the old auto laws or laws affecting the passage of vehicles over public highways, also the various and diversified amendments which have been made to them. It provides for control of loads which may be transported over the highways, licensing or issuance of permits to all drivers only when qualified to drive, and a vast number of other regulations. That portion of it affecting the proposed license fees is given in the following table:

MAKE—	Type.	No. pass.	H.P.	Gr. Wt. Veh & Max. Ld.	Present Fee.	Proposed H.P. Fee.	Proposed Wt. Fee.	Proposed Total Fee.
Ford	Tour.	5-pass.	22	2,250	$ 8.80	$ 5.50	$ 2.25	$ 7.75
Dodge	Tour.	5-pass.	24	3,250	9.60	6.00	3.25	9.25
Chevrolet	Tour.	5-pass.	22	2,250	8.80	5.50	2.25	7.75
Studebaker	Tour.	5-pass.	29	3,350	11.60	7.25	3.55	10.80
Cadillac	Tour.	7-pass.	31	5,250	12.40	7.75	5.25	13.00
Buick	Tour.	5-pass.	27	3,650	10.80	6.75	3.65	10.40
Overland	Tour.	5-pass.	19	2,250	7.60	4.75	2.25	7.00
Packard	Tour.	7-pass.	43	5,550	17.20	10.75	5.55	16.30
Essex	Tour.	5-pass.	18	3,350	7.20	4.50	3.35	7.85
Hudson	Tour.	7-pass.	29	4,450	11.60	7.25	4.45	11.70
Maxwell	Tour.	5-pass.	21	2,750	8.40	5.25	2.75	8.00
Stanley steamer	Tour.	5-pass.	20	5,250	8.00	5.00	5.25	10.25
White	Truck	2½-T.	22	10,000	13.80	5.50	*10.00	15.50
Federal	Truck	5-T.	32	20,000	27.80	8.00	*20.00	28.00
Moreland	Truck	4-T.	36	17,000	29.40	9.00	*17.00	26.00
White	Truck	2½-T.	22	10,000	13.80	5.50	x15.00	20.50
Federal	Truck	5-T.	32	20,000	27.80	8.00	x30.00	38.00
Moreland	Truck	4-T.	36	17,000	29.40	9.00	x25.50	34.50
White bus	Truck	22-pass.	29	8,300	11.60	7.25	*8.30	15.55

*—Pneumatic. x—Solid.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Collecting Wages

If an employer intentionally refuses to pay an employe his wages, will the state labor commission take the matter up free of charge?—Subscriber, Valley Center.

Under one act regulating the payment of wages it is provided that in case an employer shall wilfully fail to pay wages of an employe who is discharged, resigns, or quits, as a penalty therefor, such wages shall continue from the date due at the same rate until paid, provided that it shall not continue for more than 30 days, and any such employer who falsely denies the amount or validity of such wages with intent to annoy, harass, oppress, delay, hinder or defraud the person to whom such indebtedness is due, in addition to any other penalty imposed, may be found guilty of misdemeanor. It is made the duty of the commission of labor statistics and also the district attorney of any county to institute actions for the penalties and to prosecute such actions for violations of the act as may come to their knowledge, and under the general act establishing the bureau of labor statistics it is provided that the commissioner shall have the power and authority, when in his judgment he deems it necessary, to take assignments of wage claims and prosecute actions for the collection thereof for persons who are financially unable to employ counsel, in cases in which, in the judgment of the commissioner, wage claims are valid and enforcible in the courts.

Employer's Liability

What are the workings of the employer's liability act, under which an employe is injured, disabled, or sick, if he is so covered by insurance that his doctor bills and proportion of his wages are paid?—Subscriber, Valley Center.

The employer's liability act defines an employe as "every person in the service of an employer under a contract of hire, rendering actual services, but excluding any person whose employment is casual and not in the course of the business, profession, or occupation of the employer and also excluding any employe engaged in household domestic services, farm, dairy, agricultural, viticultural, labor in stock or poultry raising, or holding appointment as deputy clerk, sheriff or constable." The provisions of the law may be invoked when at the time of the injury the employe is performing services growing out of and incidental to his employment and is acting within the course of his employment and where the injury is proximately caused by the employment, either with or without negligence and is not caused by the intoxication of the employe and is not self-inflicted. Where the injury is caused by the serious and wilful misconduct of the injured employe, the compensation shall be reduced according to various specific provisions; it may also be increased by reason of the serious or wilful misconduct of the employer according to various provisions. If the period of disability does not last longer than seven days from the date employe leaves work as a result of injury, no disability payment shall be recoverable. If the injury causes temporary total disability, 65 per cent of the average weekly earnings shall be paid and in case of temporary partial disability 65 per cent of the weekly loss and wages. For various periods and percentages of disability there are very specific percentages set forth. In order to invoke action it is necessary within 30 days after the appearance of the injury to give notice in writing to the employer of the data concerning the injury, unless the employer has personal knowledge thereof. Thereafter, in case of failure to pay, the applicant may file an application in writing stating the general nature of the controversy with the commission to enforce the act, which is thereafter served upon the employer and a hearing is had before the commission in due course and the commission determines the amount of compensation. In order to enforce payment of its decrees, in the judgment of the commission, it may direct the county clerk to issue a writ of attachment to the sheriff to attach the property of the defendant in an amount not to exceed the greatest probable award. The commission thereafter takes testimony and makes its award, which may be

filed with the county clerk and execution issued thereon. The award may cover a reasonable attorney's fee for services in conducting the matter, a reasonable expense incurred by the employe therein, living expenses, or burial expenses not exceeding $100. This law does not provide any measure for cases of mere sickness or any expenses incident to such sickness, unless the proximate cause of such illness was by reason of the employment. In that case medical, surgical or hosiptal treatment, including nurses, mericines and supplies as are reasonably required to cure or relieve the effects of the injury, may be required to be paid.

Taxes on Orchard

When do I begin to pay taxes upon a newly planted orchard?—Subscriber, Denair.

Fruit and nut bearing trees under the age of four years from the time of planting in orchard form, grapevines under the age of three years from the time of planting in orchard form, and growing crops are exempt from taxation.

Husband Incapacitated

My husband is unconscious. The business is in his name. The hired man cares for the dairy, but there are 11 cows more than he can handle. May I sell or rent them for the season? If I rent them, under what conditions may I do so?—**Subscriber, Cayucos.**

The general provision of the law is that the husband has the management and control of the community and personal property with absolute power of disposition. It would seem that under that provisoin the wife would not have the right to sell or dispose of the community property. In case she does so, the husband could undoubtedly recover the property from the party to whom sold. In many instances both the husband and wife have been held to be agents of the other, but a contract is necessarily prerequisite to any agency and a contract cannot be made with an unconscious person, so that doubtless a sale of the cows would be invalid. There are circumstances in which an agency by necessity arises and it would very probably in the case mentioned be entirely lawful to rent the cows for the season. Care should be taken that a proper compensation be obtained. The provisions of the law, while they may seem rather drastic to the wife, operate in the majority of instances for her protection, as otherwise she, as well as the husband, might be imposed upon in cases such as this where she was not familiar with the value of the property or with business conditions.

DESERT WINDBREAKS

Many windbreaks have been tried in the Imperial and Coachella Valleys but none have proven so effective or so well adapted to the climate as the evergreen Tamarix articulata, a really beautiful tree of 30 feet in height with a shiny blue-green foliage like fine pine needles. It is much superior in general appearance to the deciduous species earlier introduced and it is doubtful if a successful rival will be found for it grows there as though the California desert regions were its native "heath" or habitat. It propagates readily from cuttings of any size and at almost any time of the year. Its extensive planting should be encouraged for its widespread use would prove a great factor in surface wind control.

When pruning has been neglected for a number of years, it is better to extend the rejuvenation over two or three years rather than to do it all in one season.

6% loans to farmers!

The constitutionality of the Federal Farm Loan Act has been confirmed by a decision of the United States Supreme Court.
Loans made by this bank may be paid off any time after five years—and the borrower may enjoy the unusual privilege of taking 33 years to repay his loan in installments.
The loans are made under supervision of the Farm Loan Board—a bureau of the United States Treasury.

IMPORTANT FEATURES

1. No unreasonable limitations or special conditions as to how money borrowed shall be used.
2. The mortgage never becomes due. You pay no renewal expenses.
3. Payments may be extended over a period of 33 years.
4. The land may be sold subject to the mortgage.
5. The borrower pays no commission. We loan *direct* to farmers. Loan made up to 50% of appraised value of the land, and 20% of the insurable improvements.
6. Positively no red tape of any kind.
7. The best and broadest type of service ever extended to farmers.

OFFICERS

A. P. Giannini, President (President, Bank of Italy).
P. C. Hale, Vice-President, (President, Hale Bros., Inc., San Francisco, Oakland and Sacramento).
Jas. A. Bacigalupi, Vice-Pres. (Vice-Pres. and Manager, Trust Dept., Bank of Italy).
A. W. Hendrick, Vice-President (Formerly Sec'y Federal Land Bank, Berkeley, Calif.).
E. C. Aldwell, Sec'y-Treasurer.

Write for further information. Address all letters to

6% loans to farmers
Under Federal Supervision

California Joint Stock Land Bank

• CAPITAL $250,000 •
OFFICES IN BANK OF ITALY BUILDING
• SAN FRANCISCO •

The Gasoline of Quality

Red Crown gasoline has well earned the right to be called "The Gasoline of Quality."

Its continuous chain of boiling points insures all of the qualities of a good motor fuel—ready starting, rapid acceleration, and maximum power.

You can get Red Crown gasoline wherever you see the "Red Crown" sign. Look for it on garages and service stations.

STANDARD OIL COMPANY
(California)

"IF IT'S ENGINEERING WE DO IT"
GET MAXIMUM INCOME from your Land by having your IRRIGATION, DRAINAGE and BUILDING PROBLEMS properly attended to by the ENGINEERING SERVICE COMPANY
We Render "Service That Insures Permanence" and Will Save You Money by Insuring You the Lowest Ultimate Cost
In fact, we do anything in the engineering line pertaining to the development, operation or maintenance of properties. Paul R. Cowels, Manager
Phone 60463 SUITE 1316 WASHINGTON BLDG., LOS ANGELES, CALIF.
Your requirements, whether large or small, will receive our careful attention

Great Fertilizer DISCOVERY

LIGNAITE SOLUTION——a highly concentrated fertilizer, discovered by an English scientist—ELECTRIFIES, RADIUMIZES, REJUVENATES the soil. ENERGIZES any soil, no matter how poor.

INCREASES CROPS 50 TO 200%

Send trial order—see what wonders it performs. Mailed FREE in U.S.
$1.00 size good for 1,000 sq. ft.
$8.00 size good for quarter acre
$15.00 size good for half acre
$26.00 size good for one acre

American Lignaite Co.
502-3 Crary Bldg., Seattle

Ask Your Dealer for
A&M reliable SEEDS
Send for Our CATALOG

Aggeler & Musser Seed Co. Los Angeles, California

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

What Father Thought An *Expense* Son Makes An *Investment*

A MIDDLE WESTERN FARMER tills the same acreage that he, his brother and father used to farm. And he makes *more* money.

His father used the implements others threw away—unknown makes—for which repairs were hard to get or unobtainable. To him, farm implements were an expense—one to keep small. The son buys *known* tools—the best. He believes that implements to a great extent determine his profits—that implements are an *investment*.

This year farm profits will depend largely on production costs—hence on implements. Before investing, the careful farmer will ask: "Does the tool mean better, faster work—is it dependable and durable?" Sixty-eight years' experience has served to answer these questions correctly in E-B line of farm tools. In these, your investment is protected. Every E-B tool is made to work when needed, to last many years, to lower production costs — facts attested to by farmers everywhere.

Close study of the farmer's needs has taught us *what* to make—sixty-eight years' experience has taught us *how* to make it.

Emerson-Brantingham Implement Co., Inc.

Established 1852 **Rockford, Illinois**

B. Hayman Co., Inc., Los Angeles, Cal.

A Complete Line of Farm Machinery Manufactured and Guaranteed by One Company

CITRUS TREES

Can supply A-1 budded citrus stock one and two years old, wholesale or retail, in any quantity.

Selected Buds From Fruit Growers Supply Co.

Honda Sour Seed Bed Stock for sale. Trees planted and guaranteed on contract. Established 14 years.

YAMAMOTO CITRUS NURSERY

Ranch—Huntington Drive, San Marino, Calif. Phone Alhambra 731-W
Mail Address: R. F. D. 1, Box 666 San Gabriel, Calif.

Kill Squirrels

AND OTHER RODENTS

USE CARBON BISULPHIDE

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Los Angeles Markets

Los Angeles, March 9, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price, 44 cents.

Mar.	2	3	4	5	7	8
'21 ...	48	..	45	45	44	44

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 33 per dozen. Case Count Produce Exchange closing price 31 per dozen; pullets, produce Exchange closing price 31 per dozen.

Dairy Exchange price last week on extras:

Mar.	2	3	4	5	7	8
'21 ...	32	..	32	32	33	33

New York quotations on large whites is 40 to 48 which is the lowest of the season. Los Angeles is storing but San Francisco is still sending occasional cars to Chicago and New York.

POULTRY

Price to producers: Hens, lt., 35; heavy 35; colored, 35; broilers, 55; roasters, 40; old roosters, 20; fryers, 55; ducks, old 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 14@19; old, 9.

LIVESTOCK

Los Angeles, March 8. — Weighed and delivered off cars without food or water:

Hogs, (hard grain). 125 to 175 lbs., 11.50; 175 to 225 lbs., 12.00.

Cattle (on foot, gross weight): Steers, good, 9.50@10.00; medium, 9.00@9.50. Cows, good, 6.00; medium, 7.00@7.50. Calves, 1.25 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 6.00; lambs, 12.00@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock March 8, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market dull on Stocktons, strong on Idahos. Stocktons: Burbanks, quality poor, 1.75@1.85; few best, 2.00@2.25. Idahos: Russets, mostly 2.00@2.15. Sweet potatoes: Supplies moderate, market steady. Best mostly 2.10@2.35 lug. Arkansas, lb., 7@8.

Onions: Supplies heavy, market weak. Stocktons: White Globes, cold storage stock, 1.50@1.75; Browns, mostly 65@85 per cwt. sacked.

Garlic: Local best mostly 12@15 lb.; poorer 8@10.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock March 8, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 75@1.50; mostly 1.00@1.25.

Asparagus: Supplies increasing, market weak. Imperial Valley, choice, 30@40; fancy, 60 per lb. Northern, 40@50 per lb. Local, 70 per lb.

Beets: Doz., 40@50; sk., 1.75@2.00.

Cabbage: Field cr. best mostly 65@75; poorer 50.

Carrots: Doz., 30@35; sk., 1.00@1.25.

Cauliflower: Supply moderate, field cr., best, 1.75@2.00; poorer, 2.25@2.75.

Celery: Field cr., 3.00@3.50; poorer.

Cucumber: Hothouse, best, 2.00@2.50 doz.
2.25@2.75.

Lettuce: Local field cr. mostly 35@75, best mostly 50@75.

Peas: Supplies liberal, market firm. Imperial Valley, quality good, 11@12 per lb; poorer, 5. Local, best 10@12; poorer, 6 per lb.

Radishes: 15 doz.

Rhubarb: Crimson Winter, best bx., 1.85@2.10; poorer, 1.75.

Spinach: Doz., 25@30.

Squash: Local Hubbard and Banana, lb., 1½@2; Summer, 3.00 cr.

Tomatoes: Mexican, per lug, original 3.00; repacked lug 3.50@3.75; repacked crates 3.00@3.25. Much poor stock at wide range in prices.

Turnips: Per dozen, 25@30; sack, 90 @1.10.

HONEY

Conditions very unsettled. Market very weak and prices lower. Practically no carlot sales are being made at this time. F. o. b. usual terms, quotations range in 60-lb. cans White Orange Blossom 12½ @13½; White Sage, 12@14; White Alfalfa 9; Light Amber Alfalfa, 6¾@7½; Light Amber, 8½@12; Hawaiian White, 7½; Light Amber, 6. A large percentage of honey shipments are now going out in small containers rather than in the customary case holding two cans of 60-lbs. each. One, five and ten pound glass jars and 2½ lb. individual containers are all being used with a movement which though slow, is better than that on bulk goods. Most shipments are going to Eastern markets to be sold by brokers in less than carlots. Sacked beeswax of good clear color is priced in less than carlots at 33@35 per lb.

GRAIN AND FEEDS

Grain Exch. price bid March 8:

Milo: Carlots, 1.90; Eastern No. 2 bulk, 1.65.

Eastern Kafir: No. 2, 1.57½.

Barley: 1.36¼.

HAY

Alfalfa Growers of California report under date of March 8:

Receipts during week: 1,320 tons on track; holdover, 360 tons.

Rabbit Alfalfa	36.00
No. 1 Dairy	24.00
Standard	21.00
Stock	16.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@30.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@18.00
Straw	11.00@14.00

San Francisco Markets

San Francisco, March 8, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 43½

Dairy Exchange prices extras this week and year ago:

Mar.	1	2	3	4	5	7
'21 ...	47½	45	44	43½	43	43½
'20 ...	..	61	59½	60½	60	..

Rcts. wk. ending Mar. 7, 3,162 centals.

CHEESE

Dairy Exchange quotations:
Jack, full cream, street price..... 22@26
Jack, half skimmed, street price... 17@20
Ore. Y. A. 35
Ore. Trip 36
Cal. Y. A. 30
Cal. Flats 22

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 37½
Extra Pullets 32
Undersized 31

Mar.	1	2	3	4	5	7
'21 ...	38½	38	36	36	36½	37½
'20 ...	..	46	42½	40	41	..

Rcts. wk. ending March 7, 638,494 doz.

LIVESTOCK

Western Meat Co. prices:

Cattle: Steers, No. 1 8@8½; do, second quality, 7@7½; do, thin, 4@5½.

Cows and Heifers: No. 1, 6½@7; do, second quality, 5@6; do, thin, 3@4.

Calves: Light weight, 8½@9½; medium, 8@9; heavy, 7@8.

Lambs: Yearlings, 8@8½.

Sheep: Wethers, 6@7; ewes, 3½@4.

Hogs: Hard, fat, grain-fed, weighing 100 to 225 pounds 11½; 225 to 300 pounds, 11; 300 to 400 pounds, 10.

California Farm Bureau Marketing Association reports:

No. Hogs	Ave. Wt.	Dock	Price
Modesto, March 1			
93	196	...	$11.00
91	191	...	10.80
55	189	...	10.75
95	176	...	10.75
19	262	...	10.25
4	137	...	10.25
12	420	320	8.00

Four cars, 28 consignors, $7,749.19.

Hilmar, March 2			
52	212	...	10.50
2	125	...	10.00
5	340	90	8.75

One car, 17 consignors, $1,319.75.

Chowchilla, March 3			
86	194	...	10.95
85	156	...	10.75
5	184	...	10.75
3	313	...	9.95
1	410	160	5.00
5	340	90	8.75

Two cars, 18 consignors, $3,615.30.

Wasco, March 5			
39	229	....	10.60
80	187	...	10.55
4	300	...	7.60
1	250	80	6.10

One and one-half cars, 10 consignors, $2,623.77.

Total for the week 8½ cars, 56 consignors, $15,308.11.

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, $1.75@2.25 for No. 1; do, Oregon Burbanks, 2.15@2.25; Salinas, 2.85@3.00; Idaho Gems, 2.15@2.25; sweet potatoes, 6.50@7.00 per 100 lbs.; Arkansas, 6.00@6.50; new, lb. 12½.

Onions: Australian brown, 75@90 per box.

Garlic: New, 7@10 lb.

VEGETABLES

Wholesale selling price:

Asparagus: Lb., 17½@20; fy., 25@30.

Artichokes: Doz., 30@90.

Beans: 15@22½.

Beets: $1.50@2.00 sk.

Brussel Sprouts: 5@7 lb.

Carrots: 1.25 sk.

Cauliflower: Doz., 75@85.

Cucumbers: Hothouse, small, $4.50 box of 2½ dozen; large, 2.00@2.50 per dozen; English, 2.50@2.75 per dozen.

Cabbage: Lb., 1.

Celery: Cr., 2.00@3.00; fy. cr., 3.00@4.00.

Lettuce: L. A. cr., 1.75@1.90; Imp., 2.50@2.75.

Onions: Green, per lug, 1.25@1.60.

Peas: Lb., 10@14.

Parsnips: Sk., 2.00@2.25.

Peppers: Bells, Southern, 5@10 lb. for green; Florida, 25@30; No. 2, 20@25; Chili, Rhubarb: 2.75@3.00 L. A. bx.; Alameda, lb., 14@15; Sebastopol, 3.00@3.50.

Spinach: Cr., 1.00@1.50; lb., 5@6; San Joaquin, 1.50@2.25.

Squash: Italian, nominal; Imperial Valley cream squash, 60@75 per lug; Hubbard squash, 1.00@1.25 per sack; Imperial Valley summer squash, 4.00@4.50 per crate; marrowfat and pumpkin, 1.00 per sack.

Tomatoes: Fancy, 3.00@3.50; hothouse, 35@40 per lb.; Mexican, repacked, 2.00@2.25 per crate, 3.00 per L. A. lug.

Turnips: Sk., 50.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 19 lb.; Sunmaid, seeded, 36 15-oz. pkgs. 22 lb.; seedless Sultanas, 25-lb. bxs. 20 lb.; Thompson Seedless, 25-lb. bxs. 21 lb.; do, 48 15-oz. bxs. 22 lb.; 3-cr. L. M., 25-lb. bxs. 21 lb.; 2-cr., do, 20 lb.; 1-lb. clusters, 20-lb. bxs. 5.50 box.

Apricots: Fancy 25 lb. boxes, 26 lb.; extra choice, do, 20 lb.; choice, do, 19 lb.; standard, do, 15 lb.

Peaches: Blue Ribbon brand, 48 11 oz. to cs, $10 cs; Blue Ribbon brand, 24 2 lb. bxs. to cs. 11.00; fancy, 25-lb. bxs. 18; extra choice, 25 lb. boxes, 14; choice, 25 lb. boxes, 13.

Pears: Fancy, 25 lb. bxs., 18; extra choice, 25 lb. bxs., 14; choice, 25 lb. bxs., 11.

Figs: Fancy black, 25 lb. boxes, 12½ lb.; extra choice, do., 9 lb.; choice do, 8 lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4 layer, 10 lb., 2.00 box; choice 4 layer, 10 lb. boxes, 1.75 box.

Prunes: 30-40s, 25 lb. boxes, 14; 40-50s, do, 11 lb.; 50-60s, do, 9½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8 lb.; choice, do, 7 lb.

BEANS

Below California Bean Growers Association shippers prices choice recleaned, March 7:

Pinks	5.45
Large Whites	4.00
Small Whites	3.50
Mexican Reds	6.00
Blackeyes	6.15
Red Kidneys	8.75
H. B. Limas	5.15
Bayos	9.00

HOPS

Cal. 1920, lb., 33@35.

RICE

Pacific Rice Growers Association prices: Fancy Cal. Japan, 4.50; choice, do, 4.25.

GRAIN

Sales grain exchange, March 8:

Wheat: Milling, 2.60@2.70; feed, 2.65 @2.80.

Corn: Cal. Yellow, 1.70@1.80; White Egyptian, 2.60@2.80.

Oats: Red feed, new crop, 1.45@1.55. seed, 1.65@1.75.

Barley: New feed, 1.30@1.40; off grades lower: shipping, 1.50@1.65.

Bran: 33.00@37.00.

Shorts: 37.00@41.00 ton.

Mill Run: 32.00@38.00 ton.

Middlings: 35.00@41.00 ton.

Milo: Cal. Red, 1.95@2.00; Eastern Red, 1.60@1.75.

Kafir: Eastern, 1.60@1.70.

HAY

Alfalfa Growers of California report under date of March 8:

Receipts during week were 650 tons.

No. 1 Dairy Alfalfa	21.00
Standard	19.00

Under date of March 5, A. W. Scott Co. says:

Arrivals past week 1,567 tons; preceding week, 650. Trading has been somewhat better, both buyer and seller in apparently better harmony as to value. Consuming demand through the interior has been better; transportation facilities have been good, and in general a very encouraging business has been developing all over the state. Export hay shipment has been quiet.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00

Citrus Markets

Los Angeles, March 8, 1921.

The market on oranges is slightly improved. Shipments are running around 200 cars daily.

No more life in the lemon market. Receipts of foreigns are rather more liberal than for several months.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 9,525 cars; lemons, 2,140; total, 11,665. To same date last season: Oranges, 9,275; lemons, 2,009; total, 11,284. From Central California to date, this season: Oranges, 4,290; lemons, 103; total 4,393. To same date last season: Oranges 3,476; lemons, 259; total, 3,735. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

STATE DAIRY COMPETITION

(Continued from Page 369.)

over 90 pounds butterfat during January; 12 between 80 and 90 pounds, and 17 between 70 and 80 pounds.

The California Cultivator prize for January was won a second time by Los Angeles County Farm at Hondo, for an average production by five grade cows of 78.45 pounds of butterfat (ranges, 65.1 to 86.3 pounds; credit, 86.33 pounds). Other groups of five grades eligible to compete for this prize produced on the average as follows: Earl Graham of Compton, 71.91 pounds. (credit 82.05 pounds); Adohr Stock Farms, Van Nuys, 67.57 pounds (credit 71.02 pounds); F. F. Pellissier, Whittier, 65.67 pounds; R. H. Walrath, El Centro, 64.01 pounds; Napa State Hospital, 62.34 pounds; S. G. Gambonini, Petaluma, 50.07 pounds (credit 51.48 pounds); C. E. Fisher, Hughson, 45.09 (credit 51.67 pounds); University Dairy, Berkeley, 41.75 pounds (credit 46.22 pounds); J. M. Christen, Pacheco, 41.70 pounds (credit 45.81 pounds).

Cows may still be entered in the competition during the month of March. Entries close April first, 1921. Information concerning the competition, regarding rules, prizes offered, etc., as well as entry blanks will be furnished upon application to Professor F. W. Woll, superintendent of dairy tests, University Farm, Davis, California.

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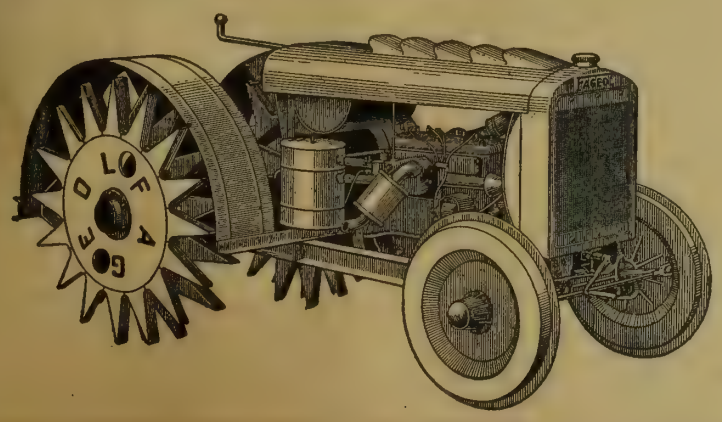

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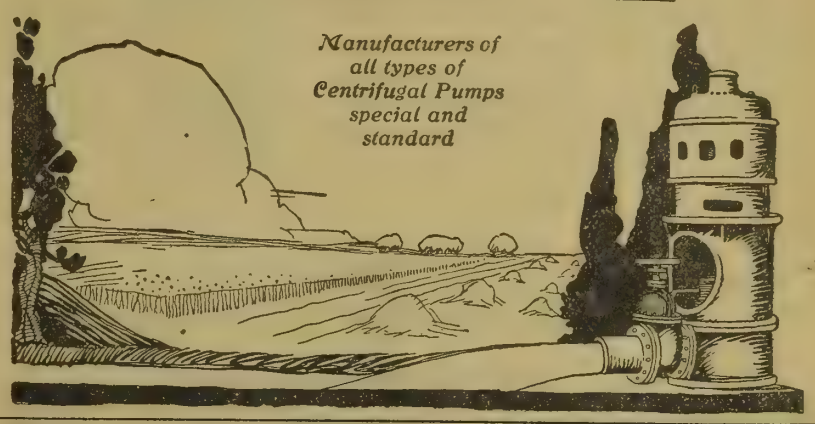

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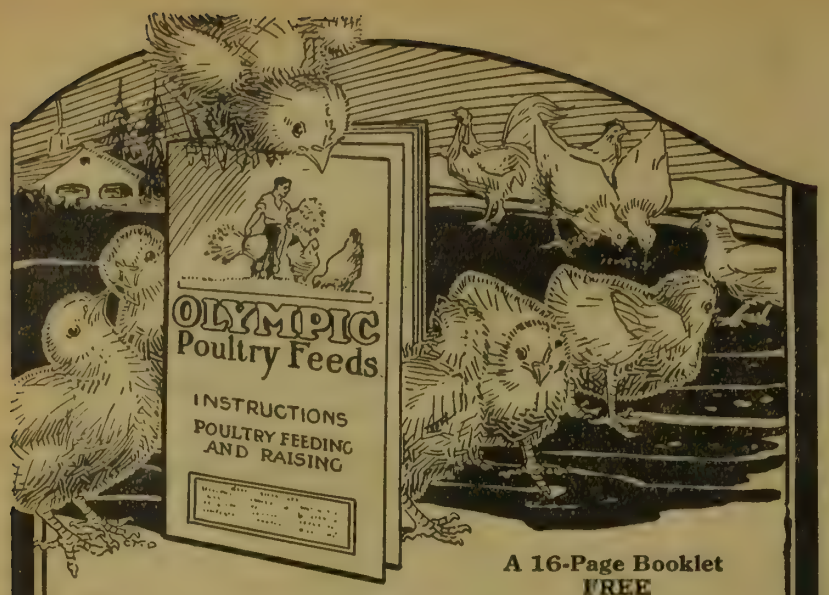

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Ups and Downs

Manager Barber of the Poultry Producers of Central California writes:

"Egg prices have been quite erratic lately, following the 'jumpy' course of the Eastern market. Owing to the continued mild weather throughout the country the production of Western and Southern eggs has continued to increase. Receipts at New York for the week ending January 29 were 87,584 cases, which was 50 per cent more than the same week last year. Chinese, Japanese, Argentine and Australian eggs added to the supply. Pacific Coast white eggs were also arriving in large quantities. The entire market, therefore, developed great weakness, and between January 27 and 31 the price of white eggs in New York dropped 9 cents. Our market followed suit with a drop of 8 cents in the same time, from 51 to 43 cents.

"New York then remained steady at 57 to 61 for several days and San Francisco stiffened a little in sympathy with it, but Eastern supplies continued to increase faster than consumption, causing an accumulation which on February 4 started a series of breaks on successive days, until on February 9 New York was down to 42 cents (highest quotation on whites), a total drop of 19 cents in five days. Our market necessarily followed, getting down to 31½ on February 9.

"During a period like this, of rapid fall in prices, everyone limits his purchases, buying just what he needs from day to day, in the expectation of still lower prices. Therefore, both jobbers and retailers carry very little stock, so that when the consumptive demand, stimulated by the lower prices, begins to increase rapidly, they are forced to buy heavily to supply it. This causes a reaction, as we have just seen when New York prices jumped up again 16 cents in two days, reaching 58 cents for whites yesterday (February 11). The San Francisco market also advanced, but more sparingly, as New York dealers were still cautious about taking on further supplies.

"It is rather too early to tell anything about the price of eggs for storage in the East and we have not yet information enough on production to venture any opinion. We hear reports that spring production in the Middle West will be much larger than last year. If so, this will be the controlling factor in determining prices of eggs for storage. April futures (storage packed eggs for delivery in April) sold on the Chicago Exchange 42 cents a month ago.

"There are many uncertainties about the outlook. The spring conventions of egg shippers at St. Louis and other centers will undoubtedly shed much light on the situation."

POULTRYMAN'S CALENDAR—MARCH, THE BROODING MONTH

Probably there are more chicks in brooders in March here in California than in any other month. Every chick that is to be hatched ought to be out of the shell before the first of April, and the February chicks make wonderful growth during March if only they are intelligently cared for. Keep them warm, but not too warm. Feed them plenty of good, clean, wholesome feed. Get them into the fresh air and onto the ground just as soon as possible. Chicks that are brooded by hens are in the open most of the day by the end of the first week. Brooder chicks should have just as much air and just as much exercise as hen brooded chicks. Work them off the chick grain as quickly as possible. Chicks that have wheat before them from the start prefer it to chick feed by the time they are ten days to two weeks old. Above all, keep them clean. Lice, mites, filth, mold, all menace the life of the little chick.

Two Cents and Better Above the Market

The Poultry Producers of Southern California, Inc., is sending letter to members from which we quote:

"So much misinformation, if not actual misrepresentation, regarding the affairs of the Poultry Producers of Southern California, Inc., has been freely circulated of late that the writer feels a few first hand facts as to what has been accomplished during the past year might be welcomed by our members.

"When these results are before one in concrete figures there can be but one conclusion and that is that our members' loyalty to their organization has brought results of which they should be proud and which promise well for the future.

"Of course, it is impossible to state what the local market would have been with no cooperative organization in the field, hence we can only compare ours with a similar nearby market, that of San Francisco, and as the latter is influenced by the Poultry Producers of Central California, Inc., the result is a striking uniformity, when taken for the entire year.

"Using the official market quotations from day to day and dividing by the total number of market days, we get as the average market price on extras for the entire year 55.91 cents for San Francisco and 55.84 cents for Los Angeles, these prices including cases. Using monthly averages, Los Angeles was highest in May, June, August, October, November and December; and San Francisco in January, February, March, April and July, while in September the two markets were the same.

"Some of you may say: 'I am not interested in what the market may be, but in what I get for my eggs,' forgetting for the time being that you are interested in the market, for that absolutely governs what you receive for your product. However, let us see what you did receive for your eggs in actual money every week, with not even a single remittance a day late during the entire 52 weeks.

"Taking the monthly averages of the pool prices, as used on our statements, we find the average for the year on extras was 55.90 cents. Now, this is without cases, so to see what your management received for all eggs sold we add 2 cents and obtain 57.90 cents as the average selling price for the year as against a market average of 55.84 cents, or 2.06 cents above the market."

NOTES FROM PRESIDENT DAVISON'S ANNUAL ADDRESS

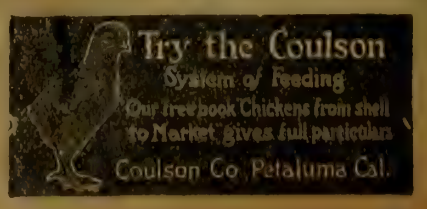
Fellow Members of Poultry Producers of Southern California, Inc.: We have just passed our fourth milestone.

Last year our local production had so far passed our local consumption that we had some 150 cars to ship to outside markets.

During 1920 our organization marketed 4,103,444 dozens of eggs for 710 members, the total volume handled for the year being $2,096,450.37.

During the year we stored 1,470,000 dozens of eggs, of which 684,900 dozens were stored for the account of the association.

During the year just closed 920 cars of California eggs found their way to eastern markets. Our association contributed 120 cars of these. The number of eggs which we shipped to New York during the year represents 35


Try the Coulson
System of Feeding
Our free book Chickens from shell to Market gives full particulars
Coulson Co., Petaluma Cal.

per cent of our total sales for the year.

Total paid-in capital stock of the association on December 31, 1920, was $88,591.08. This means that our total authorized capital of $100,000 will be paid within a very short time.

The proceeds of the association's annual pool aggregated $20,517.22, mailed during the current week. This means that each member of the association who marketed eggs through the association in 1920 had returned to him through the annual pool an amount equal to one-half cent per dozen for every dozen of eggs so marketed.

PROTECTION NEEDED

With eggs from the Orient reaching the American markets, literally by shiploads, poultrymen must realize that unless they can secure an adequate tariff on imported eggs the industry faces a serious setback. Your organization, in connection with the Poultry Producers of Central California, Inc., and the Petaluma Chamber of Commerce, has had a representative in Washington since early in January in an endeavor to have eggs included in the Fordney emergency tariff bill, but so far without success. It now seems unlikely that this bill will become a law, but the work we have already done should help in securing a permanent tariff on eggs at the next session. However, we cannot relax our efforts in this direction, and we urge all poultrymen to see to it that their local poultry associations forward proper resolutions to their senators and congressmen.—Cornele G. Ross, Chairman Executive Committee Poultry Producers of Southern California, Inc.

Poultry Queries

Conducted by J. A. Koethen

Purple Combs

Some of my hens have purple combs. When I opened one that died I found the eggs in her as hard as if they had been boiled, but her liver was perfectly healthy. Another hen died last night.—Subscriber, Lankershim.

That one hen may have had inflammation of the oviduct, but it is hardly likely that the rest of the flock have it. The purple combs indicate some sort of liver trouble due to too heavy feeding, especially of corn and barley. The liver may be only slightly enlarged or perhaps not enlarged at all. It may be smaller than normal or congested with blood or marbled or spotted, but a spotted liver more often indicates tuberculosis than liver trouble. It is in the spring when the birds have been heavily fed for several months that liver trouble is most likely to show itself, and the treatment is always the same, a lighter ration with more green feed and if possible more exercise. You do not mention your ration, so I can only suggest that you add a considerable amount (half is not too much with most mashes) of bran to the mash, drop barley altogether as well as milo and other forms of corn, making your scratch feed wheat and oats. You will not need to continue this indefinitely, but a change will do the hens a lot of good. And do not feed too heavily even of wheat. A quart a day to 15 hens is ample. Keep green feed before them all the time if possible. Too much grain, especially the fattening grains, and too little greens is one of the most prolific causes of digestive troubles. You might also give a dose of Epsom salts all round, allowing one-half teaspoon to each hen. Dissolve in water and mix in a small quantity of wet mash. Give this once a week for several weeks.

Soft Shelled Eggs

Why do our hens lay soft shelled eggs? They have charcoal, grit, eastern oyster shell and slaked lime before them, lots of green feed and egg mash, but many of them continue to lay soft shelled eggs. They are quite fat. One we killed last week had three eggs in her oviduct—one was broken, one was rotten and one was good. What was the cause?—Subscriber, Lathrop.

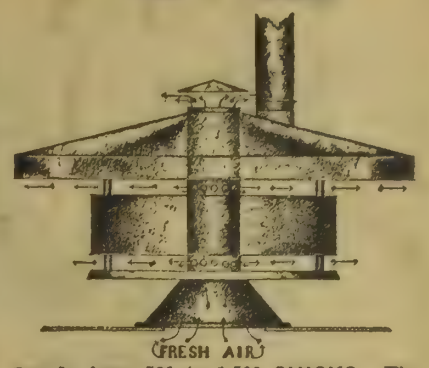
If your hens are very fat that explains both the soft shells and the unlaid eggs. A very fat hen can neither manufacture shells for her eggs nor lay them after they are manufactured. You do not mention the breed. If they are Rocks or Orpingtons or any other of the heavier breeds, you might as well send them to market before the price drops. If they are Rhode Island Reds or Wyandottes you may be able to reduce them by omitting corn in every form (milo, Gyp corn, maize) and barley from their ration. Possibly a diet of wheat, oats and green feed will reduce them if you do not feed too much, but as a rule a fat hen is of more use on the table than anywhere else.

THE POLITICAL GRIND

"I have observed," said the friend, "that whenever the caller who has just departed visits anybody he has an axe to grind."

"Well," replied Senator Sorghum, "we ought to be willing to contribute if possible, to the worthy enterprise of others. I don't object to a man who has an axe to grind, if he honestly means to go out and chop wood with it. What I do object to is the politician who merely desires to whet a tomahawk."—Washington Star.

The Kresky Brooder Stove
or "Pride of Petaluma"



Broods from 500 to 1,500 CHICKS. Fire NEVER goes out, temperature the same during STORMY weather, furnishes WARM, FRESH AIR, radiates HEAT to FLOOR where CHICKS are, GREAT DEMAND for POULTRY and EGGS. Stove burns COAL OIL or DISTILLATE.

Write for FREE Catalogue No. 70

Kresky Brooder Stove Company
Petaluma, California

When writing advertisers, mention the Cultivator.

THERE'S a reason for everything. Nothing ever "just happens." My success with poultry is not an accident or a matter of "luck"—here are the three reasons my hens pay:

The FIRST reason:

My success begins with the baby chick. I start them on the right feed, and in that period when baby chicks so easily sicken and die, the pure dry buttermilk in Globe "A-1" Baby Chick Mash, and the fine balance of ground grain, grain hearts and meatine, builds them to vigorous youngsters, makes them grow, and acts as a safeguard against disease.

The SECOND reason:

My growing chicks are well fed. Experience has taught me not to "stint the ration and stunt the bird." During the stage of rapid growth, when the making of bone, muscle, flesh and feathers demand feeds high in protein, Globe "A-1" Growing Mash **(containing Dry Buttermilk)** brings them to maturity as strong, healthy birds ready and fit to lay.

The THIRD reason:

I know that it takes feed to make eggs—and so I feed an egg ration—Globe "A-1" Laying Mash **(containing Dry Buttermilk)**.

GLOBE A-1 GUARANTY

"Money's Worth or Money Back"—a guarantee as sound and as liberally made as are **Globe A-1 Feeds.**
If you are not pleased to have our Product, we are not pleased to have your money.
Your Dealer cheerfully backs this guarantee.

GLOBE A1 FEEDS

GLOBE MILLS

Makers of Globe "A-1" Flour and all the other good things that bear the Globe "A-1" mark.

San Francisco Los Angeles
Sacramento San Diego
Colton Ogden

Judge them on business principles

Same Stock-but Better Results

There are two ways to get more from your live stock. One is to increase the NUMBER of animals. The other—the better way—is to make each animal YOU NOW OWN do better. The latter is the safer, the more profitable method. It is "intensive cultivation" applied to live stock.

Pratts Animal Regulator

is compounded for one purpose—to make poor stock good—to make good stock better. And for nearly fifty years "Pratts," America's original stock tonic and conditioner, has been doing this work—doing it WELL.

Pratts Animal Regulator is a real builder and preserver of health and strength. It helps to put live stock in such perfect physical condition that best results are SURE to follow.

FOR—Greater strength and endurance from your work animals—
Increased flow of milk from your cows—
Healthy, vigorous young from your breeding stock—
Rapid and healthy growth from your young stock—

USE PRATTS ANIMAL REGULATOR

Our Money-Back Guarantee protects you

Pratts Dip and Disinfectant

is a big help, too. By killing disease germs and skin parasites, and by keeping stables and pens in sanitary condition, it protects the health and promotes the comfort of live stock. That means but one thing—better results—*bigger profits.*

"Your Money Back If YOU Are Not Satisfied"

See the Pratt dealer near you—at once. Insist upon getting "Pratts."

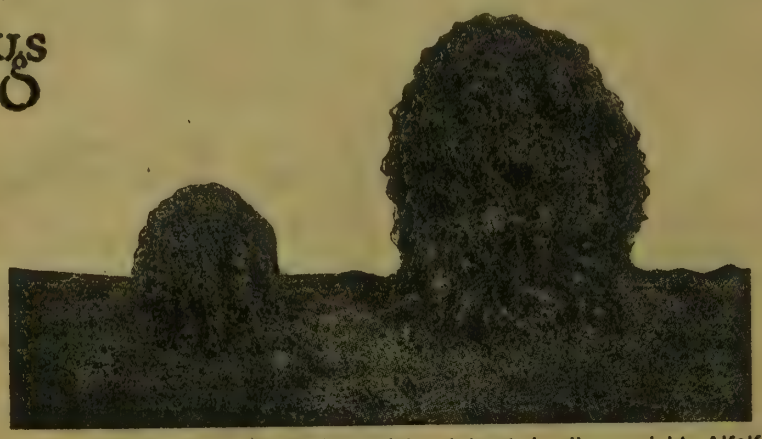
PRATT FOOD CO. Philadelphia Chicago Toronto

Makers of Pratts Poultry Regulator, Cow Tonic, Buttermilk Baby Chick Food, Stock and Poultry Remedies. AD-54

Pratts Reg. U.S. Pat. Off.

Turn Low Priced AGRI GYPSUM Into High Priced Crops

Hundreds of Farmers in California, the Northwest, and in other sections, have increased their crops from 50 to 1000 per cent. by the application of Gypsum. Figure it out for yourself. By increasing an alfalfa crop of three tons to the acre fifty per cent you increase the per acre value on a $25.00 a ton basis from $75.00 per acre to $112.50 per acre. But as a rule the average increase in alfalfa yield where AGRI GYPSUM is applied is around 400 per cent. On such a basis, twelve tons at $25.00 is $300.00 instead of three tons at $25.00 or $75.00, an increase of $225.00 per acre by the use of AGRI GYPSUM, at an expense so low that it amounts to practically nothing as compared to the profit derived. And AGRI GYPSUM need not be used every year. Usually an application of about 1000 pounds per acre will provide ample sulphur for any leguminous crop for two seasons. For citrus crops heavier applications of AGRI are recommended.



Pile on left shows Alfalfa from plot not treated; pile on right, Alfalfa from same size plot treated with 200 lbs. of gypsum to the acre. Photograph loaned by Professor Olson of the State Experiment Station of the State of Washington.

What AGRI GYPSUM Does:

Numerous authoritative tests have shown that AGRI GYPSUM has increased the yield of alfalfa from 50 to 1000 per cent. A California user of AGRI GYPSUM in Tulare County writes that "the benefits derived have been excellent in every case, and especially on the heavy foothill soils." He used 200 tons.

An Orange County user writes that the use of AGRI GYPSUM resulted in a large crop of oranges, a cover crop averaging an increase of from three to six tons per acre heavier, and a very noticeable benefit to the condition of the soil.

Chas. B. Lipman, University of California, Circular No. 111, says: "Gypsum may be used to a good advantage on alfalfa fields to stimulate the growth of the plants. This is especially to be remembered in connection with alfalfa fields of several years' standing in which bald spots or bare patches are found. An application of Gypsum in such cases will give striking stimulation to the plants and rejuvenate the field. Gypsum is a stimulant to the alfalfa plant itself and to the nitrogen gathering bacteria which grow in thenodules on its roots."

Other crops requiring large amounts of sulphur and which have shown remarkably increased production by the use of AGRI GYPSUM include beets, beans, peas, cabbage, vetch, melilotus, onions, potatoes, peppers, lawn grass, barley, grapes, berries and many others.

Alfalfa, beans, peas and practically all the great protein makers require much sulphur. Also they are great calcium lovers. AGRI GYPSUM is calcium sulphate. It is most easily and economically applied by using AGRI GYPSUM. If you do not use it you are not obtaining maximum results.

For the purpose of determining the amount of alkali in soils we will make a free chemical analysis, advising the correct amount of AGRI GYPSUM to apply.

New AGRI Booklet Just Out

Fill in this blank for a free copy.

United States Gypsum Co.,
904 Citizens Nat'l Bank Bldg.,
Los Angeles, Calif.

Gentlemen: Please send me a copy of your new booklet giving full information about "AGRI."

My Name .....

My Address .....

There are many places in California, Washington and Oregon where Gypsum will return twenty-five to fifty times its cost when applied to alfalfa. You owe it to yourself to investigate. Run tests on a small area **this year** to see what effect AGRI GYPSUM will have upon **your soil.**

Dr. R. R. Snowden, one of the foremost authorities in California on soils and fertilizers, says: "The agricultural world is experiencing a vivid awakening to the need of sulphur in many if not most soils. Some crops such as the legumes and the mustard family require more sulphur than others, yet all must have it. Gypsum is therefore a most important fertilizer for its sulphur content as well as for its lime and its beneficial effects in a number of other respects. By neutralizing black alkali it is useful in reclaiming alkali land, often rendering it productive where nothing would grow before and raising the surface to the normal level."

You can tell any field where AGRI GYPSUM has been used. The plant growth tells the story. Many recent experiments by recognized authorities show almost amazing increases in crop production.

Considering costs of nitrates, phosphates and other crop producing elements, you can save money by alternating fertilizer with AGRI GYPSUM and obtain equally good, if not better, results at a saving to you and benefit to your land.

Gypsum contains two of ten essential elements for plant nutrition,—calcium and sulphur, and also serves to release other elements. It is not new. It was introduced in Europe in 1768. Benjamin Franklin was the first to advocate its use in America, and soil experts everywhere advocate its use in the production of the principal crops.

Ask your Dealer for AGRI GYPSUM and you will be sure of the product ground fine to do the most good with the least amount used. If your Dealer cannot supply you, write

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Agri GYPSUM

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — March 19, 1921 — No. 12

Planning and Planting a Vineyard---Planting

By Fred K. Howard

ALL of the matters leading up to the planting of the vineyard have been quite fully discussed by the writer in previous issues of the Cultivator, and it is presumed that the prospective grower who has followed this series has given the different matters presented very serious consideration and is consequently in a position to properly plant the land which he has prepared to the desired varieties.

One of the most important matters to consider before the planting is actually started is the location of avenues. This is equally important regardless of the kind of grapes planted. It is necessary to haul picking boxes in to the pickers and haul the fruit out when growing table grapes, and it is equally necessary to handle the trays and sweat boxes if raisins are grown.

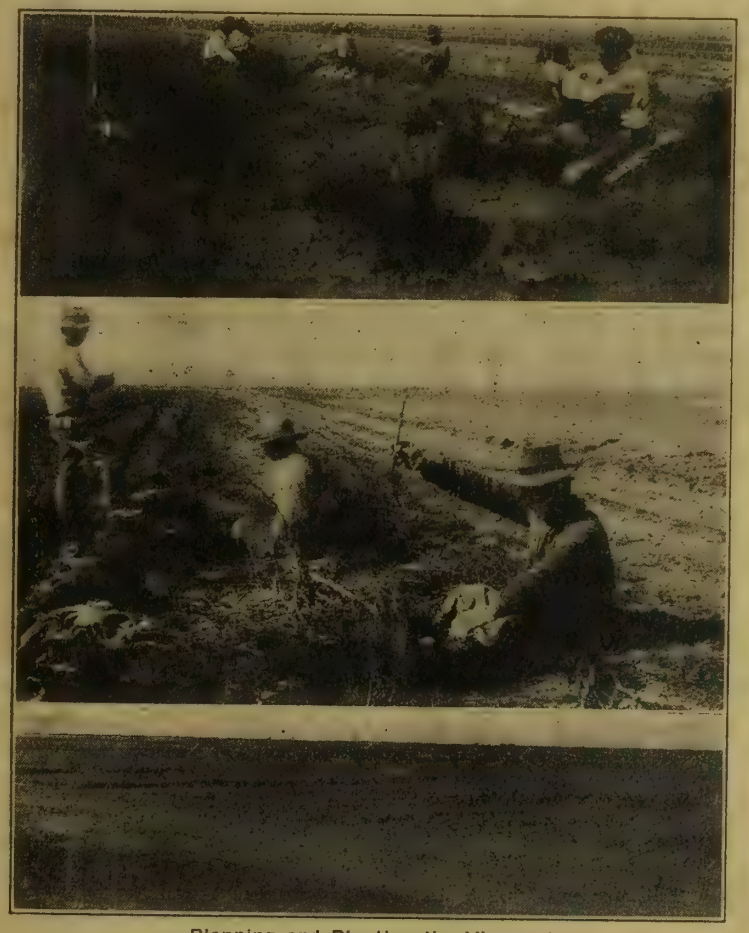
The number of avenues necessary depends somewhat on the size and arrangement of the vineyard, but it may safely be said that the blocks should in no case be larger than ten acres. Five acre blocks may be desirable in some cases.

After the general arrangement has been decided upon and the location of the irrigation ditches determined, the actual laying out of the vineyard should be done. But here we arrive at still another very important problem, that of the proper distance to plant. For the raisin varieties the wide rows should as a rule run east and west to permit more rapid drying. This is particularly essential with the raisin Muscat. This is a late ripening variety and must have every advantage or the drying may be delayed until the early rains begin. Like arguments may be made in the planting of the Thompson Seedless. It is possible that the lay of the land is such that the proper fall for irrigation water cannot be obtained either to the east or west, and with the trellised varieties like the Thompson or the Sultana it is very difficult or practically impossible to irrigate crosswise. In such cases it may be permissible to run the rows north and south. It is probably far better to have the rows this way and be able to irrigate and secure a profitable crop every year, risking the danger of loss by slow drying, than it would to have east and west rows with ideal drying conditions and be unable to apply sufficient water to produce crops.

In late years the tendency has been to give the vines more room, and the usual planting distance for the Thompson and the Sultana has been either seven or eight by twelve. In some districts plantings have been made as close as four feet apart in the rows, the idea of the grower in these cases being that when the vines got so large that they were crowding he could remove every other one. By this method it is figured that the early returns from the vineyard will be considerably greater than when planted in the usual manner. The problem with this method, however, is whether the grower will have the nerve to remove half of his vines early enough to prevent crowding.

The table grapes may be planted on the square system or with avenues. Some of the common distances in use during the past few years have been ten by ten, nine by nine, and eight by ten. Here again it is possible, and perhaps desirable, to plant twice as many in the row to secure larger crops during the early life of the vineyard.

When the general plan of the vineyard and the distance between vines has been finally decided, the next step is to lay out the vineyard, and it is probably best that a surveyor or someone competent to do the work correctly be employed for this purpose. It must be remembered that a vineyard properly cared for will produce fruit in paying quantities for a lifetime, and any errors in the planning and execution of the plan will come back more forcibly every year. The old slogan, "Be sure you are right, then go ahead," should be in force at this time by all means. Have the surveyor locate the base line and set stakes indicating the position of each row. Then run another row of stakes down the other side of the block or as far away as your planting line will reach and parallel to the base line. When this has been carefully done you are about ready to plant the vines.



Planning and Planting the Vineyard

Upper picture shows men at work pruning the young vines before planting. Center: Rooted vines properly pruned and ready for planting. Lower: This vineyard just planted. Note how straight the rows run.—Photos by Fred K. Howard.

The Planting Line

One of the greatest labor savers in vineyard planting is the use of the planting line. Perhaps the best material for this purpose is an ordinary twisted wire clothes line. At intervals along this line a button of solder should be placed to indicate where the vine is to be planted. If the vines are to be planted eight feet apart in the row then these buttons should be exactly eight feet apart. Some planters use a piece of red cloth clamped down between the strands of the line instead of the button of solder.

On each end of the line a stout iron ring should be soldered and some long iron stakes for the proper anchoring of the ends provided. When ready for planting this wire is stretched between the stakes, indicating the position of the rows, and firmly anchored, making sure that clods of dirt are not forcing any part of the wire out of line.

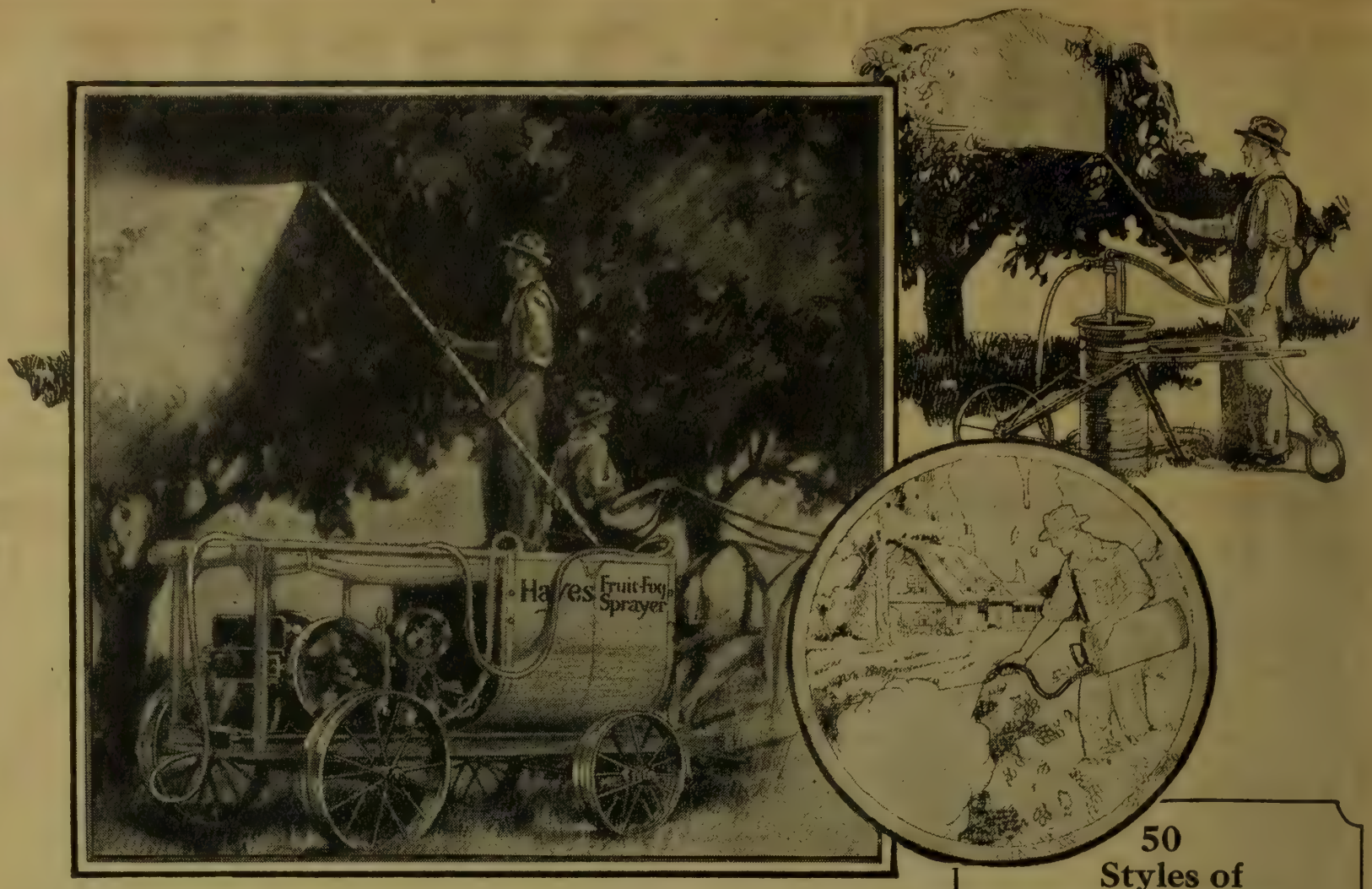
Preparation of the Rootings

Before planting it is advisable that the rooted vines be pruned properly. This means that all of the top should be removed except about two buds on the strongest growing shoot, and all of the roots except those growing from the bottom node. Even these roots should be shortened to four inches or less, and all of the roots which are crowding or have a tendency to twist should be pruned out. When this has been done the vines are ready to plant. It must be remembered at all times that these plants are very tender and should not be left exposed for any length of time. When taking the rootings into the field for planting they should be protected with wet burlap or be carried in a bucket with the roots covered with water.

Plant With a Shovel

The old practice of planting with a bar should not be used. While it is true that hundreds of acres of vineyard have been planted in this manner it cannot be said that they have

(Continued on Page 386.)



Are Farm Pests Costing YOU Fortunes?

For years government experts have said, "Kill the millions of destructive pests and fortunes will be added to farm profits each year."

Today thousands of farmers and fruit growers offer enthusiastic proof that the terrific losses from life-sapping, profit-stealing pests *can be prevented* by Fruit-Fog, the vaporous, high-pressure superspray.

Farmers and fruit growers ought to send the coupon and learn all about famous Fruit-Fog spraying. Learn why, for example, *only* a vapory fog-like spray can penetrate into the microscopic niches in bark, buds and foliage—where millions of tiny UNSEEN pests hide—and where no coarse, heavy, low pressure spray can possibly reach.

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Please send FREE and without obligation your Big New Book of Hayes Sprayers and your Valuable Spraying Guide.

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Other uses.....

Name .....

P. O.....

State.....R. F. D.....

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Distributes Hayes Power Sprayers, Engines and Repairs. Therefore Hayes users are within 24 hours of a service station at all times. In case of accident at a critical time this quick service may save your fruit crop. Hayes Hand Sprayers are distributed by hardware, implement and seed jobbers.

HAYES

FRUIT-FOG SPRAYERS

(84)

California Cultivator

Vol. LVI, No. 12 Los Angeles, March 19, 1921 One Dollar Yearly

More Than the Traffic Will Bear

A THOROUGHLY established principle of transportation —at least in California—as expressed by a pioneer Californian, is "All the traffic will bear." That principle has been established by years of actual practice. Now comes an "advance" step and "More than the traffic will bear" seems to be today's slogan. At least the railways, with the consent of the interstate commerce commission, are today making a rate on lemons which has caused an average loss on every box shipped from California during the past year of $1, yet railways refuse to consider the seriousness of the situation and give only "emergency relief."

Oranges are likewise in the hole, and an effort is being made to have the rate reduced from $1.92 to at least $1.25 per box, the lemon rate from $1.67 to $1.10. Formal announcement that the railways refuse to consider this has been received by the Exchange. President C. C. Teague gives expression to the seriousness of the situation in the following words:

By C. C. Teague

It is becoming more apparent each day that the advances of, first 25 per cent and then 33 1/3 per cent in the freight rates have put a burden on the heavy tonnage producing fresh fruit and vegetable business of the Pacific Coast that is more than the traffic can bear.

Because of the increased operating costs of the railroads, due to increases in cost of labor and materials, these advances were authorized to be put into effect by the interstate commerce commission.

Before that time railroad rates were built up on the basis of what the traffic could bear—it being recognized that to sustain the railroads a large tonnage of freight was necessary—and the policy of the railroad rate experts was to encourage heavy tonnage producing industries by establishing freight rates that would allow those industries to grow and expand so as to produce an ever increasing volume of freight.

Formerly rates were established that were low enough to encourage the planting of vast areas to citrus and deciduous fruit orchards and vegetables. These industries have grown tremendously until now they are the most important industries on the Pacific Coast and the general prosperity of California and the other Coast states will rise or fall with the prosperity of these industries. This will be recognized when it is understood that California's annual shipments aggregate 60,000 carloads of citrus fruits, 43,000 carloads of deciduous fruits and 50,000 carloads of vegetables and cantaloupes, and that a total of 205,000 cars of these commodities are shipped annually from the Pacific Coast.

It will be recognized that this business of 205,000 carloads is an important factor in the revenues of the western railroads. The present freight rates do not leave these industries sufficient returns to pay the expenses of production, and if the fresh fruit and vegetable business is to be maintained, these rates must be reduced. If the rates are not reduced this tonnage and revenue to the carriers will rapidly fall off, as producers cannot long operate at a loss.

Proper consideration was not given to the effect of these percentage increases on industries located so far from the great consuming markets of the East. Freight represents a much greater percentage of the selling value of these commodities than it does on commodities produced closer to those markets. Nor is there evidence of careful consideration, on the part of the carriers, of how much more serious these advances are to the producer, on a cost per acre basis, in the industries producing high tonnages per acre than in those producing low tonnage agricultural products.

The injustice and inequality of these advances since June, 1918, is illustrated by the fact that they amount to from $150 to $250 per acre to the orange, lemon and apple grower, while in the case of commodities producing low tonnages per acre, they aggregate only from $10 to $30 per acre.

The amount of these advances, capitalized at seven per cent, is equivalent to the placing of mortgages on the fresh fruit and vegetable producer of from $1,000 to $3,000 per acre, depending on the productiveness of his property. In other words, if the interstate commerce commission and the railroads allow these rates to stand, they will destroy a large part of the value of the fresh fruit properties of the Pacific Coast. The present selling value of these orchard and farm properties is not equal to the mortgage that, by reason of these advances in freight rates, has been put on them.

It is a well known fact that increased costs of labor or freight on perishable products, unlike manufactured products, cannot be added to the selling price and passed on to the consumer, as they are distributed in accordance with the law of supply and demand through a great many agencies in active competition with each other, a large proportion being sold at public auction. Consequently these increased freight charges must be absorbed by the producer.

It requires from eight to ten years to bring an orchard into bearing. It is, therefore, of greatest importance that these rates be immediately reduced before producers, through discouragement and inability to pay expenses, generally neglect or abandon their orchards.

The advances in freight rates, instead of producing more revenue, as they were intended to do, will eliminate tonnage. The effect will be the opposite of that intended. The diminished revenue will cripple the railroads to the extent that these industries are allowed to be crippled.

I have given a great deal of thought to the effect of these advanced freight rates upon these heavy tonnage producing industries and without a reduction of freight rates the condition of these industries to me seems absolutely hopeless.

The Top Working of Lemon Orchards

By C. S. Milliken

MANY lemon growers at the present time are considering the advisability of going out of the lemon business.

This past year has been unprofitable and the prospects for improved conditions are not as bright as one might wish. California is at present producing from her 33,000 acres of bearing lemon trees enough fruit to supply the United States even if no Sicilian lemons are imported. In addition to the 33,000 acres of bearing trees there are 17,000 acres of young trees which are not yet in bearing. Most of this young acreage has been planted in well chosen locations.

The marketing difficulties of this season look like simply the beginning of still greater difficulties ahead and it seems evident that some people are going out of the lemon business whether they wish to or not. The next few years will help to sort out the orchards which are producing a good tonnage at the right time of year from the poorly producing orchards and those which throw the bulk of their crop at a time of year when it is difficult to market it to advantage. If a grower is convinced that his orchard will fall in the latter group it is economy to cease lemon growing promptly rather than to wait and be forced out of business by a series of painful years.

The man who wishes to change his lemon orchard into another variety of citrus can either pull up the lemon trees and replant or he can top-work the lemons to the variety of orange or grapefruit desired. There are advantages and disadvantages in each of these methods of solving the problem. By replanting one has the decided advantage of being able to choose well grown trees budded from record parents. With a new start one can start right. A new start, however, means a loss of time because a bearing orchard can be secured much quicker by top-working the lemon orchard than by pulling up these trees, which it has taken several years to grow, and starting all over again. Record performance budwood can be used in top-working so that one can be as sure of obtaining the right strain by this method as by replanting.

It seems clear, however, after an examination of many orchards which were worked over from lemons to oranges in times past, that it is not desirable to try to top-work a lemon orchard unless the trees are in good healthy condition and unless the work can be done by competent men who understand the business.

There are many productive orange groves today which have lemon trunks; groves which were top-worked from lemons to Navels or Valencias 16 or 20 years ago. Some of these groves have averaged from seven to ten field boxes per tree for several years past, and these orchards are good in appearance; they are healthy and productive.

Nevertheless, there are many orchards of this kind which have gone backward and are at present in poor condition. These are more numerous in some districts than in others. In the foothill districts results have been better than on the lower ground. In general, orange trees with lemon trunks withstand adverse climatic conditions less well than orange trees on their own trunks. For this reason it seems to the writer better to replant a young lemon orchard than to top-work it. If the lemon trees are, on the other hand, several years old, are healthy trees and well located, the experience of the past shows that they can be top-worked to oranges with the assurance of obtaining a good orchard.

The budding can be done at any time when the bark separates easily from the wood; when the bark is "slipping." Most of the budding of this kind is done in the spring and early summer; some of it in the fall. It is already in progress this season, having been begun in some districts about the middle of March.

One of two methods is followed. The buds are inserted either into the old bark or else the trees are cut back, sprouts allowed to grow and the buds are placed under the new bark of the sprouts.

In the first method the first step is the pruning out of the tree around the main branches so that the budder can have working room. Usually the buds are placed in the main limbs a foot or so from the point where these leave the trunk. Of necessity they are placed on convex portions of the limb, usually near the under side, because in the hollows and on the inside of the limb the bark does not slip freely. It is desirable in cutting the bud from the bud stick to cut a long shield and then after the bud is placed to wrap it tightly so that it will be held firmly in contact with the cambium layer of the tree.

No step in the technique of top-working old trees is so important as tight wrapping. In budding nursery stock the bark is thin and pliable and offers little resistance when wrapped, but in old trees the thick bark is springy and unless care is exercised the inserted bud will rest so loosely

(Continued on Page 386.)

Agricultural News Notes of the Pacific Coast

Northern California

Alturas County is making heavy shipments of cattle to San Francisco.

Bee keepers of Butte County are urging appointment of a county bee inspector.

The acreage planted to olives in this state has been doubled within the past ten years.

Many of the melons grown near Orland, Glenn County, are marketed in Portland, Oregon.

Carload shipments of eggs to New York are going forward daily from the Petaluma district.

Dairymen of Butte County are considering organization of a cow testing unit in the farm bureau.

Center meetings of the Tehama County farm bureau will be held at Los Molinos, March 28; Liberal, 29; Bowman, 31.

Turkey shipments are still being made to San Fracisco and Los Angeles markets from the Willows district of Glenn County.

The marketing department of the Plumas County farm bureau has purchased a large amount of sulphur for the use of members.

Butte County home demonstration meetings will be held at Gridley Colony, March 19, morning; Rio Bonito, March 19, afternoon.

Rice growers at Biggs, Butte County, say that they will plant practically the same acreage this year as last in spite of the discouraging year.

A general meeting of those interested in the formation of an organization of producers of dehydrated fruits was held in San Francisco on March 8.

March meetings of the Glenn County farm bureau will be held at Larkin, 25; board of directors meeting at Willows, 26; Elk Grove, 28; Grapevine, 30.

Antioch, Contra Costa County, shipped out its first carload of asparagus the last week of February. That section expects to ship this season about 125 cars.

Strawberry plant growers of Castella, Shasta County, have formed an organization. Most of the plants are sold to growers in the Watsonville section.

Antioch, Contra Costa County, expects to ship 125 carloads of asparagus this season. Shipments of asparagus from the state in 1920 totaled 490 cars.

The Modoc development board is asking that several road units in Alturas County be made state roads so as to make available state and federal funds.

A class of 60 candidates has just been initiated into the Sebastopol grange. During the drive conducted by the grange for new members 150 have been secured. The membership now is 225.

Dr. H. S. Fawcett and D. Camp of the citrus experiment station at Riverside have been carrying on citrus blast investigations during the past month in the R. P. McCune orange grove at Wyandotte.

A farm center has been organized at Hagginwood, Sacramento County, with H. G. Baugh as president; W. E. Van Guilder, vice-president; N. H. Robotham, secretary; Charles L. Gilmore, J. D. Wheat, Mrs. C. Hodges and Carl Brusso, membership committee.

Central California

The proposed merger of the Danish Creamery with the San Joaquin Valley Milk Producers is off.

One hundred and forty carloads of olives have already been shipped from Lindsay, Tulare County.

The Tulare County Cattlemen's Association held its annual meeting in Porterville, February 26.

The Stanislaus County Fair Association has decided that it would be impracticable to hold a fair this year.

The world's largest raisin pie has been made by the California Associated Raisin Company for exhibit purposes.

Grain growers of the Corcoran section of Kings County recently met to consider cost of erecting grain elevator at that point.

Reorganization of the San Joaquin Valley Milk Producers officially became effective March 1. Ed H. Webster is general manager.

The Peach and Fig Growers Association is planning to extend use of those fruits through cooking schools in many sections of the country.

The Stanislaus Growers Association has elected officers for the coming year: N. S. Amerine, president; G. N. Pfarr, secretary-treasurer.

The Madera County Fair and Livestock Association and the Merced County Breeders Association are outlining a plan for uniting in a district fair.

Two new plants of the San Joaquin Valley Milk Producers were opened March 1; one at Caruthers in Fresno County, the others at Madera in Madera County.

Assistant Manager Dezell of the California Fruit Growers declares that approximately 4000 carloads of lemons may be shipped via the Panama Canal the coming year.

Rice growers of the San Joaquin Valley met at Claus in Stanislaus County, March 2, and formed an association. Frank Hart of Claus was elected temporary president.

Immediate erection of a grain elevator at Ducor, Tulare County, is planned by the elevator division of the state farm bureau. Later it is hoped to locate two others in the county.

Farm home department meetings in Kern County will be held at Shafter, March 21; Weed Patch, 22; Rio Bravo, 23; Inyo-Kern, 25; Kern Delta, 29; Wasco, 31; Edison-Fairfax, April 1.

Reorganization of the Stanislaus County Purebred Holstein Calf Club with 50 members is planned by a committee of the Stanislaus County Holstein Breeders Association and Assistant County Agent McCallum.

A mass meeting of orange growers of the Lindsay district was held recently, attended by over 750 growers. A committee of ten was appointed to formulate some definite plan for organization and to secure affiliation of other growers of the valley.

Wage reductions for sheepherders and shearing work have been announced by the San Joaquin Valley unit of the California Woolgrowers Association. The maximum monthly wage for sheepherders is $70 as against $90 paid last season. The price for shearing has been placed at 10 cents per head for hand shearing, and 13 cents for spring shearing.

Southern California

Covina is organizing a cooperative fumigation association.

Ontario is testing out the basket shipping plan with oranges.

Farm bureaus of the southern part of the state are discussing a decrease of 25 per cent in wage scale.

Arrests of truck drivers are being made in Ventura County for driving overloads on the highways.

Imperial Valley growers of grapefruit are said to be receiving a net price this year of $2.25 per box.

The Escondido Fruit Growers Association is sending out carload shipments of oranges to Eastern points.

Owners of trees in Victor Valley in which mistletoe is growing are urged to cut it all out before leaves open.

The onion acreage of the Coachella is practically cut in half over last year's planting, according to estimates of some growers.

Orange County citrus people are discussing cooperative ownership of ships to carry orchard products to Eastern seaboard.

Citrus growers of Orange County are appealing for pre-cooling plant at Newport. This in order to encourage ocean going shipments of fruit from that port.

The Arlington Heights Citrus Association of Riverside County last week shipped by water one car of lemons to Boston, one to Charleston, one to London.

A carload of oranges in bushel containers was sent to Denver recently. There were 500 baskets in the lot, it is estimated, at a saving of 25 to 30 cents a box.

Water shipments of vegetables are being made to New York from the port of Los Angeles at the rate of 65 cents per hundred as compared with the rail rate of $1.66½.

The dam at Lake Hemet is to be raised ten feet The proposition is also being considered of diverting to the lake the waters of Strawberry Creek and raising the dam another 15 feet.

Twenty-six hundred carloads of lettuce is the present estimate of shipments from Imperial Valley. Except for the heavy increase in freight rates there would have been something over 3000.

In the Riverside County Cow Testing Association's work for February 387 cows were tested. The high honor winner for the association was a Holstein owned by N. L. Browning of Hemet, which produced 74.04 pounds fat.

The citrus by-products plant at Corona is saving money for lemon and orange growers in the manufacture of citric acid and other high priced materials from cull oranges and lemons. At present it has a problem in disposal of large amount of waste waters.

Assessor Hopkins of Los Angeles County has announced that there will be a material reduction in valuation of lemon trees in the tax assessment of 1921-22. Orange County will likewise make reduction of 25 per cent. There was an increase last year of 100 per cent. In that county valuations have been running from $350 to $500 per acre. San Bernardino County valuations have been around $250 and are now to be cut to $150.

The Coast and General

Yuma County, Arizona, sold $600,000 worth of its highway bonds on March 4.

Marion County, Oregon, will spend this year $600,000 in improvement of roads.

American corn is being sold in Chihuahua, Mexico, for the first time in five or six years.

The Lewis County (Washington) farm bureau tested 1738 cows for tuberculosis during 1920.

The Cherry Growers Union of The Dalles, Oregon, is planning to build a warehouse and storage house.

Warmer weather and slow soaking rains in Southern Arizona have improved conditions on the ranges.

Because of lack of rains on ranges of western New Mexico cattle are overgrazing the lands near water holes.

The Pomona grange of Douglas County, Oregon, has elected F. A. Goff, Melrose, master; C. H. Bailey, South Creek, secretary.

Banks of Klamath County, Oregon, have agreed to finance buyers of purebred stock at the second annual sale of the Klamath County farm bureau.

Flying time from San Diego to Jacksonville, Florida, 22 hours, 32 minutes. This record was made by Lieutenant Coney in continuous flight 2,090 miles from Pacific to Atlantic.

Fruit growers of the Wenatchee Vallay of Washington are making whirlwind campaign to contract 4000 carloads of the 1921 crop in a new cooperative marketing association.

The Clatsop County Fruit Growers Association was recently organized at Astoria, Oregon. J. S. Dellinger of Astoria was chosen president and W. E. Schimpff, Clatsop, secretary.

The Idaho and Washington Wheat Growers Association has undertaken to sign up 25 per cent of the 1921 crop of Idaho, Oregon and Washington in the National Association of Wheat Growers.

Unseasonably warm weather in the plateau region of Arizona has started growth, and fears are entertained that fruit trees in the valley sections of the north will be started sufficiently to be injured by late frosts which are almost certain to come.

In view of the reduced acreage of long staple cotton in Arizona for the season of 1921, and the extreme care in selecting seed from last year's crop, it is believed that there will be a sufficient amount of pure seed from high producing fields to plant the entire crop from selected seed.

A new policy of assessing the grazing fees on national forests has been announced, which it is expected will be more equitable than the present system. The new plan will endeavor to guard against overcharging stockmen and at the same time protect the rights of the government.

A representative of the United States immigration department has been sent to the Salt River Valley of Arizona to inspect the living conditions of Mexicans brought from Old Mexico for cotton picking. Although no official report has been made, it seems certain that the general condition of cotton picking families had been reported to the department as far more serious than the actual facts would warrant.

The Use of Gas Tight Fumigation Covers

By H. J. Quayle and Hugh Knight

ANY discussion of gas tight fumigation covers is not new; it is as old as the fumigation process itself. The importance of having a cover that would hold more of the gas has been appreciated from the beginning, but all attempts to make practical gas tight covers have heretofore failed and their use has been discouraged rather than otherwise. Possibly we are not much farther along today, but the division of entomology of the citrus experiment station proposes to stay with the matter long enough to find out just what can or cannot be done in respect to the use of gas tight tents. It is not consistent with American ingenuity or resourcefulness in productive capacity not to meet the needs of urgent demand, and the chief reason for presenting this discussion at this time is to create the demand, particularly as based upon statements of more than a year's experience in the field with a gas tight cover.

To hold a definite amount of gas for a definite period of time is the very basis of the whole fumigation problem; it is the fundamental requirement of any sound fumigation procedure, and it can be met only by the use of gas tight covers. Standardization of fumigation is impossible so long as wholesale and variable leakage of gas occurs through the tent. With our present tents more than half of the charge given to a tree is, in effect, shot into the air to no purpose whatsoever so far as the results are concerned. If the amount of leakage were constant, even though it be large, more uniform results would follow, but the escape of gas through the tent is as variable as the weather itself. The securing of better and more uniform results on the scales, at the same time insuring greater safety to the tree, represents the greatest improvements possible in fumigation practice, and our results indicate that such improvements are effected by the gas tight tent system.

Field Tests

The senior author has been more or less actively engaged in work on gas tight tents since 1914. The first tents used consisted of the ordinary canvas treated with various substances as well as especially constructed fabrics. Since 1919 gas tight fumigation tents have constituted one of our major problems. Through the courtesy and interest of Sergeant E. R. Boland of the Arcadia Balloon School we have had the privilege of using a gas tight tent at various places in the field during the past year. The use of this tent has made it possible to determine just what may be expected from gas tight tents, and, even if the system should meet with practical commercial difficulties, the work has justified itself in the information secured bearing upon the general fumigation problem through the elimination of the variable factor of leakage.

With the use of gas tight covers the dosage for small trees may be reduced two-thirds, for average sized trees one-half, and for large trees one-fourth, making an average for all trees of a reduction of about 50 per cent of the schedules now in use. Moreover, with this reduction in dosage the period of exposure may also be reduced to about 30 minutes to effect the same—or better—results as are now secured with canvas tents. The dosage may be increased and the time decreased, or vice versa, within certain limits without affecting the result. In other words, the percent of dosage multiplied by the time gives a constant the use of which has enabled us to better standardize fumigation work. For example a 50 per cent dosage multiplied by the time, 30 minutes, gives a constant of 1500. And so long as this constant is maintained like results are secured. For practical purposes we have found that the minimum dosage, except for very small trees, is a 33 1-3 per cent dosage, while the minimum time is 15 minutes. That is, much less than a 33 1-3 per cent dosage does not give a killing concentration of the gas and 15 minutes is as short a time as a practical maximum dosage (100 to 200 per cent) may be held. A 50 per cent dosage for 30 minutes, giving a constant of 1500, or a 33 1-3 per cent dosage for 45 minutes, giving the same constant, 150, will give similar results. See other variations in the table below.

This table shows different dosages and exposures which when multiplied together give the same constant; and so long as the constant is the same the same fumigation results may be expected with gas tight covers:

Dosage Pct.	Exposure Minutes	Constant
33 1-3	45	1500
50	30	1500
100	15	1500
33 1-3	90	3000
50	60	3000
60	50	3000
200	15	3000
100	50	5000

The last line in the table, 100 per cent dosage for 50 minutes, giving a constant of 5000, represents what now takes place with canvas tents. But most of the gas has escaped through the tent long before the end of the 50-minute period so that the 5000 constant doesn't mean much. However, when the tents become damp or wet and practically gas tight we have a constant that is entirely too high for safety, and thus certain cases of injury are accounted for.

For ordinary fumigation work in most localities the work thus far indicates that a constant of about 1500 is about right But one of the purposes in resorting to a gas tight tent was to see if we could not secure satisfactory results on the resistant red scale at Corona and on the resistant black scale at Charter Oak. Under such conditions it has been found necessary to raise the constant to 3000 and at this point the scales can be satisfactorily killed. The work in Orange County recently has shown that good results on the black scale in nearly all stages can be effected with a constant of 1500, that is, 50 per cent dosage for 30 minutes. In one of the groves in Orange County black scale were abundant in all stages, many in the egg stage even on the fruit. When we need a constant of 2000, that is, a 50 per cent dosage for 40 minutes, or any higher constant, there has been practically a complete kill of all stages. So satisfactory has been the kill there even in the egg stage that a competent observer has stated that without reinfestation from adjoining trees the grove would go two years before fumigation would be again necessary. A 100 per cent kill has been secured on the red scale at Corona (constant 3000), and such a kill is known to be very rare in that territory.

The writers wish to acknowledge the generous assistance given by G. B. Winner of the American Cyanamid Company during a portion of the season's work.

Practical Considerations

It is fully realized that the most important question to be met in any work leading to the general adoption of a gas tight tent system of fumigation is the production of a tent that will meet all the requirements for commercial work. Our own work during the past year has been largely with a tent made especially for us through the kindness of Mr. Boland. This tent consists of balloon cloth, which, on account of its expense, can scarcely be expected to be adopted for general work, but otherwise it has been quite satisfactory. We have interested several companies in the production of gas tight tents. For the past couple of months we have been using a cover in the field made by the Goodyear Tire and Rubber Company of Los Angeles. This is a rubberized cloth that gives considerable promise, and we have confidence that this tent or some modification of it will be produced by such a company that will prove to be commercially satisfactory. Great credit is due to George Hockensmith, manager factory aeronautics of the above company, for his active cooperation and the persistence of his efforts toward the production of a satisfactory gas tight cover. We have also been able recently, through the courtesy of the Standard Textiles Company, to make tests in the field with another type of tent.

When a practical gas tight tent is produced its cost will necessarily be higher than that of canvas tents. At present the average cost of the hydrocyanic acid per tree is about 20 cents. If gas tight covers save one-half of the gas the saving will amount to 10 cents per tree; and if there are 800 trees covered in a season by each cover (8 trees per night for 100 nights) the saving in cost of hydrocyanic acid will be $80 a season for each tent in use. Under such a system the cover charge will need to be increased. But there is no object in advocating a reduction in the cost here and an increase there, were it not for the great superiority of gas tight tents and the belief that eventually there will be a reduction in cost to the grower. Gas tight tents may be somewhat heavier, so that the labor cost of pulling the tents may be higher. However, the tight tent that already looks good is practically the same weight as an eight ounce United States army tent. With the use of gas tight tents it is most important that the tents be well kicked in and made to lie in close contact with the ground.

There has been some discussion about the increased danger to operators with the use of gas tight covers. It is true that there is more gas under the tent when it is removed from the tree; but what is the purpose of fumigation? It does not involve the use of a cover that will allow the greatest escape of gas. On the other hand one of the dangers at present is that the man operating the atomizer is obliged to breathe the gas that escapes through the canvas. With gas tight covers the generator is safe and he can stay close by the tent long enough

(Continued on Page 384.)

Distance Around, in Feet

Distance Over, in Feet	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	Distance Over, in Feet
10	1	1	2	2	2																														10
12	1	2	2	2	2	3	3																												12
14	2	2	2	2	3	3	3	3																											14
16	2	2	2	3	3	3	3	3	4	4																									16
18	2	2	3	3	3	3	4	4	4	4	5	5	5																						18
20					3	4	4	4	5	5	5	6	6	6	7	7																			20
22					4	4	4	5	5	6	6	7	7	7	7	8	8	9																	22
24						4	5	5	5	6	6	7	7	8	8	9	10	10																	24
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36												12	13	14	15	17	18	19	20	21	22	23	24	25	26	27	28	29							36
38													14	15	17	18	19	21	22	23	24	26	27	27	28	30	31	32							38
40															20	21	23	22	24	25	26	27	28	29	30	32	33	34	36	37					40
42																23	24	24	26	27	27	28	29	30	32	33	35	37	38	40	42				42
44																			29	30	31	31	33	34	35	37	38	40	42	43	45				44
46																			31	32	34	35	36	38	39	41	43	44	46	47	48				46
48																			33	34	35	36	38	39	40	41	43	45	46	48	49	50	51		48
50																			35	37	38	39	41	42	43	45	46	48	49	50	52	53	54		50
52																						43	44	45	46	48	49	50	52	53	54	56	58		52
54																							46	47	49	50	52	53	54	56	58	60	62		54
56																								51	52	54	55	56	58	60	62	64	66		56
58																								55	56	57	58	60	62	64	66	68	70		58

Prof. Quayle's Volumetric (V) Schedule for Gas Tight Tents

Unit equals 10 cubic centimeters. Exposure 30 minutes equals 1500 constant which equals 100 per cent. 640-650 cubic centimeters equals 1 lb. H. C. N. 64-65 units equals 1 lb. H. C. N.

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard, J. W. Mills, Fred M. Reed, G. E. Gordon, A. R. Gould, D. F. Reichard, J. B. Neff, Louis B. Stanton, M. E. Bemis, E. L. Koethen

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Saturday March 19, 1921

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EDITORIALETTES

The cover this week is given over to a most intensely practical suggestion, or several of them, as to method of planning and planting a vineyard. California has shipped thousands of cars of grapes every year for many years, and it has even been suggested that we have reached the limit of consumption. But still the cry is for more, and last season's output was handled at satisfactory prices. Plant grapes and then more grapes, but let them be of the table or raisin varieties best adapted to the section.

* * *

When one comes in from a hard day behind the plow or cultivator there is real rest in looking at some of the exquisite photographs of California's waterfalls or shady nooks. The waterfalls will be at their best this summer, especially in the early part of the season. Plan a trip to the mountains, and it is none too early to do the planning.

* * *

Here is the opening section of Assembly Bill 148:

"It shall be unlawful for any bank, trust company, corporation or individual other than one duly admitted to practice as an attorney at law under the laws of the state of California, to engage in the practice of law or to render or give any service or advice or information concerning any matter of law, or in connection with the making or preparation of wills, trusts or the probating or distribution of estates of deceased persons, or in connection with estates of minors, incompetents or insane persons, or making of deeds, grants or contracts in connection with the making of wills, trusts or grants of real estate for any compensation or consideration." In other words, California shall hereafter be of the lawyers, by the lawyers and for the lawyers. In addition there is Senate Bill No. 21, which makes it a misdemeanor for "any person not licensed as an attorney * * * to render or furnish legal advice or services or in any manner to assume to be entitled to practice law, etc." The senate bill may possibly have some redeeming feature in that it might lessen the number of pettifoggers who are endeavoring to befuddle our courts, but, as worded, the bill would practically prevent a neighbor from informing another as to the plainest facts of law.

* * *

Last spring we went to a goat dairy upon the hillside in La Crescenta owned by J. B. McLaughlin and afterwards referred to the wonderful short time performance of the tiny dairy animals, especially to the production of Rosemont's Polly-Mac. Her maximum was 15.4 pounds milk for 24 hours or 452.6 pounds in one month. She was at that time starting on her annual official test and we suggested possibilities of her equaling the great production of California Gretel who produced 2,941.5 pounds milk in 365 days at the university farm. Now comes a letter from Mr. McLaughlin, from which we will quote more largely next week, but at least as a hint: "On the 18th day of February, 1921, Rosemont's Polly-Mac, No. 1263, A. M. G. R. A., completed her 12 months' test under the official supervision of U. C., making a record of 4,350 pounds of milk, thereby excelling California Gretel's record by more than 1,400 pounds." The possibility of writing sentences like that means more to the goat dairy industry than all the phrases filled with praise which we could write.

* * *

IT RAINED

A forty-eight hour rain has saved the day. It began Saturday and continued until Monday morning. This time it favored somewhat the southern end of the state. Heretofore this season the North has been given by far the greatest precipitation. In various southern sections the storm resulted in a precipitation of from somewhat less than an inch to 4.3, most sections, however, running around two inches. In northern sections the total precipitation was from one to two inches, but this on top of the former heavy rains makes for a magnificent season.

THE TRAGEDY OF THE LEMON

The losses suffered by the wheat grower of the East and the Middle West, the disaster confronting the wool and mutton producer of the range country, even the economic conditions confronting the cotton and rice growers of the South and Southwest do not compare with the tragedy of the lemon.

For six or eight years the grower has been living on the savings of other days and bringing into bearing a lemon orchard. Each year has brought him that much closer to an independence and to return for his long waiting and hard work—and instead of return he faces ruin.

The worst of it is that while the livestock producer, the cotton, the rice grower and other producers of food staples realize that they may have an opportunity in the future to recover, the lemon grower, on the other hand, at the present moment is faced by a situation that could hardly be darker.

The Upland Lemon Growers Association members express it in this way:

"Do you realize that we have 20,000 acres more lemon trees planted in California than is needed to supply all the fresh lemons consumed in the United States, and that unless we find some other market besides the fresh lemon market we must pull out, bud over, or destroy at least that amount of our lemon groves? Twenty thousand acres of lemon trees means seven or eight years of the business career of the three or four thousand owners thereof. It means the loss of $50,000,000, including, in a great many cases, the savings of a life time."

But the members are not entirely hopeless, for while they look at the failure of the effort made to secure recognition of the industry by the national congress and the administration, they still feel the new administration and congress may realize the situation and afford relief, this not simply through protection by tariff on the fruit but also on such by-products as citric acid and oil. Quoting again a letter from the association, "disaster can be avoided by the levying of an adequate protective tariff on lemon products, meaning citric acid and lemon oil. Is there any reason why the duty on the manufactured products of a ton of lemons should not be as great or greater than the tariff on a ton of fresh lemons?"

Lemon growers are a plucky bunch, but they are rapidly approaching a situation where even pluck makes impossible longer existence of the industry unless some relief is secured.

MORE COOPERATION

The suggestion in the center of this page, written by Franklin K. Lane, is particularly pat at this moment. Genuine cooperation is not easy to secure on the part of all the people.

It appeals to us that it is especially to be desired at this moment. While California is still the greatest oil producing state of the Union warning is given that the time must come when our supply of oil must be reduced and we must look elsewhere for power and light. The only way we seem to be able to turn is toward the mountains. There is in them promise of abundance, but we must work to claim the promise. In other words, there must be more of reclamation, or storage and conservation. Thus far all agree. But how? And here we begin to scatter.

A plan has been suggested as to conservation and distribution, known as the Marshall plan, and because of this and other suggestions, a bill is presented to the state legislature calling for an appropriation to provide for investigation as to the state's water power possibilities. This is no sooner done than engineers gather, engineers who admit that they are much wiser and have not been consulted, and suggest that the Marshall plan is without merit. Likewise comes the geological survey with statement that it in no way endorses any plan for conserving water for use in California valleys or developing power for use on farm and in factory. But why this contention at the very inception of a great movement?

The big interests which have secured valuable privileges may be responsible for some of the effort now being made to discourage investigation. We hope not, but if they are, they should be assured by the mass of the people that their proper rights shall be protected and at the same time the proper rights of the people demanded.

It is possible, also, that too much personality is being injected into this effort at the development of the state. In the first place it is not a movement to honor or memorialize one man, for this reason is there not a possible error in making so much use of "Marshall?" There can be no plan big enough to meet California's needs which is simply one man's plan. It is an opportunity for cooperation of the biggest brains in our country. If any one of these men is more responsible than another for the great accomplishment for which we are hoping, our children's children will know it without any effort on our part to fix in advance the honor. If we must have catch words or rallying cry, let us combine on "California cooperation" or some similarly impersonal expression which may unite us all.

Note the last sentence in Mr. Lane's address, "Cooperation is the next big move in business affairs." And California is one big business affair.

Quoting again from Mr. Lane:

"Calling things by nice names, popular, alluring names, does not solve problems. Nevertheless, such names evidence our social dreams. We all feel there must be more of justice in the economic world, but we don't want it at the expense of society—that is at our own expense—for that means bolshevism, and bolshevism is paralysis.

"The basis of everything must be production and distribution of the economic necessities of our life. If the farmer was forced, for lack of a potato cellar, to use up his potato crop as he took it from the ground, we would have a feast at one time and famine at another."

HOLD YOUR BREATH UNDER WATER

Many of us in contemplating our immediate problems overlook the promises of the future. A slack time is always one of fear, never of confidence, and no great policies should be adopted in such an atmosphere. For the man who can afford to take the long view these are great days. He can take up now what others cannot carry. Better still, he can prepare for the demands of tomorrow. He can find more oil or develop more water power, if you please, and plan for their fuller uses. The same principle applies to everything.

Right now the call in national affairs is for vision. We have use for the men who can see this nation in its relation to other nations next year and next generation, and for men in business who can think in terms of 1922 and 1925 and 1945, as the power companies in California are now doing. That is what really big business can do—hold its breath under water.

The fault lies in the fact that we do not fully cooperate in the solution of our difficulties, and cooperation is the word of this century. We do not even know what the word means yet. We work together most imperfectly in things political, and we are only just beginning to feel our way into the realms of cooperation as far as social and industrial life are concerned.

So far, the only people who have done much in the way of substantial thinking as to cooperative action—collective action—are those who think in terms of immediate and large fortunes for themselves through capitalizing combined brains and money. Their example is a good one to follow where the object is not great wealth, but is a more even measure of good living for all the people—insurance is the right word for it, business life insurance—through honest cooperation. YOU MARK MY WORD THAT IS THE NEXT BIG MOVE IN BUSINESS AFFAIRS.—Franklin K. Lane.

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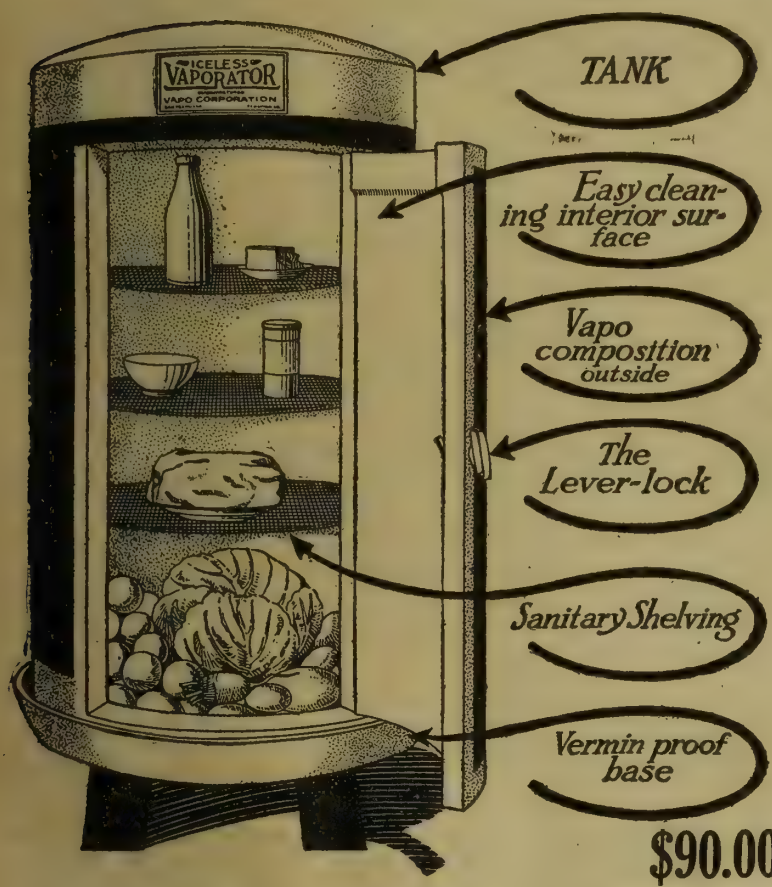

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Evaporation cools the outer wall, the air space between, the inner wall, and the contents of the food chamber within. No ice is required. No dirt or insects can enter. It lasts forever.

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Pears in Antelope Valley

Wild lands in the valley are generally covered with sages and other shrubs which must be uprooted and burned. A smoother is then run over the land to correct minor inequalities of grade, though the surface is practically level. Pears appear to thrive in a great variety of soils, but in this valley the best are the clay loams and the sandy loams free from alkali.

Until a few years ago none but Bartletts were planted but it was found that cross pollination brought increased yield and now many Winter Nelis are used for this purpose, planted every fourth, fifth or sixth row, according to whim of planter. The young trees are generally headed back at planting to 18 or 20 inches high. They are immediately irrigated and then whitewashed to prevent sunburn. The planting is generally done in January and February. Irrigations during summer are given from two to four weeks apart, depending on character of soil and weather conditions, and winter irrigation is practiced when rains are insufficient, for pear trees need a goodly and constant supply of soil moisture. At least one cultivation is given after each irrigation.

Barnyard manure is generally the only fertilizer used when a sufficient supply is available, but some commercial material is found necessary, especially on the older orchards. The manure is applied in the fall and the commercial in early spring. Pears in the Antelope Valley are not much troubled with insect pests or diseases. An occasional attack of blight is easily eliminated by an immediate pruning, and timely spraying removes the codlin moth if any is found. At present there are about 5000 acres in pears, 2000 of which are in full bearing, and it is expected the present spring planting will total 1,000 acres. During 1920 there were shipped 144 carloads, and prices received were very satisfactory.—E. B.

Pruning Pears at Palmdale

Horticultural Inspector Pegler demonstrating the long pruning method in a young orchard.

CHEMICAL WEED KILLERS

By A. Layman

The killing of weeds is something like getting rich; there seems to be no easy or royal road, at least not for the mass of us. We have heard of cases where application of arsenic solutions or of kerosene or of sulphate of copper or other poison substance "completely eradicated" morning glory or other pestiferous weed. The same remedy in the hands of others under different conditions failed dismally. Geo. P. Gray, chief of the division of chemistry of the California department of agriculture, has given much time and made thorough investigation of destruction of weeds by chemicals. These investigations were made largely while he was connected with the University of California, but he still has his eyes open for any new or improved method which may prove more successful. Mr. Gray is now making investigations in Imperial Valley.

Mr. Gray has called our attention to Senate Bill 273, introduced by Senator Inman. This bill proposes to regulate manufacture, sale and use of economic poisons and aims to prevent their adulteration, misbranding or misrepresentation when offered for sale to farmers.

From statistics collected by G. H. Hecke, director of the California department of agriculture, it is estimated that about $3,000,000 is spent each year in California in the purchase of chemicals for the control of insects, fungi, noxious weeds, and rodents, collectively known as economic poisons. This information was obtained when Director Hecke was state commissioner of horticulture from estimates furnished by 41 county horticultural commissioners and compiled by the staff of the former insecticide laboratory, now a part of the state department of agriculture. The present state insecticide and fungicide law carrying the small annual appropriation of $5,000 is designed to regulate the manufacture and sale of chemicals used in the control of insects and fungi, but no provision is made to cover weed killers and rodent poisons, although something like a quarter of a million dollars are spent in the state each year for the latter group of economic poisons.

A short summary of the law mentions the following provisions: Encourage manufacture and sale of the standard and well tried remedies. Discourage sale of poorly compounded or low grade remedies prepared in a poorly equipped factory or by the careless manufacturer. Prohibit sale of worthless preparations placed on the market either through ignorance or with intent to defraud. Prohibit sale of preparations which are injurious to cultivated plants or domestic animals or are a menace to public health. Restrain activities of the clever fakir who profits by falsely claiming some new discovery or some mysteriously acting poison, and in reality is selling some common and well known substance under a camouflage of coloring matter or odor.

THE WHITE SAPOTE

The "sapote blanca" of the Spanish speaking people is the Casimiroa edulis of the botanist and belongs to the same family as the orange though tree and fruit are quite unlike those of any member of the genus citrus. The tree grows to be large, umbrageous and handsome. Within the knowledge of the writer none have been harmed by frosts and it may be that it would prove hardy in favored spots clear to the Oregon line. Aside from its fruiting, the tree is an ornamental of high value either for home grounds or street planting. While young it is slender and pole like, even as the walnut grows, but with age it becomes nearly as spreading as the mature walnut tree. The fruits vary somewhat but resemble, in their different forms, apples, quinces, or Japan plums. The excellent flesh is sometimes peach like, in other varieties pear like.

THE USE OF GAS TIGHT FUMIGATION COVERS

(Continued from Page 381.)

to properly discharge the dose without inconvenience. It is, however, recognized that with gas tight covers when there is no wind, or the wind is in the

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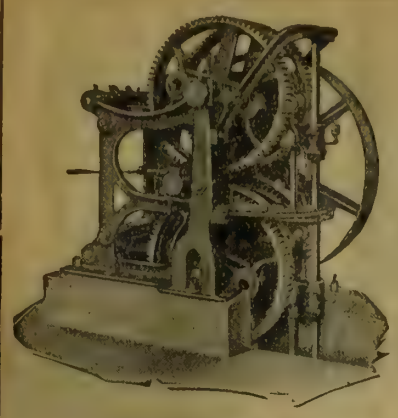

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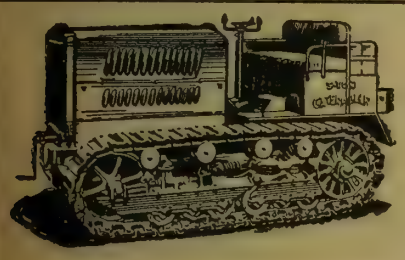

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wrong direction, the tent pullers may be in too strong an atmosphere of gas. Under such circumstances every other tent may be pulled or some other way devised to avoid the gas. At present when the tents become wet and hold most of the gas, even worse conditions are met with, because in the use of gas tight tents there is ordinarily never more than one-half the amount of gas used at the outset as compared with uresent dosages with canvas tents.

Summary and Conclusion

With the use of gas tight covers not only better and more uniform results can be secured but results can be secured where it is not now possible to get results with canvas tents.

Wind (unless a strong wind) does not interfere with fumigation of gas tight tents and the results are not impaired as is the case even in a slight wind with canvas tents.

Humidity or moisture does not increase the injury to the tree because the gas tight tent does not vary in gas holding capacity. The tents also dry more quickly.

Leakage of gas through the tent, which is the most variable and serious factor in fumigation, is prevented.

It is possible to determine a constant, or dosage for each scale, that will apply to any particular district.

Greater safety from injury to the tree and fruit, because there is less variability in dosage, is insured with gas tight tents. (This does not apply to work done in sunlight.)

With rubberized gas tight cloth the patching and repair work on tents is easily and quickly done in the field.

With the reduction in amount of hydrocyanic acid required the use of gas tight covers should eventually reduce the cost of fumigation to the grower.

We have attempted to show that there are many far reaching advantages in the use of fumigation covers that are gas tight. The only question that remains, and which we fully appreciate as being by all odds the most important, is the production of the tent that will meet commercial requirements. We have hesitated to present the subject at such an early date with this question not entirely settled by a sufficiently long period of actual experience in the field. But it is our business as investigators to determine principles and methods, and in the practical working out of such principles and methods we must be aided by work done under commercial field conditions, and by commercial companies interested in the manufacture of the product required. It is at this point and for this reason that our results thus far secured have been discussed in order that further progress will be made, which we confidently expect will be made, toward the perfection of a gas tight tent system of fumigation.

The Schedule

The schedule of dosage which has been adopted in connection with gas tight covers amounts essentially to a volumetric schedule or dosage according to the volume of the tent with a slight increase for the smallest trees and a decrease for the largest trees. The atomizer used has a plate graduated in units of ten cubic centimeters. For ordinary sized trees the schedule calls for about the same number of units as the schedule now in use, but the atomizer will deliver for each unit but 10 cubic centimeters instead of 18 or 20 cubic centiheters. If there is occasion still to speak of dosage in terms of ounces, then one ounce will correspond to one unit or ten cubic centimeters under the gas tight tent system.

When the fumigator wishes to check the amount of H. C. N. (hydrocyanic acid gas) actually used in a grove he adds the total units and then adds a cipher which gives the amount in cubic centimeters. The number of cubic centimeters divided by 640-650 (number of cubic centimeters in one pound of H. C. N. according to purity and temperature) will give the number of pounds of H. C. N. If it is desired to vary the schedule, that is the constant, it can be readily done by varying the time. In case it is desired to vary the dosage, instead of the time, then different schedules or different plates on the atomizer can be provided.

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PLANNING AND PLANTING A VINEYARD

(Continued from Page 377.)

grown because this method was used but rather that the vines grew in spite of it. It takes but a moment to remove a few shovels full of soil from under the marker on the planting line and set the vine with the top against the mark. See that the roots are straight and then fill in with moist dirt. When the hole is full tamp with your foot, and the job is done, except for placing the small wooden marker which serves to indicate the position of the vines during the first growing season.

Irrigate Immediately

As soon as the vines are planted a furrow should be plowed each side of the row close to the vines and a good stream of water applied. This water must be applied to insure the dirt being in contact with the roots. A few large air pockets which would permit the roots to dry out might cause the loss of quite a percentage of the planting.

If cuttings are used in planting, the operation is much the same except that two cuttings should be used. Place the butts about three inches apart and the tops close together. After they have started to grow the poorer one can be removed immediately after an irrigation without injury to the one which remains. The two cuttings are used to insure a better stand, although it is not always necessary to take this precaution.

With the close of this series of articles on the planning and planting of a vineyard it will perhaps not be out of place to emphasize the necessity of very careful work and a great deal of thought on all of the operations relating to the development of new acreage. Never before in the history of fruit growing in the state has the producer of quality fruit been so amply rewarded for his efforts, and now as we are entering into a period of depression it is more than ever important that the grower who hopes and expects to succeed should leave no stone unturned to produce the largest possible crops to the acre and the best possible quality of product. Get all the information you can possibly secure and when all of the factors are considered use your own best judgment on every question.

THE TOP-WORKING OF LEMON ORCHARDS

(Continued from Page 379.)

against the wood that it cannot unite with it. If budding cloth is used it must be especially strong. Most of the budding cloth on the market is useless in top-working because of its weakness. Some budders use twine. After the bud is tightly wrapped the ends of the wrap must be secured so that there is no slipping and consequent loosening. With tape a tack can be driven into the end. With twine the two ends can be tied.

Only one bud per limb is eventually retained to build the new top of the tree. It is customary, however, to place two buds to a limb so that, in case of accident, the work will not have to be done over.

The buds remain wrapped for about 30 days, but before they are unwrapped the trunk and main branches should be whitewashed preparatory to cutting off the top of the tree. This is for protection against sunburning. In preparing the whitewash the lime should be thoroghly slaked, which requires a full week. In much of the early top-working the lack of protection against sunburning resulted in very serious injury.

After the buds are unwrapped the lemon limb is girdled four or five inches above the bud to force the buds to start. The top of the tree is removed after the buds have grown a few inches long by cutting the limbs a few inches above the bud, most budders leaving a nurse limb for about a year. This nurse limb is left in order to elaborate food for the roots and so a branch is selected which connects with the trunk independently of the budded limbs, or at least springs from a point below the girdling. Nothing is better for the cut ends of the branches than grafting wax.

It is very important that someone who understands the work which has been done on the top-worked tree

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Address .....

should follow the work along for two seasons, keeping the sprouts from the old tree cut out and heading back the growth of the buds when this is necessary. When the orange or grapefruit branches have become big enough so that one of them can be relied upon to keep the bark of the parent branch alive all of the way around the branch a slanting cut is made close to the bud, removing the stub and leaving only the growth from one bud. The cut surface is carefully waxed.

In the second method, where the buds are placed in newly grown sprouts, the trees are cut back early in the spring, about the first of March, after the trunk and main limbs have been whitewashed. The cut ends are protected as in the other method.

In the fall properly located sprouts are selected and budded. The buds remain dormant through the winter, but make an early start in the spring. It would seem as if there were some loss of time by this method, but where it has been used this loss, after a year or two, is not so apparent as one might expect. The principal advantage of the method lies in the ease with which the sprouts can be budded.

Lemon trees have been successfully top-worked to Navels, to Valencias and to grapefruit. As far as the vigor of the resulting tree is concerned, there seems to be little preference.

No one should consider using any buds except those which have been carefully selected from superior parent trees. The cost of the buds is trifling compared with their influence in determining the productiveness of the new grove. Two or three fruits in any one year will pay for the bud. The Fruit Growers Supply Company has, for several years past, been locating especially productive trees producing high grade fruit and is using these trees as sources of budwood.

The expense of top-working varies with the size of the tree, the removal of the tops involving considerably more labor with large trees than with small ones. The budding itself is not a very long process, a good budder budding about 100 six or seven year old trees a day. Top-working is, at the present time, much cheaper than replanting. The cost of budding, topping and pruning back for two successive seasons in ten or twelve year old trees is about the same now as the cost of a new tree.

More About Bulk Olives

MR. SMITH of Lindsay writes:

"I have just read your article in issue of March 5, pertaining to marketing of home cured olives and I agree with everything you said in that article.

"It would be interesting reading to have an article from the state board of health as to how their scientists cause bacillus botulinus to grow in fresh pickled olives. (Also the condition of the olives by the time the bacillus developed.) They have no argument in that reply, becase they can inoculate any fresh fruit or vegetable with botulinus when it gets to a certain stage of decomposition.

"If they prohibit fresh pickled olives being sold in bulk, they should prohibit canned olives opened and sold in bulk. I have had some experience in a grocery store and I know. For instance, a gallon of canned olives has been opened and emptied into a glass jar and before this has been entirely sold out another has been emptied in on top, and so on indefinitely, and no one knows how old some of the olives are in the bottom of the jar.

"I produced 80 tons of olives this year, and except for this ruling I could have realized something on my crop, whereas I did not only in a small way, practically a total loss."

Another reader, J. V. Dewhurst of Ojai, writes: "I noticed your discussion on home pickled olives and will give you all the information I can. Write to Berkeley and ask for the California state board of health monthly bulletin, Botulism Number. This bulletin gives the data of the investigations on botulism. After reading you will notice that only canned goods contain the toxins that cause death. The spores of bacillus botulilus, as far as I could understand, do not cause any harm but after being canned up from the air develop a toxin that causes death when eaten."

The bulletin referred to is the issue of September, 1920, and may be had by olive growers who will write California State Board of Health, Sacramento. It gives a fund of information as to the prevention of botulism in canned foods and amongst other suggestions these:

"Prevention of botulism, therefore, depends not upon curtailing the use of home canned or commercially canned foods but upon the education of those who use canned foods as to the possible danger which may accompany their use and the methods for avoiding those dangers.

"No canned food, or indeed any food, which shows the slightest sign of spoilage, whether in appearance or odor, should be served as food, or should be tasted to see whether it is good.

"No canned foods which have not been processed at high temperatures should be served or tasted without having been thoroughly cooked after they are removed from the container; this is especially applicable to vegetables of the types which are frequently served as salads. In case canned food shows evidence of spoilage it should not be discarded where other persons or domestic animals or fowl can gain access to it unless it has been thoroughly cooked.

"If it should happen that domestic animals or fowl develop signs of poisoning after eating discarded food which has been tasted or eaten by human beings, medical advice should be sought at once in order that, if the botulinus toxin is at fault, antitoxin may be given in time to be of value."

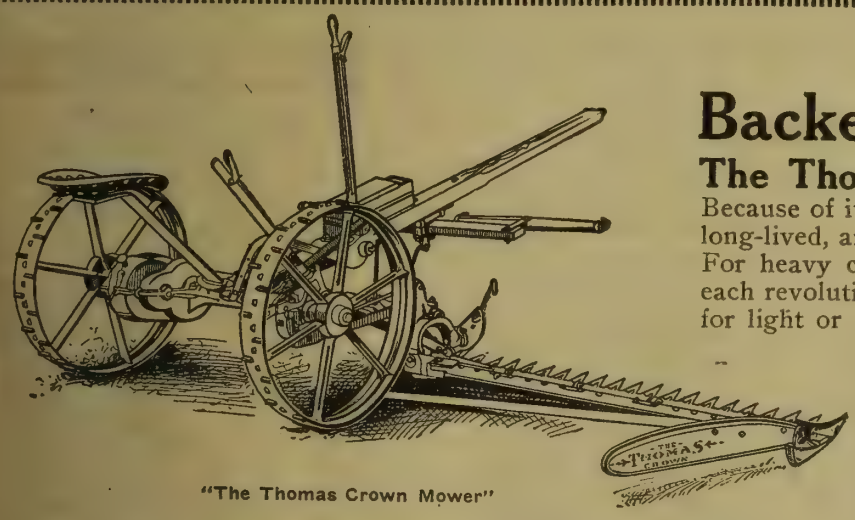
Unless the state board of health will revise its ruling before next fall's output is ripened the only safe course for the olive growers is to unite and arrange for sterilizing all fruit at 240 degrees for the required 40 minutes. But while the board of health still insists that it is possible to produce the poison toxin, or botulinus, in open or bulk olives it has mentioned no case where such poisoning has ever occurred. We feel that this ruling is no more just than would be the ruling that cucumber pickles or other similar products should be similarly treated.

PARAGUAY GUAVAS

A resident of Paraguay, South America, writes: "Of the guayaba (Psidium guajava) tree there are at least eight varieties of which I know, all growing wild and differing both in size of tree and fruit, ranging from a shrub two feet high to trees 35 to 50 feet high, and the fruit from the size of a grape to the size of an orange. As regards this fruit, some doubt has arisen in my mind as to whether this guayaba found here may be the guava. In this section of Paraguay the guayaba is very scarce, but near Asuncion in towns of Aregua, Ipacarai and San Bernardino it is very abundant, growing wild, and near the latter town one may ride for miles through forests of guayaba where you can see thousands of tons of fruit on trees and in various stages of decay on the ground."

NEW STORAGE DAM IN ARIZONA

It was announced some time ago that the federal government would begin work shortly on the Florence diversion dam in Arizona. More recently the bill for continuing this project by building canals has passed congress. This dam is primarily for the irrigation of lands owned by the Pima Indians, but incidentally it will furnish water for approximately 27,000 acres of lands owned by white settlers. This dam should not be confused with the proposed storage dam at San Carlos, which is also on the Gila river some 60 miles above Florence. The latter would impound water for irrigating some 200,000 acres of land. Work on the Florence diversion dam, it is expected, will begin within a few weeks.



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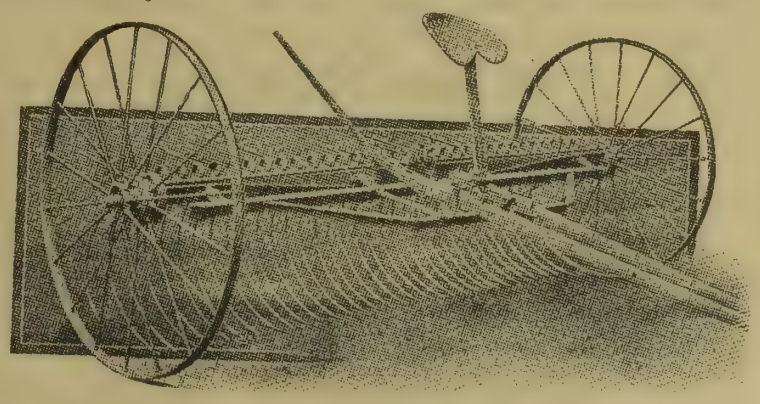
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The Bean Situation in California

By W. W. Douglas of the Bank of Italy

NO farmer during the present era of declining prices is suffering more acutely from the general depression than is the California bean grower. His brief period of spectacular profits, which was brought on by the war, has been followed by an equally sharp reaction. And while the prospect is by no means hopeless, the bean grower in California is so far from expecting big profits now that he will rest happy if he can make ends meet until normal conditions are restored.

The reasons for the present situation trace back, of course, to war prices and war demands. The urgent appeals for food production at that time, together with the attractive prospect for good prices, induced farmers to plant beans on every available hill top, hillside or bottom land acre in the state that was suitable for the purpose. Not only was this accomplished at an abnormally high labor cost for both planting and harvesting, but it made for overproduction in both the northern and southern parts of the state.

To make the situation worse, the market was invaded by cheaply produced and cheaply transported beans from Korea, Manchuria and the Island of Madagascar. Limas from the last named place competed with the Southern California limas and were sold in American markets at prices lower than the cost of producing them in California.

As a result the beans accumulated in the warehouses, and the prices declined to less than one-half, although the cost of production was more than double the normal cost. The bean grower is consequently a heavy loser financially. Many tenant farmers are on the verge of bankruptcy; they are crop or chattel mortgaged for more than they are worth.

Naturally under these conditions 1920 showed a heavy decrease in acreage planted to beans. This was due not only to the combination of cheap foreign competition, abnormally high production cost and low prices for the product, but to lack of rainfall during this and the two previous years. So the dry land (unirrigated land) bean grower was able to produce but a small fraction of his normal crop during each of those years. The following figures will show how rapid this decrease has been: In 1918 the California bean acreage was 592,000; in 1919, 400,000; and in 1920, 285,000. The corresponding production was 5,150,000 hundred pound sacks in 1918, 3,000,000 in 1919, and only 1,710,000 in 1920. Of the last approximately 1,000,000 sacks are Limas, so that of beans other than Limas there is a 1920 crop of only about 700,000 sacks of choice recleaned stocks. The carry over from 1919 amounted in October to approximately 900,000 sacks. Stocks of beans in warehouses throughout the state as of January 1, 1921, are reported as 191,500 sacks as against 393,500 on January 1, 1920. Growers are also holding a considerable amount of which it is impossible to learn the total.

Future conditions are not easy to forecast. The barley and mustard, which were extensively planted in 1920, proved anything but compensating crops. And the bean grower finds it difficult to decide what he will plant during the coming season, beans, sugar beets, barley or mustard. Certainly he has been hit hard by the storm.

But there are certain rifts in the clouds. While market values are showing but little signs of improvement, nevertheless trading conditions at this time are beginning to brighten up with considerably more inquiry than at any time during the past four months. Bean production in the Orient is reported to have been cut approximately 50 per cent and to have further suffered considerable damage from rain. Importations of beans from the Orient in 1920 amounted to only 500,000 sacks as against over 2,000,000 in each of the years 1918 and 1919. This shortage of Oriental beans ought materially to relieve the local situation. Moreover, all over the United States the total production in 1920 was less than the normal per capita consumption, and the present wave of economy in food and clothes may bring the bean back to its former honored place on the family menu. So the discouraged bean grower of California may yet find himself planting a larger acreage than he contemplates now.

LIMA BEAN SITUATION

Manager R. L. Churchill of the California Lima Bean Growers Association, writes: "We are just now completing check of stocks of Limas and Baby Limas on hand in warehouses of Southern California on March 1 and expect to have this in detail within the next two or three days. Based upon figures already received, we think these stocks will show approximately 165,000 bags of Baby Limas and between 475,000 and 500,000 bags of regular Limas. Two years ago at this time there were one million bags of regular Limas on hand in the warehouses of Southern California and these were all sold and shipped between April 1 and September 1, 1919. Therefore, statistically, the Lima bean market is in strong position here on the Coast and stock in the hands of distributing trade is light.

"However, the Michigan bean market has been weak and declining during the past 30 days and this has affected somewhat adversely the market on California beans with the result that all varieties, including Limas, have moved slowly with prices inclined to be dull and somewhat declining rather than firm and advancing. According to rule the light stocks on hand, the small buying of the past 30 days, the light stocks in the hands of distributors and the present low prices on beans should develop an active movement and very firm prices this month. It remains to be seen under these conditions how much force there is in the old saying, 'All signs fail in dry weather.'"

LEGISLATION WHICH DID NOT BECOME LEGISLATION

The last session of the national congress started out with wonderful "promise" of help for the food producer. Bills of all colors and shades were introduced, and every one of them went into the discard. One bill giving a measure of protection to some of our food crops was passed by both houses of congress but vetoed by the president. A vigorous effort would probably have carried it over his veto, but the vigor was not there for the farmer.

T. C. Atkeson, Washington representative of the national Grange, sends us the following account of accomplishment, or rather its lack:

Revival of the war finance corporation: Passed over president's veto.

Cold storage legislation: Died in conference.

Packer control legislation: Reported from committee; passed senate; no opportunity for vote in the house.

Mussel Shoals: Defeated in the house during the last evening session.

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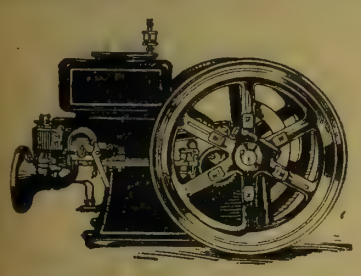

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Capper-Volstead collective bargaining bill: Died in conference.

Emergency tariff bill: Passed both houses and vetoed by president; effort to pass over veto failed at last evening session.

Act authorizing federal reserve board to loan money to farmers: Died in committee.

Control of wheat gambling: Not reported from committee.

Agricultural appropriation bill: Passed and signed, carrying $360,000 for free seeds and $2,000,000 for relief of drouth stricken areas.

Resolution repealing war time legislation: Passed and signed by president.

Winslow bill for prompt partial payment of government obligations to railroads: Passed and signed.

Immigration bill: Passed and not signed.

All appropriation bills passed except naval. Army bill not signed.

Soldier bonus bill: Not considered, but $18,600,000 appropriation for hospital facilities passed and signed.

It will be noted that in the above list only the first nine are of special interest to agriculture and all were defeated except the war finance corporation measure which has now been in effect for about two months.

The decision of the supreme court as to constitutionality of the federal farm loan act gives, however, one hopeful sign for the producer. Whether the newly elected congress and President Harding will have any greater appreciation of present day needs remains to be seen. Commenting on the decision of the supreme court as to the farm loan act and the Lever law, Mr. Atkeson writes:

"Two decisions of the U. S. supreme court, handed down on Monday, February 28, one confirming the constitutionality and validity of the farm loan act in toto and the other the unconstitutionality and invalidity of the Lever law are also in accord with Grange policies and principles. The decision of the court in the farm loan act makes possible the immediate resumption of business by the federal land and joint stock banks, and Chairman Lobdell of the farm loan board announced that bonds will be issued, just as soon as the preliminaries can be completed, to provide for the immediate resumption of business. The Lever law, which is declared unconstitutional, is the act under which the food administration assumed its powers of controlling the prices and distribution of necessities and is one of the laws the repeal of which the Grange asked in very plain terms in a resolution adopted at Boston last November.

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Cotton Seed for Feed

Is the feeding of cotton seeds to cows, horses or mules a dangerous practice? I have read that cotton seeds fed to hogs are fatal because of the cotton adhering to the seeds when fed. If safe and advisable cow feed, would you suggest the amount to be fed in a ration of concentrates that you might make up for my use in feeding milch cows?—Subscriber, Hemet.

Cotton seed can safely be fed to cows, horses and mules in relatively small quantities. Cotton seeds or cottonseed meal seem to contain a toxin which poisons hogs if fed in any quantity. Experiments are being carried on, however, and it may be possible to work out rations for hogs which contain small amounts of cottonseed, but at the present time it is not to be recommended. Cottonseed meal has for some time been recommended as a concentrate feed for cows and has produced very good results. Cottonseed can also be fed although it is desirable to grind them. It takes about one ton and three-quarters of cottonseed to replace one ton of cottonseed meal. It contains a great deal of oil and it is not good practice to feed very large quantities as it is very laxative. You can safely feed from

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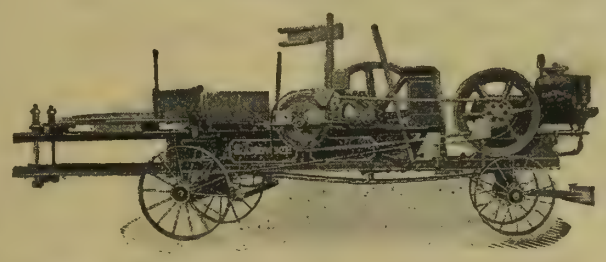

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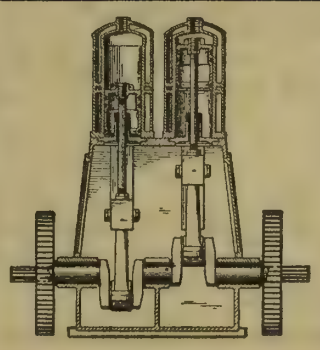

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one to two pounds of cottonseed or cottonseed meal to dairy cattle, which feed should be mixed with other concentrates such as barley, bran, and beet pulp. Larger amounts of this can be fed up to three pounds safely providing the cow is a heavy producer and is getting relatively larger amounts of the above mentioned feeds or similar feeds. It seems that when cottonseed or cottonseed meal is fed with ensilage there is little danger of ill effects. I would suggest the following as a safe ration: 100 pounds barley, 100 pounds bran, 100 pounds cocoanut, 200 pounds beet pulp, 100 to 150 pounds of cottonseed ground. If you are feeding ensilage in relatively large proportions you could feed the 150 pounds of cottonseed, but if you are not feeding ensilage I think 100 pounds would be all that would be desirable in the above ration. Almost any one of the elements suggested in the ration could be left out without affecting the ration very markedly. I would suggest, however, that if you leave out either the beet pulp or the barley the amount of the other elements should be increased to some extent. I am sure that you will find a ration of this kind will produce good results. The amount of this ration should depend upon the production of the animals. You could feed one pound of the above mixture for every five or six pounds of milk produced per day or you could feed one pound of the above ration for every pound of butterfat produced weekly.—G. E. G.

Mountain Lilacs

I am mailing you today four specimens of plants for identification: 1, small leafed, white flowered ceanothus; 2, a white leafed, larger leafed ceanothus; 3, a blue flowered ceanothus; 4, a white flowered tree lupine.—M. F. G., Banning.

Number one seems to be Ceanothus cuneatus, though a little off type, for cuneatus means wedge shaped, and but few of the leaves of the plant sent are so, but the other characters agree. Number two is Ceanothus crassifolius (leaves like a crassula). Number three is Ceanothus oliganthus (few flowers); a better species, of the same beautiful blue, growing farther north, is Ceanothus thyrsiflorus. Number four is a broom native to the Canary Islands, Cytisus proliferus, sometimes called tree alfalfa and claimed to be a good fodder plant, especially for goats.

Budding Apricot Trees

Will you tell me how to bud or graft small apricot trees, or do they fruit without?—Subscriber, Niland.

All apricot trees planted in orchard form are budded because of the unsatisfactory nature of seedling fruits. The budding should be done after flow of sap has begun, using budwood from trees of known productive power which have been producing highest quality of fruit. A full description of the practice of selecting buds, inserting, staking and growing is too extended to give in this column.

Best Cow

Will you kindly inform me which breed of cow would be best for an all around family cow. We drink lots of milk and use lots of butter.—Subscriber, Santa Ana.

The Jersey is often preferred as the family cow, partly because of her beauty and almost invariably pleasant disposition. Again there are others who prefer the Holstein because of her ability to handle greater quantity of roughage and coarse feed. However, as a pure bred costs considerably more than a grade cow, and unless one has a particular liking for caring for and maintaining the pure bred, any good producing animal will answer for family use. But if there are children it should be borne in mind that disposition is a material factor to consider. The Guernsey and the Ayrshire are also excellent producers and if one is selected from a producing strain, without question would give entire satisfaction.

Pollinating Almonds

Will I. X. L. and Texas Prolific almonds be satisfactory if planted together?—Subscriber, Escondido.

This question was answered by J. P. Dargitz in the Cultivator some years ago, as follows: "We would not advise anyone to make a considerable planting of I. X. L., Ne Plus Ultra and Nonpareil alone. The Ne Plus Ultra is the best pollenizer of the three, but we have found very much better results by alternating Nonpareils with either Drake's Seedling or Texas Prolific. The Ne Plus Ultra might be alternated with either Drake's Seedling or Texas Prolific. The I. X. L. should be alternated with the Peerless; this latter combination in the Winters section has given good crops, otherwise the I. X. L. is a very shy bearer."

Claud D. Tribble of Elk Grove also sends the following: "We would plant Texas Prolific, as a pollinator for the I. X. L., Ne Plus Ultra and Nonpareil. From our observation as well as the experience of others, this is the best almond for pollinating, and as it outyields the Drake's Seedling, is more profitable. We believe it to be folly to plant the three varieties mentioned without one of the two pollinators.

"In planting, the rule is to plant about every fifth or seventh tree in one row to the pollinator, then plant solid rows of four or six of the soft shell, then another mixed row. Were we planting an orchard of our own we would plant a solid pollinating row every seventh row."

Does Have Abscesses

I have three does which have something like a boil under their throats, which gets rather large and then breaks, discharging a watery matter, and another boil forms. They come and go all the year round. I feed does dry alfalfa hay, some green grass and a little rolled barley once a day. Pens are on the ground. If you know the cause and the remedy, if there is any, I would be very pleased.

These tumors or abscesses arise from unsuitable feeding or from blows inflicted by bumping against hutches or from other stock while fighting. Let them develop until pus is in one common center, then bathe freely with quite warm water and while attendant holds animal, open with sharp knife, squeeze gently, getting pus all out. Wash with equal parts hydrogen peroxide and water. Dry carefully and apply some ointment to prevent flies from touching. Wash affected parts daily, bathing and applying ointment as may be needed. Feed regularly with addition of green stuff. Keep in warm dry place.—W. D. W.

Planting the Woodlot

Will you please tell me how to start poplar and elm trees?—Subscriber.

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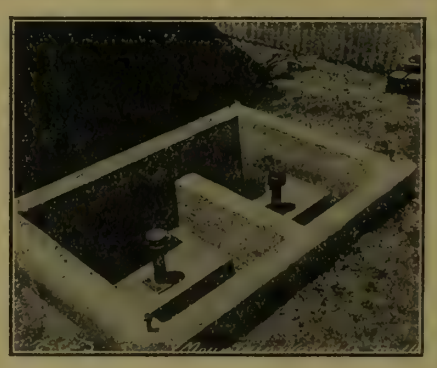
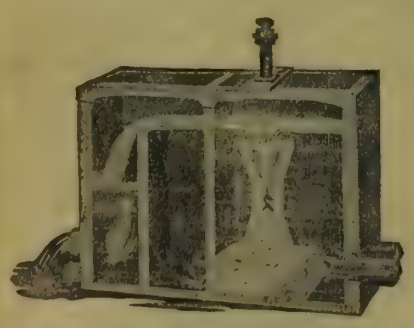
Will solve many of your irrigation problems.



Installation of Two Size C Reliance Irrigation Meters for South Mountain Water Company, Redlands, Cal.



This Type Meter is Made in ½, 1, 2, 4, 8 Second Foot Sizes, 25 to 800 Miner's Inches

IT WILL let you know ACCURATELY how much water you have applied at any time, thereby saving an unnecessary waste and preventing an under-application. In other words, it absolutely eliminates GUESSWORK and averts arguments. The cost is nothing compared with the results obtained.

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Los Angeles, Cal.

Regarding the planting of elms and poplars would refer the inquirer to Farmers Bulletin No. 1123, "Growing and Planting Hardwood Seedlings on the Farm." This bulletin gives definite information as to gathering seed, sprouting and planting and other information regarding practically all Eastern trees, and we note the elm and poplar are included. It may be secured by writing to the Department of Agriculture, Washington, D. C.

Fleas

Can you suggest a means of successfully exterminating fleas in an outbuilding? They are unusually plentiful this year, perhaps on account of lack of rains, and have become an awful pest.—Subscriber.

Thorough cleaning out of dust inside, and especially underneath, and removal, so far as possible, of decaying vegetable matter is one of the first steps to take in ridding out-buildings of the flea pest, or, perhaps preceding the cleaning, you might give a thorough fumigation either with hydrocyanic acid gas or with carbon bisulphide. Effective fumigation, however, is secured only in fairly gas tight buildings, but where cracks around windows and doors may be stopped, fumigation, especially with hydrocyanic gas, will rid the building of almost every living thing. Care should be exercised, however, by every human dealing with these materials, for they are deadly poison. One good full breath of the hydrocyanic gas is sufficient to cause death, and the carbon bisulphide is very explosive, so care must be exercised in keeping light or fire at safe distance when using it. If the dust and decaying vegetable matter are carefully removed and the entire building sprayed, using a power pump so as to give great pressure which will drive the liquid into all cracks, it will prove very successful. One may use a strong oil emulsion in which has been placed a good supply of carbolic acid, say at the rate of one pint to 12 gallons, or a lime-sulphur wash will prove effective. If poultry houses are adjacent to the buildings which are infested it will be well to give them a thorough cleaning and if possible move to a greater distance from where horses and cattle are kept. Cats and dogs are also carriers of these pests and should be thoroughly ridded of them or the cleansing of the buildings will result in only temporary relief. Bedding where cats and dogs have been kept should be burned or at least thoroughly renovated.

Yellow Orange Leaves

I have some orange trees planted where there has been an old cow barnyard. They are six years old and have done fairly well but now are turning yellow and shedding their leaves and beginning to look badly. Could you tell me how to treat them to overcome this trouble?—Subscriber, Anaheim.

Apparently the roots of these trees are in bad condition because of lack of air or perhaps lack of vegetable matter to lighten up the soil. We imagine thorough spading and working in of coarse vegetable matter will prove beneficial. Also make thorough examination of trunk of tree to see whether gum disease is affecting it. This trouble often follows planting trees in rich corral soil.

Sugar From the Soil

What is effect of deep cultivating or plowing during the time when the sugar is going into the grape? Is the sugar taken from the surface where the sun ripens the soil or from the deeper levels where the heavier roots are embedded?—Subscriber.

It is difficult to determine just the period of growth in grapes when the sugar is "going in." While it is true that sugar tests at ripening time indicate larger percentages of sugar in proportion to the size of the fruit, it is very probable that a large part of this sugar was already in the fruit, and its chemical nature is merely changed. All of the crude material which is taken up by the roots, whether they are the surface feeders or the ones which go deeper into the soil, must first go to the leaves, where the action of the sun on the green coloring matter changes it into plant food in the form of starches and sugars. The general practice as regards deep cultivation or plowing is to confine this work to the dormant season and only do enough work in the growing season to keep down the weeds and foul growth and maintain a surface mulch for the conservation of soil moisture.—F. K. H.

Avocados Not Bearing

I have a five year old avocado tree which has never bloomed. Could you give me a reason? It is a very strong and thrifty tree. It is a budded tree. —Subscriber, Anaheim.

Budded trees will usually make a showing of fruit before they are four or five years old but one or two varieties are rather deliberate in this respect. However, we are told by some that girdling or mutilating a portion of some of the large branches of the tree will result in its bearing. This is usually done in the fall by cutting out the bark, taking a ring, say one-fourth inch broad, entirely out of the branch. This proves such a shock that by spring time the branch may blossom and set fruit.

Kentucky Wonder Beans

Will you kindly advise how far apart in the rows White Seeded Kentucky Wonder beans should be planted, especially in new soil of a sandy nature, near the coast, and where they will be allowed to run on the ground instead of on poles? No irrigation. Any information on growing these beans for the green vegetable market will be appreciated.—Subscriber, Del Mar.

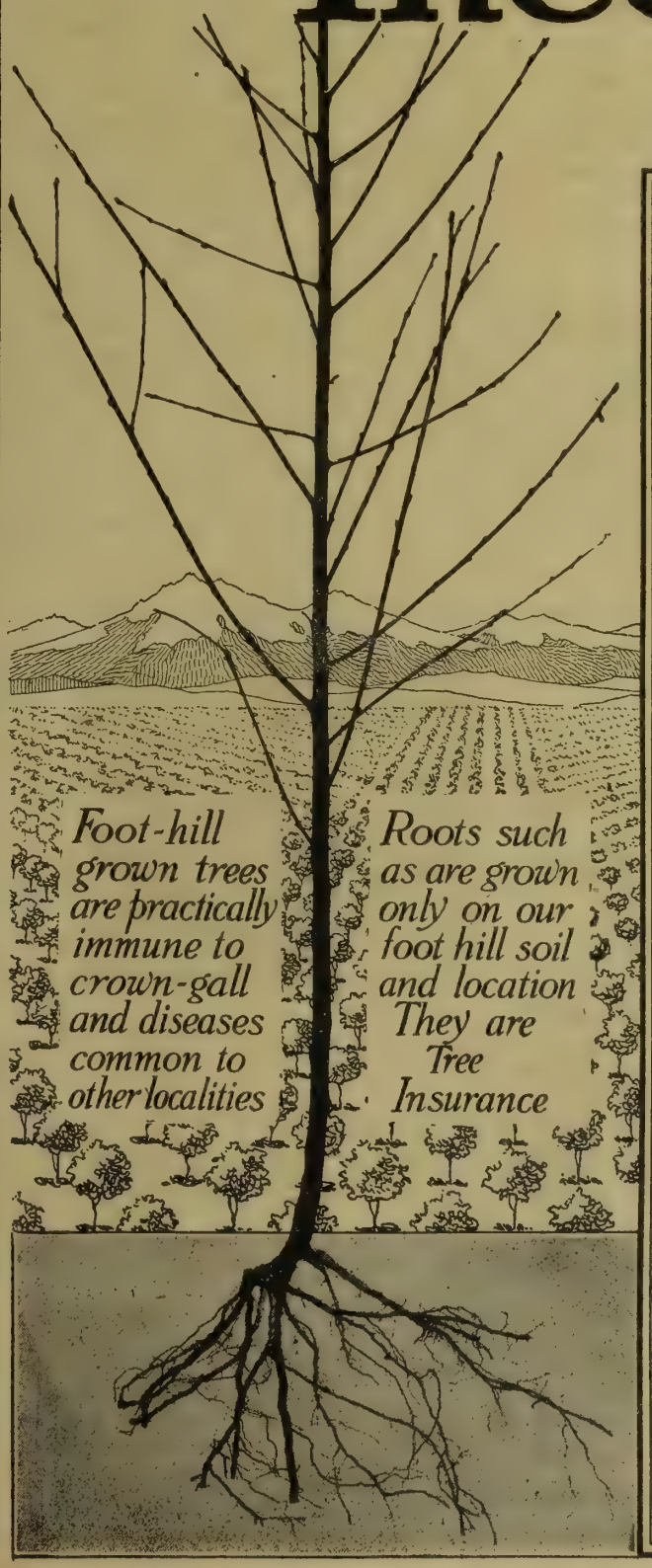
Past plantings in the San Pedro district near Los Angeles, soil and climatic conditions similar to yours, prove that vines one foot apart in the row, the rows two and a half feet apart, bring best results, none of the vines running more than three feet. When given poles to climb on they greatly exceed this length. Regarding general advice, it is now too late for best results; the beans should have been planted by the first of February for best market returns.

Aphis on Peas

How can I control thrips and aphis on peas?—Subscriber, Oceanside.

Thrips are easily controlled by strong spray, even of water, but to make it sure a small amount of nicotine sulphate 40 per cent in water with, perhaps, a little whale oil soap to make a spreader, will easily rid the plants of that pest. The aphis is also controlled by somewhat stronger solution, so we would suggest spraying the peas with solution made up of four pounds whale oil soap, ten ounces black leaf 40, 50 gallons water. One of the best controls of these pests, especially the aphis, is to begin in the fall, keeping the ground clean of all weeds which give the pest opportunity of breeding and increasing. Likewise at the present time and through the spring keep down weeds around border of the field along irrigation ditches or elsewhere near to the growing crops.

Your Future Income


Foot-hill grown trees are practically immune to crown-gall and diseases common to other localities
Roots such as are grown only on our foot hill soil and location They are Tree Insurance

No investment you make today, whether in planting of commercial orchard or in the planting of a home orchard, or for the improvement of your home orchard, will pay you such dividends in satisfaction, contentment and profit as an intelligent selection in some of the standard varieties of our still available assortment of foot-hill grown trees.

PRUNES, PEARS, PLUMS, APPLES, CLINGSTONE PEACHES, FREESTONE PEACHES, CHERRIES, APRICOTS, ALMONDS, WALNUTS, GRAPES, OLIVES.

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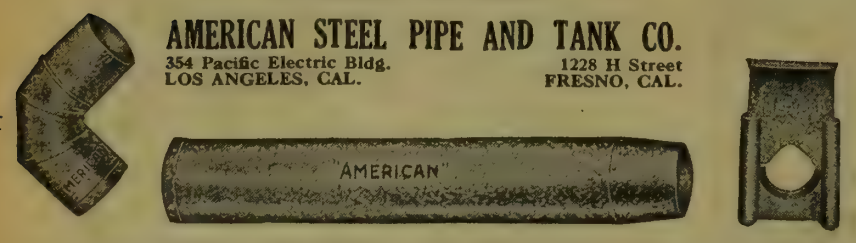

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We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

When Writing Advertisers Mention California Cultivator.

Household Department

CHRIST IS RISEN

Christ the Lord is risen again;
Christ hath broken every chain:
Hark, angelic voices cry,
Singing evermore on high, Alleluia!

He who for us gave His life,
Who for us endured the strife,
Is our Paschal Lamb today;
We, too, sing for joy, and say, Alleluia!

He who bore all pain and loss
Comfortless upon the cross,
Lives in glory now on high,
Pleads for us and hears our cry. Alleluia!

He who slumbered in the grave
Is exalted now to save;
Now through Christendom it rings
That the Lamb is King of kings. Alleluia!

Now He bids us tell abroad
How the lost may be restored,
How the penitent forgiven,
How we, too, may enter heaven. Alleluia!

Thou our Paschal Lamb indeed,
Christ, today thy people feed;
Take our sins and guilt away,
That we all may sing for aye, Alleluia!
—Michael Weisse, 1531.

RISEN WITH CHRIST

O soul of mine, to life's new rapture born,
Canst thou forget the splendor of that morn,
When, through the chill and silence of thy light,
Stole the warm radiance of the Easter light?

Did not thy Lord, before the dawn of day,
Unseal thy tomb and bid thee come away?
And in that sacred garden, cool and dim,
Amid the lilies didst thou not walk with Him?

Then why shouldst thou, all trembling and afraid,
Still bring thy spices where thy Lord was laid?
Unto the heavens lift up thy downcast eyes;
Thy Lord is risen, and thou with him didst rise.

Not for the trump of doom and judgment hour
Waits, through slow years, the resurrection power.
Today he lives; today his life may be
Eternal life begun, O soul, in thee.
—Emily Huntington Miller.

AN EASTER EGG

I heard a little crackling sound,
A crunching just inside the shell,
A little rustling in the nest,
But what it was I could not tell.

Then looking close I seemed to see
A downy head, a tiny chick,
And heard a sound that seemed to say,
"Open, open, open quick!"

And then a little downy roll
As soft as silk perked up its head,
And looking out beyond the nest
A chirping voice then softly said:

"To think I could be shut up there,
Within a tiny little shell,
From all that's beautiful and fair,
And brighter far than words can tell.

"And yet I sometimes seemed to know
That some bright day the spring would come,
And something whispered in my heart
This little shell was not my home.

"And then there seemed to come a thrill,
A light seemed shining through the gloom;
I beat my wings against the shell,—
And lo! the flowers were all in bloom.

"No little shell could hold me now
That I have learned of such sweet things.
How soft the air! how sweet the skies!
And how the little linnet sings!"
—May Eve, Augusta, Georgia.

STAR LIGHT, STAR BRIGHT

(Concluded.)

The afternoon before Easter Dick had to work so very hard in the shop that he was really too tired to think. And then when he started to the shed to give the rabbit its supper, Uncle Toteman called:

"Where you goin'? Come along home now, I'm waiting."

Not daring to open the door, Dick trotted away with him. He was relieved, however, when he reflected that the rabbit could undoubtedly eat as much as it cared for from the Fairies' counter at midnight.

As for Dick himself, all he wanted was to fall into bed and then awake to find the eggs glowing in their grassy nest.

He ate a piece of corn bread and tumbled upstairs while Old Toteman watched him curiously. It was too much work for Dick's tired arms to undress him so he crawled under the quilt with his clothes on and looked up. Star Bright was beaming graciously, and Dick smiled.

"Thank you, Star Bright, for my Easter rabbit," he whispered, and fell asleep.

At midnight Dick awoke with a start. The town clock was striking and he counted feverishly. He looked out the window; the stars were gone and the blackness outside threw a shadow over him. He thought of the rabbit all alone in the gloomy shed. Right now it should be at the Fairy counter with its basket; but someway Dick felt that he had been fooling himself all along. He knew it wasn't a really Easter rabbit, that his Bunny that minute was sitting lonesomely in the dark, wondering why Dick hadn't brought the afternoon carrots.

A sob trembled in Dick's throat, but without hesitating he climbed out of bed and groped his way down stairs. He unlocked the door and ran out into the chill night. Behind him the door opened again and closed, but Dick did not notice.

It didn't take long to reach the shed, with his handful of vegetables. He unlatched the door and as his hand felt the rabbit's soft warmth his fairy tale broke altogether. He put his head down upon the friendly fur and sobbed.

The rabbit ate as greedily as ever. Dick heard it munching in the darkness, and finally the sobs ceased.

"It isn't your fault, Bunny," he said apologetically.

"You can't help it because you aren't a Easter rabbit, but I thought maybe you would bring me a basket of eggs, just for fun. I'd kind a like them. I guess some children have real eggs and candy ones too—but maybe not. It would of been nice if you could of come to my room tonight because the minute you put the kasket down you'd seen me lying there and then you'd of jumped under the quilt quick as a shot. We'd been so warm that even before I woke up, I'd known you were there."

Dick sighed, and he thought he heard the sigh echoed from without but it was only the door creaking back and forth. So he carressed the rabbit again, locked it in and hurried down the cinder path.

Old Toteman waited until Dick was out of sight. He held one hand over his eyes and now and then a sound like a sob startled the rabbit, still munching its carrots.

Finally the boy's steps died away and Old Toteman stood erect. If there had been moonlight, his face would have appeared exceedingly, strangely moved. He had never realized that Dick was a little lonely child, neglected just as he himself had been until his heart hardened against the world.

As the clock proclaimed the first half hour of Easter morning, Old Toteman started home.

It surely was a strange thing that when Dick rubbed his tear-stained cheeks in the morning, and opened his eyes, he felt a furry body cuddled against his back, and looking down saw the Easter rabbit. Then it had all been a dream.

Quivering with excitement he ran to the door and there stood a basket of woven grass, filled to overflowing with rainbow colored eggs.

EASTER BASKETS

It is a pretty idea to combine the Eastern basket and the May basket. A pretty basket may be made of cardboard covered with fringed colored paper, a nest made of real grass or fern leaves, filled with colored eggs and covered with fragrant flowers.

Hard boiled eggs may be colored with the regular egg dye papers, or with any colored tissue paper or cloth that "runs" in warm water. The school water colors may be painted on or crayolas used. It is easy to make pretty designs by cutting paper patterns of stars, circles, diamonds, etc., outlining on shell and coloring, or a pretty leaf may be held against the shell, outlined and painted a dainty green. Once started the children will think of an endless number of ways of decorating the shells.

A large basketful of such Easter eggs will be a delight to the children as a centerpiece for the Easter breakfast table, especially if they have helped with the decorating.

Candy eggs may be made of uncooked fondant. Beat white of an egg stiff, add one tablespoon milk and as much powdered sugar as can

The Cultivator Patterns

BE SURE TO SEND SIZE

3529. An Attractive Apron — Cut in 4 Sizes: Small, 34-36; Medium, 38-40; Large, 42-44, and Extra Large, 46-48 inches bust measure. A Medium size will require 3½ yards of 36 inch material. Price 10 cents.

3553. Girl's Dress.—Cut in 4 Sizes: 4, 6, 8 and 10 years. A 4 year size will require 3 yards of 27 inch material. Price 10 cents.

3530. Misses' Dress.—Cut in 3 Sizes: 16, 18 and 20 years. An 18 year size will require 6¼ yards of 40 inch material. The width of the skirt at the foot is 2 yards. Price 10 cents.

2748. Boys Suit. — Cut in 4 Sizes: 3, 4, 5 and 6 years. Size 4 requires 1¾ yard of 27 inch material for the waist, and 1⅛ yard for the trousers. Price 10 cents.

3551. Ladies' Dress.—Cut in 6 Sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. A 38 inch size will require 5¼ yards of 44 inch material. The width at the foot is about 2 yards. Price 10 cents.

3531. A Practical Child's Set.—Cut in 4 Sizes: 6 months, 1, 2 and 3 years. A 2 year size will require 2 yards of 36 inch material for the dress, ⅞ yard for the sack, and ½ yard for the bonnet for which ¼ yard of lining is also required. Price 10 cents.

3063. Dress for Home Wear.—Cut in 6 Sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 5¼ yards of 36 inch material. Width of skirt at lower edge is 1¾ yard. Price 10c.

3555. Girls' Dress.—Cut in 4 Sizes: 8, 10, 12 and 14 years. A 12 year size will require 4⅞ yards of 36 inch material. Price 10c.

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very best **NEW YORK** styles, all patterns ordered are filled in **NEW YORK.** Therefore, we promise to deliver all patterns ordered within **TWO WEKS;** we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

be stirred in. A portion of this for the yolk may be colored with carrot juice (grate carrot, squeeze juice through cloth). Shape a tiny yellow ball of this for yolk, surround with the white fondant shaped like a tiny bird's egg.

Hot cross buns are never absent from our Good Friday table at teatime, and our Easter breakfast is hard to find for the table decorations.

Our hens always lay the most wonderful colored eggs for Easter, and the basketful is put in the center of the table. Around are plaster rabbits, one for each child, and the tiny cars to which they are hitched are filled with candy eggs. At each place is a pretty Easter card, and the day is made as joyous as the most beautiful of religious festivals should be.

HOUSEHOLD QUERIES

Hot Cross Buns and Popovers

Can you tell me how to make the real hot cross buns to have for Good Friday breakfast? Also I would like to find out how to make good popovers.—Subscriber.

Hot Cross Buns.—Rub ¼ pound butter into 2 pounds flour, adding pinch of salt. Into a cup of fresh yeast stir 1 pint warm milk and gradually stir this into the flour until it forms a light batter. Cover and let rise. Then work into it ½ pound sugar, ½ grated nutmeg, ½ pound currants, ½ teaspoon allspice, 1 egg. Knead well, cover again and let stand till perfectly spongy. Then knead into buns, cut a cross on top, let rise till light, brush with sugar melted in a little water and bake 20 minutes.

Popovers.—The very best popovers we ever ate were made of 1 cup milk, 1 cup flour, 1 egg, butter size of walnut, pinch of salt. Beat steadily with egg beater exactly five minutes. Have well greased muffin pans sizzling hot. Bake in quick oven.

India Relish

Would like to have a recipe telling how to make India relish.—Subscriber, St. Helena.

Here is recipe for what is called West India relish. It seems to us that we have seen another called India relish that is much more complicated and elaborate. Can any of our readers help us out?

West India Relish.—Three gallons green tomatoes. Chop fine and let drain over night. In the morning drain off all juice and add one small cabbage, 4 or more green peppers, 2 or more onions, bunch of celery, head of cauliflower, 1 pound brown sugar, 1 cup mustard seed, 1 cup salt, 1 tablespoon each cinnamon, cloves, ginger. Mix all together, cover with good cider vinegar and boil 2 hours, being careful that it does not burn on bottom of kettle. Seal in glass jars or put in stone jars.

HINTS FROM HOUSEKEEPERS

Salt Keeps It Sweet

A way to keep lard fresh and sweet for many months: As soon as the lard is cold or store lard is opened, spread a thin clean white cloth over the lard, letting the edges come up over the top of pail, then spread a thin layer of salt all over the cloth on the lard and turn the edges of cloth in over the salt, put on lid and you won't have rancid lard.

To use: Turn the cloth back or lift it out. Be sure to cover the lard with the cloth and salt well before setting away after using out of it.—Mrs. V. C. Weeks, Ontario.

Another Nut Bread Recipe

I find the following recipe for nut bread very good and thought it might interest some of your readers:

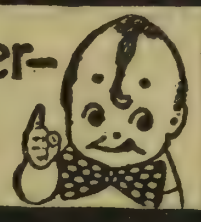
2½ cups flour, 3 heaping teaspoons baking powder, ¾ cup chopped nuts, ½ cup sugar, 1 teaspoon salt. Mix all dry ingredients together, then add one egg well beaten into one cup of milk. Bake one hour in moderate oven.—Mrs. A. E. Gilbert, Martinez.

REMEMBER to ask your grocer for Calumet Baking Powder and be sure that you get it—the Indian head on the orange label.

Then *forget* about bake day failures. For you will never have any. Calumet always produces the sweetest and most palatable foods.

And *now remember,* you always use less than of most other brands because it possesses greater leavening strength.

Now Remember—Always Use



CALUMET BAKING POWDER

There is no waste. If a recipe calls for one egg—two cups of flour—half a cup of milk — that's all you use. You *never* have to re-bake.

Contains only such ingredients as have been officially approved by U. S. Food Authorities, is the product of the largest, most modern and sanitary Baking Powder Factories in existence.

Pound can of Calumet contains full 16 oz. Some baking powders come in 12 oz. instead of 16 oz. cans. Be sure you get a pound when you want it.

Calumet Columbia Muffin Recipe
—4 cups sifted flour, 4 level teaspoons Calumet Baking Powder, 1 tablespoon sugar, 1 teaspoon salt, 2 eggs, 2 cups of sweet milk. Then mix in the regular way.

Wonderful New Hay Crop
SUDAN GRASS

First Introduced into the U. S. in 1909 from the Sudan in Africa. Tests by the department of agriculture have proved it to be of the greatest value in the Southern and Western states, where rainfall is deficient.

Culture—Sudan Grass is strictly an annual. It may be drilled or broadcasted. If drilled 8 to 12 lbs. per acre is ample; for broadcasting 15 to 25 lbs. should be used. It grows 8 to 10 feet high and yields from 3 to 8 tons per acre. You are sure of two cuttings, and if irrigated three or four cuttings.

Sudan Grass for Pasture—During the months of August, September and October all other grasses are dry, then is the time Sudan is most valuable for fall pasture, and by having it fenced in small fields it will yield food for six times as much stock as any other forage will without irrigation. For milk cows and hogs, there is no better and more abundant pasture than Sudan Grass. It will solve the hay proposition as nothing else can or will do in this climate. A good silage and balanced ration. This seed was grown on our own farm, and is free from Johnson Grass.

Price Per Pound:

10 lb. lots, 20c — 250 lb. lots, 12c
100 lb. lots, 15c — 500 lb. lots, 11c
1000 lb. lots, 10c

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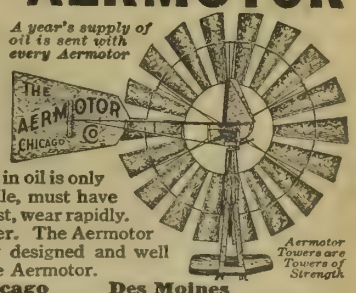
A Real Self-Oiling Windmill

A year's supply of oil is sent with every Aermotor



Oil an Aermotor once a year and it is always oiled. Every moving part is completely and fully oiled. A constant stream of oil flows on every bearing. The shafts run in oil. The double gears run in oil in a tightly enclosed gear case. Friction and wear are practically eliminated.

Any windmill which does not have the gears running in oil is only half oiled. A modern windmill, like a modern automobile, must have its gears enclosed and run in oil. Dry gears, exposed to dust, wear rapidly. Dry bearings and dry gears cause friction and loss of power. The Aermotor pumps in the lightest breeze because it is correctly designed and well oiled. To get everlasting windmill satisfaction, buy the Aermotor.

Aermotor Towers are Towers of Strength

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Are Carried in Los Angeles Stock. Write for Catalogues and Prices
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MOLASSES

". . . fell off in milk production about 15%"

The Wolf Rathbone Company, Patterson, Cal., operate a large dairy. Naturally they have done everything possible to raise milk production per head.

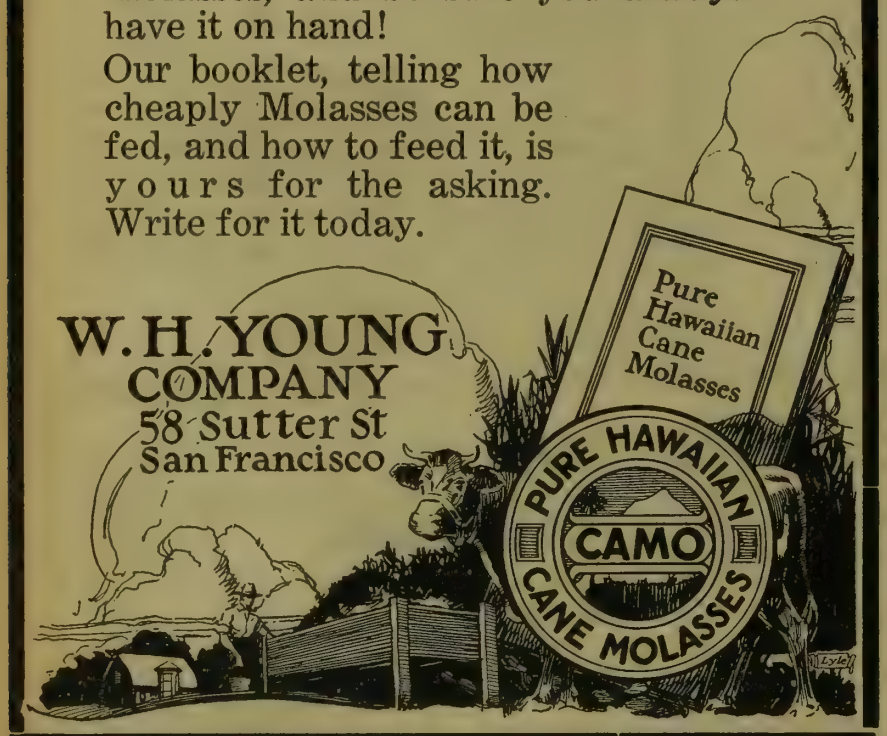
The results they have secured with Pure Hawaiian Molasses are interesting to every man who has cows.

The letter says further:

"We ran out of Molasses for several days and found that the cows fell off in milk production about 15% at first, later increasing to about 11% below the flow when Molasses was fed. When Molasses was again fed, the cows slowly returned to the former flow of milk, or nearly so."

There is a moral here. It is: Feed Molasses, and be sure you **always** have it on hand!

Our booklet, telling how cheaply Molasses can be fed, and how to feed it, is yours for the asking. Write for it today.



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Visitors Welcome. Correspondence Solicited.

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Three Top Boars

Fannie's Orion King assisted by Uneeda Orion B, 2nd prize aged boar at State Fair, 1920, and grand champion at Glenn County Fair, 1919, and Valley View's Sensation, 3rd prize junior boar pig and litter mate to 1st prize and reserve champion at State Fair, 1920, and a wonderful string of prize winning sows and gilts, including Miss Sensation, 1st sow pig and reserve champion at State Fair

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

March 17, Holstein Guaranty Sale, Sacramento.
April 6-7, Fred W. Kiesel, Sacramento.
April 14, R. F. Guerin, Tulare.
April 21-22, Santa Anita Rancho.
April 21 and 22—Santa Anita Rancho.
April 20-21, Toyon Farm Association, Los Altos.
April 26, Santa Anita Rancho, Santa Anita.
May 11, Victory Herd, Carruthers.

Viola L. Renwick of Santa Barbara writes that she has just sold a fine herd of Big Type Poland China hogs to Smith Brothers, Eagle Canon, Goleta. Herd is headed by Mammoth Price, a senior yearling. The sows will all farrow this month. Some are bred to the above sire and one to El Profito.

Robert N. Clapp, owner of Sycamore Acres, Nuevo, recently added 40 high class registered Holstein females to his choicely bred herd. The addition includes ten daughters of King Segis Pontiac, one daughter of Johanna McKinley Segis, two daughters of King Segis Pontiac Chicago, the $20,000 son of King Segis Pontiac, and 20 daughters of Pearl King Segis Pontiac, who is by King Segis Pontiac and out of a 37.52 pound daughter of Pontiac Korndyke that milked 753.9 pounds milk in seven days. This gives Mr. Clapp a herd tremendously strong in the blood of King Segis, and it is reported that there are many wonderful individuals in the lot.

A junior three year old daughter of Sir Veeman Korndyke Pontiac recently made over 33 pounds butter in seven days in the herd owned by Earl Graham, Compton.

A. W. Morris & Sons Corporation, Woodland, have purchased the half interest in Sir Aaggie De Kol Acme formerly owned by F. W. Kiesel, whose herd is to be dispersed on April 6-7. This gives the Morris firm complete ownership of this great young sire.

Sir Piebe De Kol Segis Pontiac, the son of King Segis Pontiac Count owned by H. E. Spires, Caruthers, now has 10 A. R. O. daughters, six having recently completed records in the Victory Herd. This bull together with all of his daughters will be sold in the Spires-Crawford dispersal on May 11.

Spring Farm Pauline Pontiac 2nd recently completed a year's test in the Bridgford Co. herd at Patterson, making 982.32 pounds butter from 26,262.2 pounds milk in 365 days. She is the dam of King Pontiac Alcartra Prilly, the high class son of King Segis Alcartra Prilly owned by H. E. Spires and J. M. Crawford. This splendid young sire also will be sold in the Spires-Crawford dispersal.

Blanche Nudine Clothilde Walker, a junior two year old daughter of Prince Riverside Walker, recently completed a record of 865.4 pounds butter from 21,786.3 pounds milk in 365 days. She is owned by Anita M. Baldwin, Santa Anita, who purchased her in the W. J. Higdon sale last May. A remarkable feature of this big record is the fact that this heifer was hauled over the California show circuit and even to the Pacific International during her test. Her butter record is exceeded in California only by Miss Aaggie Acme Burke, dam of the $41,000 bull King Korndyke Pontiac Acme.

A number of excellent records have recently been completed at Jane Garden Farm, owned by Fred W. Kiesel, Sacramento. The junior three year old Jane Garden Johanna Segis made 27.99 pounds butter in seven days; the senior three year old Lacona Elzevere made 27.95 pounds butter in seven days; the full age cow Miss Johanna Bonheur Glorianna made 28.58 pounds butter in seven days; and the senior two-year old Jane Garden Cornelia Korndyke made 23.48 pounds butter in seven days.

The University of California has recently purchased a Jersey bull from the Luckiamute herd owned by Frank Loughray and Son, Monmouth, Oregon. The bull is a son of Rinda Lad of S. B. and is out of Octavia's Duchess, a cow with a record of 651 pounds of fat. The sire has 25 daughters in the Register of Merit and the dam was fifth in class at the last Pacific International Livestock Show.

A cooperative bull association is being formed in El Dorado County and the breed that has been selected is the Ayrshire.

E. C. Curtis, who was formerly in charge of the Riverina herd of Poland Chinas owned by Alex D. McCarty of Modesto, is now in charge of the hog plant at the university farm.

Grant Brown, Jersey breeder of El Monte, reports the death of Shy Lady Viola, grand champion at the 1920 Los Angeles livestock show.

Announcement has been made that Fred L. Washburn, president and manager of the Western Meat Company, San Francisco, has resigned. Washburn is one of the best known men connected with the livestock business of the West and has always been a hearty supporter of any movement tending to develop the industry in this state. He will be succeeded by J. C. Hooper.

A local cow testing association has been formed at Cloverdale. More than 100 cows have been entered.

Sales of dressed meat and livestock from the Napa state farm during February totaled over $19,000.

P. B. Long of Tulare was a buyer at the Spurgeon Poland China sale in Missouri and secured a bred gilt sired by The Giant Disher for which he paid $140.

HOLSTEIN OWNED BY GIRL MAKES BIG RECORD

A registered Holstein-Friesian heifer owned by Olga Saxer, 17 year old daughter of John Saxer of Modesto, has just completed official records of which any Holstein breeder or owner might well be proud. The heifer is Moorland Colantha Rose 380984, that freshened as a senior three year old and in seven days made 32.01 pounds butter from 667.5 pounds milk, and in 30 days made 132.56 pounds butter from 2815.9 pounds milk, ranking her among the best heifers of her age yet developed in California. Her breeding is in keeping with her production, as she is sired by Colantha Sir Pontiac Aaggie, a son of the great transmitting bull Colantha Johanna Lad. Her dam is Primrose Lily of the Valley 2nd, with 22.61 pounds butter in seven days as a senior three year old, she by Rouble Creamelle De Kol Son, a bull bred in the famous Pierce herd, formerly at Stockton. Miss Saxer herself fed and fitted this heifer for test, fed and milked her while on test, and is now carrying on her yearly test with every prospect of securing a large record. Moorland Colantha Rose is a particularly fine individual, and Miss Saxer is to be congratulated not only upon the ownership of such an excellent heifer, but also upon the contribution her records have made to the advancement of the breed.

Alvin M. West of the Los Angeles City Club is making an effort to gather information as to some of the public benefactors who have made contributions to the upbuilding of various communities in California, that is, founders of semi-public institutions, parks, playgrounds, etc. Mr. West feels that communities should know who these men are and something of their accomplishments.

Fortunately these benefactions have extended into rural communities as well as cities, and community halls and extensive parks are beauty spots which make for better life both in the country and in the more crowded sections of the cities.

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STATE REGISTER OF PRODUCTION FOR GRADE COWS

By Professor F. W. Woll

The college of agriculture of the University of California, through its animal husbandry division last year established a Register of Production for grade cows. Owing to changes in the staff of the division and other causes beyond our control but little progress has been made so far in the organization of the work, and only a few dairymen availed themselves of the opportunity to win distinction for their cows which this register will offer.

The register is intended to do for owners of grade cows what the various advanced registries are doing for pure breds. Unlike these, however, the Grade Register is based upon production records of ten months (305 days); cows must carry a calf at least five months of the record period in order to qualify for a certificate, and no certificate will be issued to cows that are known to have tuberculosis. The requirements for admission to the register are as follows: For cows with first calf and under three years of age at the time of freshening, a minimum production of 300 pounds of butterfat in ten months, and for cows with second calf or more, a minimum of 850 pounds of butterfat.

The register is conducted in cooperation with the cow testing associations of the state and is based on records of production obtained in these associations or in semi-official tests conducted under the rules governing such tests in this state. There is no extra expense incident to entering cows for the Register of Production to owners of grade cows in either case. On completion of the record period a neat certificate of production suitable for framing will be issued free of charge for all cows qualifying. All common and grade cows in the cow testing associations of the state and those on semi-official tests are eligible for entry, but after January 1, 1924, only cows that have been sired by a pure bred registered bull will be accepted for first entry in the register.

This register will enable dairymen to obtain production records of their best cows and gradually build up a high producing herd. As in the case of Advanced Registry cows, it will tend to increase the value both of the cows themselves and of their near relatives. In view of the importance of the dairying industry to our state it is hoped that the new register will lead many dairymen to so feed and handle their cows as to secure a maximum production from them and that it will in time prove a powerful aid in the improvement of our dairy herds. The attention of owners of good grade cows is called to the register and to the opportunities it offers to win recognition for good cows that they may own.

The writer will be glad to send copies of the rules and regulations of the Grade Registry of Production to those interested, and to furnish application blanks and further information concerning the same that may be wanted. Address Prof. F. W. Woll, University of California, Berkeley, California.

Book Review

SWEET POTATOES

"The Sweet Potato, a Handbook for the Practical Grower," by T. E. Hand and K. L. Cockerham, published by the Macmillan Company, New York.

"For many centuries the inhabitants of the warmer countries of the world have recognized the usefulness of the sweet potato as a source of food. Thus Bretschneider writes that the plant 'was described in Chinese books a long time before the discovery of America,' in the third or fourth century of our era. It was early an important cultivated plant, the roots of which supplied the place of corn in Southern China." The book consists of 12 chapters touching upon origin and description of the sweet potato, distribution, utilization, propagation, tillage, fertilizing and rotation, varieties, pests and diseases, harvesting, storage and marketing. "Although the exact origin of the sweet potato is doubtful, its widespread cultivation, which in range compares favorably with that of such plants as tobacco and maze, argues for it antiquity of many centuries." It is a 260 page book well illustrated, with very clean text.

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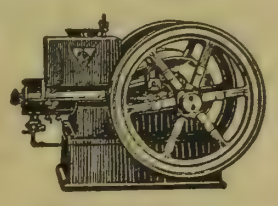

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Everyone tuberculin tested and cholera immune.

Alex. M. Wilson, Supt. Guasti, Cal.

California State Dairy Cow Competition, 1920-1922

By Professor F. W. Woll

The following address was delivered before the dairy meeting held at the university farm during Stockmen's Week.

THERE never was a time when so much thought and effort was expended to bring about improvement in agricultural and dairy conditions as is the case today. The agricultural colleges and the federal department of agriculture in its various divisions, the farm bureaus, farmers' institutes, state dairy councils or dairy bureaus, the breed associations, and other agencies, by the spoken and the written word are active in showing the way to a larger production and larger returns than in years past. Special impetus to educational work along dairy lines has been furnished by the scientific investigations conducted during the last decade or two and by the gruesome experiences of the war, which fully established not only the importance but the absolute necessity of an adequate milk supply for the welfare of the human race, both for healthy growth in the young and for the preservation of health in the adult. This makes it a pleasant public duty to do everything possible to advance the dairying industry by bringing home to those dependent on the keeping of cows for a living how their dairies may be made to yield larger and more profitable returns, how the cows may be fed and handled so as to yield a maximum production at the lowest cost compatible therewith. The fact that a large proportion of cows in common dairy herds produce less than 150 pounds of butter fat a year against a production of from 400 to 500 pounds by good dairy cows, and more than double this amount by the leading cows within each of the dairy breeds, renders the case especially interesting and hopeful. The dairyman who takes the trouble to post himself on what others are doing and upon the teachings of our agricultural colleges and other educational agencies soon sees that the chances for improvement though the adoption of modern methods of herd management are most encouraging, and once started on the road toward improvement he forgets past troubles and discouragements and becomes a booster for the cow. As the industry advances a growing appreciation among the public is apparent, the dairyman gradually comes to his own and is likely to receive the reward for his labors to which he is justly entitled and which in the past was often withheld from him.

One of the means of advancing our dairy industry, in which the college of agriculture has been engaged during the past season, is through the state dairy cow competition of 1920-1922. This is the second effort of this kind that has been made in this state, the first competition having been brought to a successful close three years ago. The story of that competition may be familiar to most of you. It is told in Bulletin 301 of our college of agriculture, which is still available for distribution. At the stockmen's meeting a year ago this week the question of conducting a second competition was discussed and the plan endorsed by the dairy farmers in attendance. The preliminaries were completed during the following two months and, according to the announcement made, the competition commenced September 1 last year. It will be continued through the present year up to and including January 1922, making it possible for us to have the formal wind-up with awards of prizes a year hence, during the stockmen's week of next year. The competition has now been continued for over five months. As entries are open to April 1, the enrollment is not complete, new entries being received almost daily. Only a progress report will therefore be made at this time, but I am happy to say that the results so far reached justify the belief that the competition will prove of still greater interest and value to the dairymen of the state than that of 1916-1918, in point of number of breeds and dairy farmers participating and of cows entered, as well as records made by the cows. At the present time 343 cows have been entered in all, of which 140 are pure breds and 203 grades. The different breeds are represented as follows: Among the pure breds—Holstein 72, Jersey 41, Guernsey 19, Ayrshire 6, Shorthorn 2; and among the grades—Holstein 116, Jersey 46, Guernsey 35, Ayrshire 5 and Shorthorn 1. These cows are owned by 40 different farmers located in 16 different counties. All these figures will, of course, be greatly changed before the entries close, and we only note at this time that this is truly a state-wide competition. Dairy farmers in all parts of the state are taking part, from Del Norte and Humboldt Counties to San Diego and Imperial. Los Angeles County has the honor of having the largest enrollment, with nine different breeders and dairymen. Stanislaus comes next with entries from 6 herds, and other counties follow in this order: San Joaquin, 4; Humboldt and Imperial, 3 each; Yolo, Riverside and San Diego, 2 each; and one representative each from Del Norte, Sutter, Sonoma, Napa, Solano, Contra Costa, Santa Cruz and Orange.

In point of wide distribution throughout the state the enrollment is therefore all that can be asked for, but one cannot but wonder where are the dairymen of the splendid dairy sections covered by the counties of Sacramento, Glenn, Colusa, Tulare, Merced and Fresno, nearly all of which have successful cow testing associations and prominent breeders of dairy cattle within their midst. In most of these counties breeders are planning to enter cows in their dairy herds in the near future, and by the time the entries close the alignment of participating breeders will doubtless have changed greatly. In the meantime we note with satisfaction that both southern and northern counties have promptly availed themselves of the opportunity offered by the competition to win distinction for owning dairy cows of exceptionally high quality and are reaping some of the benefits resulting therefrom in the way of advertisement and prizes.

The monthly summary reports that have been issued show that the average production of the cows entered has ranged between 50 and 55 pounds butter fat for the month, equivalent to over two pounds of commercial butter per head daily. Three hundred monthly records of over 50 pounds butter fat have been made; 26 of these fall between 50 and 60 pounds, 86 between 60 and 70 pounds, 50 between 70 and 80 pounds, 25 between 80 and 90 pounds, 9 between 90 and 100 pounds, and 4 over 100 pounds. The four 100 pound cows are: Johanna Hengerveld Capunna, a purebred Holstein owned by Dean Beeman of Woodland, production 103.99 pounds of butter fat; Rose, a grade Shorthorn owned by Earl Graham of Compton, 113.3 pounds; a grade Holstein owned by J. D. Hoffman of Pasadena, 101.5 pounds; and Lady Kate's Rosette, a pure bred Jersey owned by D. F. Conant of Modesto, 101.27 pounds. These and many other competition cows are rolling up production scores month by month that will be most creditable even in these days of record making and record breaking. It need not be further elaborated what splendid advertisement such records are for the owner, the breed and the state, for we consider it part of our business to let the press and the dairy world know as promptly as possible about the records made each month.

The prizes provided for in the competition through the generous assistance of breeders and dairy farmers interested in the advancement of California dairying amount in the aggregate to over $6,000, of which about $4,000 are cash prizes. All these will be awarded at the close of the competition for ten month production records by individual cows and by groups of five to ten cows in a herd, with the exception of a series of 16 monthly prizes of $25 each, offered by California Cultivator of Los Angeles for the highest average production of five grade cows in the herd in one month. This prize has now been awarded five times and was won in September by C. F. Holman of Stockton for an average production of 69.4 pounds butter fat by five grades; in October and December by two groups of five grades each owned by Earl Graham of Compton, average production of 83.3 and 76.0 pounds butter fat; and in November and January likewise by two groups of five grades in

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Just as the De Laval Cream Separator established new and higher standards of efficiency and construction, so is the De Laval Milker establishing higher standards among milkers. It is strong; durable; simple in construction and operation; easy to keep clean; saves time, and increases production.

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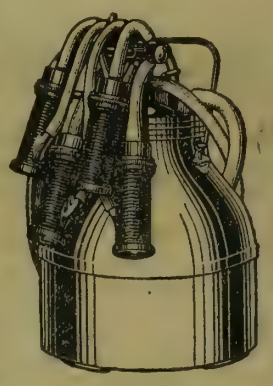

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the herd owned by Los Angeles County Farm at Hondo, average production 69.8 pounds and 78.5 pounds butter fat. Grade cows averaging over 2½ pounds butter fat a day are certainly excellent dairy cows and a credit to any herd, either pure bred or grade. They testify to the ability and the grasp of dairy problems by the owners and show the possibilities of the modern dairy cow under skillful management. The California Cultivator prize was contested for by ten different dairy farmers last month. Seven of these groups of grades each averaged over 50 pounds butter fat for the month; the two lowest averaged 41.7 pounds fat. This production, although only one-half of the prize-winning grades, is still 50 per cent in excess of what is considered the production of a good dairy cow and is over 100 per cent in excess of the average production of dairy cows in this and other states.

The preceding is perhaps sufficient to indicate the results so far reached in this state competition. We know that the present enrollment will be very materially increased before entries close by the end of next month, and confidently expect that it will prove of even greater importance to our dairy farmers and for the promotion of the dairy industry in the state than is suggested by the results reached to date. It will give ambitious dairymen the best possible opportunity to build up a reputation and increase the returns from their dairies, whether they are breeders of pure bred stock or keep grades only, and may offer them a year hence an opportunity of bringing home rewards for their labors in the form of cash prizes and trophies of different kinds. Over and above these rewards will come the satisfaction of having discovered the capacity of their cows for dairy production and of being able to feel that the profession of dairying has been raised in the estimation of their fellowmen through their efforts. Those so situated that they can enter cows in the competition are urged to do so now. We have no assurance that another opportunity of this kind will ever be offered again. It is a large machinery to set in motion, and an expensive one to the college, in spite of the liberal support received from outside parties. The services of the college of agriculture and of its animal husbandry division are at your disposal in connection with this competition, as in other ways. Take advantage of it while you may and join in this effort to put the California dairy cow at the head of the procession.

GUERNSEY BREEDERS IN HUMBOLDT ORGANIZE

The Guernsey breeders of Humboldt County have just organized a Guernsey Breeders Association, which is to be affiliated with the American Guernsay Cattle Club. E. L. Westover, western representative of the latter association, was present at the organization meeting and spoke at length on pure bred Guernsey breeding throughout the United States. There are not a great many Guernsey breeders in this county, but those who do favor the stock and have given it a thorough trial are highly satisfied with the results and hope to promote the production of pure bred cattle on their ranches through organized effort.

Guernsey, like Jersey, stock thrives in Humboldt coastal valleys which are said to more nearly resemble in climatic conditions their native home than almost any other section of the United States.

Dr. J. W. Logan, county farm adviser, was elected an honorary member of the Guernsey breeders organization, and the officers are all prominent and progressive dairymen of Eel River and Mad River Valleys. Chris. Rasmussen, president; S. V. Morrison, vice-president; L. D. Smith, secretary. —J. M. Thomas.

Snow and rainfall for the month of February were low in the San Joaquin Valley. On February 28 the total precipitation for the year was 19.09 inches. The snowfall was 168 inches for the year. Owing to the abnormally high temperatures during February 54 inches remained on February 28 at the recording station.

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The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows

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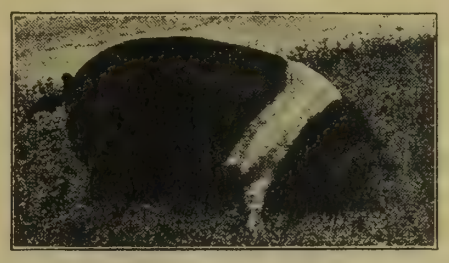
Blue Ribbon Hampshires



Our Grand Champion Hampshires have paved the way for breeding high-class Hampshires on the Pacific Coast. Blood lines of Lookout Cherokee, Director, Sioux Queen and Gen. Tipton dominate the herd.

Both Hampshires and Shorthorns in finest thrift. Call at ranch or address

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Therefore Our Experience Is Valuable To You

DISPERSAL SALE
R. F. Guerin Herd

60 REGISTERED HOLSTEINS 60
Visalia, Cal., April 14, 1921

This is a herd of young cattle. and contains a large group of daughters of Sir Veeman Korndyke Pontiac, 30 lb. son of Sir Veeman Hengerveld.

SIR VEEMAN KORNDYKE PONTIAC has a nice list of A. R. O. daughters, including one that made over 21,000 lbs. milk in one year as a 2 year old, and she has just made over 33 lbs. butter in 7 days as a 3 year old in the herd of Earl Graham, Compton. Two other daughters, both 2 year olds, and both in this sale, are now finishing excellent yearly records at Burr Farm, Los Angeles.

The younger females in the herd are largely daughters of KING SADIE VALE IDYL SEGIS, a son of King Korndyke Sadie Vale 27th, and a 35 lb. 3 year old daughter of King of the Pontiacs.

Besides these two large groups there are daughters of KING MORCO ALCARTRA, KING SEGIS PONTIAC JANNEK, KING SEGIS ALCARTRA PRILLY, and other popular sires.

KING TOLA KORNDYKE PONTIAC is an outstanding young bull in this sale. He is sired by the $12,000.00 King Korndyke Pontiac 20th, and is out of K. P. Tola, 36.16 lb. daughter of King of the Pontiacs, now making a yearly record at Burr Farm that promises to go over 1000 lbs. butter. He is a first class individual and ought to head a good herd.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and individual certificates furnished buyers.

Write for catalog now.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Calif.

SANTA ANITA RANCHO
First Individual Public Sale

60 REGISTERED HOLSTEINS
Santa Anita Rancho, Santa Anita, Cal.
Tuesday, April 26, 1921

INCLUDING:

SUNDRIE SUNBEAM GIRL, the famous dam of triplets, that made over 1000 lbs. butter last year after dropping triplets.

THE HIGHEST RECORD COWS in the herd, including a 35 lb. cow, a 34 lb. cow, and daughters of 1000 lb. and 1100 lb. cows.

MANY FEMALES BRED TO THE $41,000.00 KING KORNDYKE PONTIAC ACME, the earliest and best opportunity to select highly bred females in calf to this outstanding young sire.

TWO HERD SIRES TO BE SOLD

MERCI LAD KORNDYKE BURKE, son of De Kol Hengerveld Burke and the first cow to make over 1200 lbs. butter in one year in California. He was Grand Champion at 1920 California State Fair, and now has a 30 lb. 4 year old daughter.

PRINCE WALKER CORNUCOPIA, son of Prince Gelsche Walker and the 36 lb. cow Alba Sadie Cornucopia Creetia, who also made 866 lbs. butter in one year at a previous freshening. He is a high class individual and would not be sold except that in the reduction of the herd the service can be handled by King Korndyke Pontiac Acme.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer.

Management

California Breeders Sales and Pedigree Co.

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ALL RISKS ELIMINATED

Nothing left to chance when you buy one of our Holstein bull calves. Every one guaranteed free of tuberculosis. Every one guaranteed to be a breeder. Every one from an official tested dam, A. R. O.-A. R. S. O., yearly semi-official and cow testing association records. (All made under normal dairy conditions in string with 100 others.) Sires from the most popular high producing strains in California. Offered at Bargain Prices. Phone, Downey 42

LOS ANGELES COUNTY FARM **Hondo, California**

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Indigestion

I have a fine heifer about two years old that will soon be fresh. All her life she has been fond of paper and other trash that she finds about the barnyard. She is running on green pasture but does not seem to be as fat as she should. Do you think she may have tuberculosis? If so what should I do for her?—Subscriber, Santa Ana.

The symptoms you give do not indicate tuberculosis, although she may have it. The depraved appetitie indicates a form of indigestion. Give her this: One ounce aloin, one-half ounce powdered nux vomica, three ounces turpentine and enough raw linseed oil to make one quart. Mix. Shake well and divide into three doses. Give one dose as a drench every day while it lasts. After this give her plenty of salt with a little fresh wood ashes in it.

Heifer Fails to Breed

I have a heifer that had one calf but I have tried for a whole year to breed her and have not succeeded. I had a veterinarian examine her and he says one of her ovaries is affected and she may require treatment for a long time, perhaps for a whole year. He also says that not more than 40 per cent of cows in her condition ever do breed again. He advises selling her to the butcher. What would you advise?—Subscriber, Covina.

After you have tried for a whole year to breed the heifer and failed I believe I will have to agree with your veterinarian. I would not advise starting a treatment that would last for a year. The cost would be too great. There are some things we cannot do. Probably the butcher will give enough for her to make a good start toward paying for another. That is about the best way out of it.

Lump on Jaw

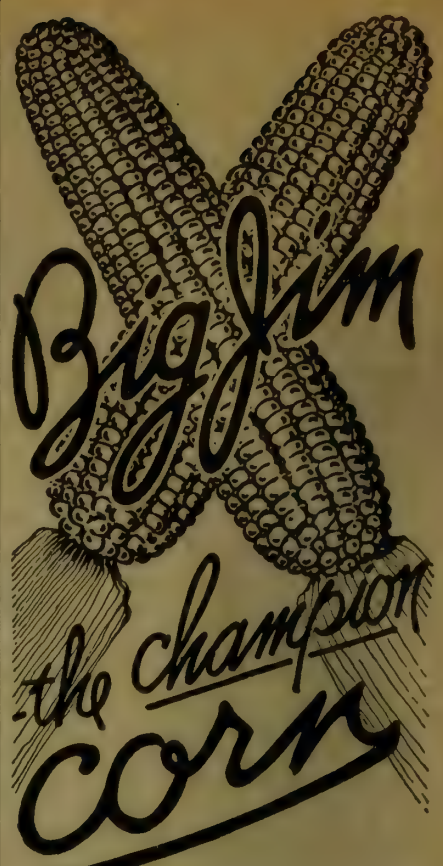
Please advise me what to do for a cow with a lump well back on her jaw. It appeared almost over night. I also notice a swelling under her chin evidently from the same cause. It is only a day or so since it came. She is a good Jersey and I wish to cure her if possible. It does not seem to hurt her as she eats green alfalfa and romps as usual. I also feed her oat hay. Is there anything in this to hurt her?—Subscriber, Yucaipa.

The lump was probably caused by a bruise or by the skin being punctured by a nail or thorn. Liniment will not do much good. If the lump softens a little in the center open it. Do not be afraid to make the opening large as it will heal better if it does not close too soon. Wash it out with warm water with enough permanganate of potash in it to make it dark red. It probably is not serious as it came so quickly.

The Santa Barbara County farm bureau has just formed a county fair association incorporating on a $200,000 basis for the purpose of putting on a fair this fall. The board of directors is now working on the problem of selling the stock and purchasing the ground.

A decision has just been handed down by the state railroad commission removing the toll on telephone calls between Santa Barbara and Goleta, placing the Goleta phones on the same basis as those in Santa Barbara. This is the result of a hard fight by the Goleta center of the farm bureau.

Lindsay, Tulare County, will this season ship some 31 carloads of broccoli. This is a new industry for Lindsay.



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It grows to gigantic height, producing an abundance of leaves and averaging two 10 to 15-inch ears to the stalk. Thrives in any soil.

Read pages 46 & 47 of Germain's 1921 Catalog. Write Dept. B for a FREE copy.

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Great Fertilizer DISCOVERY

LIGNAITE SOLUTION——a highly concentrated fertilizer, discovered by an English scientist—ELECTRIFIES, RADIUMIZES, REJUVENATES the soil. ENERGIZES any soil, no matter how poor.

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$1.00 size good for 1,000 sq. ft.
$8.00 size good for quarter acre
$15.00 size good for half acre
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No daily cleaning necessary. No wicks to trim. No chimneys to wash. Lights with matches. Makes and burns its own gas. Can't spill or explode, even if tipped over. Use it around barns, cow sheds, chicken houses, cellars, granaries, garages—everywhere.

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Gives 300 Candle Power of strong steady light. Brighter than 30 old style oil lanterns. Can't blow out. Your dealer sells it or will get one for you on approval. Free Book. Write to Department A3

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Retailing Beef from Farm

Is there any law forbidding a farmer or stockman to sell dressed beef or pork?—Subscriber, Hemet.

There are several laws relative to the selling of meat. Of first importance is the federal law, providing for detailed inspection of the carcasses of animals intended for export or subject to interstate commerce. This contains a section which states that none of its provisions apply to animals slaughtered by a farmer on his farm, which may be transported in interstate commerce, provided, however, that if such animals go to a packing or canning corporation for interstate commerce they shall be subject to examination. The various acts relative to marks and brands apply to different counties of the state. One of these acts, which seems to apply generally, provides that any person slaughtering cattle shall be required to retain in his possession the hides taken from the animals with the earmarks attached thereto without any alteration for a period of ten days. Any justice of the peace, constable, or any other person may within said period demand the exhibit of such hides. For any violation of the provisions of the act a party may be held liable as for a misdemeanor. An act in force in 1917 provides that any person desiring to have the healthfulness of meat or meat products certified may make application to the state veterinarian on blanks to be furnished. Upon receipt of this application, inspection of the establishment shall be made and official brand given, which shall be used to mark all products. Cost of inspection shall be borne by the establishment. When in the opinion of the state veterinarian the volume of business is sufficient to continue the inspection the establishment shall pay a fee of $150 per month. If more than one inspector is required to be provided, the fee shall be increased. In case of less than one inspector, the fee shall be prorated among the establishments. In no case shall the fee be less than $50 per month. The slaughtering shall be conducted between seven o'clock in the morning and seven o'clock in the evening. The animals must be inspected before slaughter and also post mortem examination made. This act is, however, permissive. That is to say, a person can have the examination or not, as he may desire. There seems to be no state act or general application requiring such inspection to be made or in any wise forbidding sale of such meat. It may be that there are in some counties ordinances which contain provisions with respect to the slaughter of animals.

Fence Law in Oregon

I have a piece of unimproved timber land with no buildings. Am I required to build a half-line fence?—Subscriber, Fruitdale, Oregon.

There seem to be different laws applicable to different counties of Oregon with respect to fencing. The general rule seems to be about as it is in California, that is to say, the owner of property is not compelled to build a fence but cannot maintain an action for damages against trespassing cattle in case no fences are built.

President Raises Own Salary

Is it illegal for the president of a corporation to raise his own salary from time to time without authority from the board of directors? If illegal, what is the penalty?—Subscriber, Galt.

Unless the authority is given to the president in the by-laws of the corporation it would certainly be out of his authority to take any such action. A stockholder or the board of directors acting for the corporation could recover the amount of the excess salary in an action brought against the president.

Corporation Funds

Is it illegal for the president of a corporation to loan funds on a note of the corporation without the consent of the board of directors when the corporation is not in the money lending business? If illegal, what is the penalty?—Subscriber, Galt.

There might be instances where the president was justified in such action, but generally considered it would be out of his authority and either the president or the person to whom the money was loaned could be held liable for the return of the money due to the corporation irrespective of the term of the note. A president of a corporation is a mere agent whose authority is bounded strictly by the by-laws and articles of incorporation and also the acts of the board of directors and stockholders. His acts outside of this authority are just as invalid as those of any other agent and like penalties may be prescribed. It may be that criminal complaint might be issued as has been done in similar cases.

Partnership

Two parties engage in partnership by verbal agreement. Thereafter, one denies the partnership, obtains the profits of the business and disappears. The other obtains judgment against him and brings action against his bondsman, who takes action against both of the partners for the money misappropriated by the one. Could the bondsman obtain judgment against the remaining partner and what action should he take to protect his property from the liability of such judgment in case the papers in the action have not been served?—Subscriber.

In a complicated action such as the above where the parties must undoubtedly have legal advice, it would hardly be possible to give any answer as to the possibility of the bondsman obtaining judgment. There are means that people do adopt to conceal their property from creditors, but the writer does not feel that this is a medium for making known such methods. The subscriber should see his attorney and follow closely the attorney's advice.

Laws of California

What is the best work which a layman could obtain for reading up on the laws of California?—Subscriber.

The codes of this state are published by law publishers in San Francisco, but in case of any serious difficulty, it would certainly be a part of wisdom to take the matter up with a competent local attorney.

Foreclosing Trust Deed

I have a trust deed running for a number of years. Can I foreclose before the expiration?—Subscriber, Yolo.

The contract must be performed in accordance with its terms. If the party who executed the trust deed keeps up his payments, the principal, taxes and installments, in accordance with the terms of the contract, he is entitled to have it run for the full period. If he fails to keep up his payments, then the deed may be foreclosed in accordance with its terms.

Terminating Contract

What action must be taken to terminate an agreement for the purchase of real estate where the purchaser has failed to pay the principal and interest due?—Subscriber, Artesia.

If the contract has been recorded, an action to quiet the title to the real property could be taken or an action in equity to rescind the agreement or an action upon the agreement affirming the sale to collect the balance due could be taken. Which form is preferable in the individual case would necessitate an examination of the contract itself, and the circumstances of the case.

Trial Postponed

A year ago I was arrested on a misdemeanor charge, pleaded not guilty, and was released on bail. My attorney

(Continued on Page 403.)

DISPERSAL SALE

135 Federal Tested Registered Holsteins

Toyon Farm Association

LOS ALTOS, CAL.

April 20-21, 1921

This offering consists of 115 young females and 20 bulls.

There is a wonderful quality of breeding present, including many daughters of Sir Pietertje Ormsby Mercedes 43d, Sir Pietertje Ormsby Canary, Sir Aaggie Mead, Sir Korndyke Ormsby Piebe, Sir Bessie Fobes Tritomia, Mutual Fobes Longfield De Kol, Sir Ormsby Burke Segis, and others of corresponding worth. THE BRED FEMALES are mostly in calf to Sir Pietertje Ormsby Mercedes 43rd, Sir Pietertje Ormsby Canary, and Sir Aaggie Mead.

SIR AAGGIE MEAD is in the sale. He is one of the greatest young sires ever led into a sale ring in the West. Sired by Sir Aaggie De Kol Acme, and out of Aralia De Kol Mead who made a strictly official record of 1215 lbs. butter in one year, he combines blood lines of the highest worth and popularity. He is a high class individual and his first calves are very satisfactory.

DAIRYMEN, by all means attend this sale if you are in need of a young bull. There are 20 to select from and they are good ones.

BREEDERS, besides Sir Aaggie Mead there are a number of young bulls in this offering that are the sort to head purebred herds, representing lines of breeding not available in the west except in this sale.

Everything over six months old tuberculin tested by Federal Veterinarian and individual certificates furnished; every animal guaranteed to be a breeder.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Calif.

$7.50 after 30 Days FREE TRIAL

WE will send an Imported Melotte Cream Separator direct to your farm on a 30 days absolutely Free Trial—No deposits—No papers to sign—Use it as if it were your own separator. Compare it—test it in every way.

You and you alone are the judge.

We don't want anybody to send us any money on the Melotte. We want to prove first that it is the best separator possible to buy anywhere in the world.

No Money Down

Don't pay a cent until you are convinced the Melotte skims cleaner, turns easier, washes quicker, lasts longer than all others. Then you pay $7.50 as first payment and small monthly payments of only $7.50 until the separator is paid for.

Belgium Imported — Duty Free Melotte

Invented by Jules Melotte, the Edison of Europe, this wonderful separator stands first in all dairy countries of Europe. Used on 90% of all Belgium Dairy Farms, where every penny must be saved. Special Act of Congress admits the Melotte Duty Free to save money for American farmers.

You pay no duty. Water freight is only $1.75. Rock bottom price and *easy payments!*

Self Balancing Bowl

The Belgium Melotte is the only single-bearing - bowl separator ever made. This patented bowl hangs from one frictionless ball bearing and spins like a top. It is *self-balancing.* It skims as perfectly after 15 years' use as when new. Positively can not ever get out of balance—cannot vibrate and thus cause cross currents which waste cream by remixing with the milk. The 600 lb. Melotte turns as easily as the 300 lb. machine of other makes. Spins for 25 minutes unless brake is applied. No other separator has or needs a brake. The Melotte bowl has solved the problem of perfect skimming.

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Don't buy any separator until you have found out all about the Melotte, its 15-year guarantee and our 30 Day Free Trial Offer.

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ORDER NOW *and get early buyers' discount*

We are offering a special early buyers' discount for a limited time on the famous Indiana Silo.

We want to keep our plant operating at full capacity during the spring months. If you have ever considered building a silo, it will be money in your pocket to see our local agent or to write us at once.

Build Your Silo Early

It pays to build your silo early. You get a special discount and besides save labor, time and money. The job is out of the way when the rush season comes. You can plan your work ahead, get in your ensilage crop and have plenty of time to handle it properly. Decide now and write for full information.

20,000 Indiana Silos

Indiana Silos have made good for 22 years. Twenty thousand sold Pacific Coast farmers. Manufactured of highest grade Oregon fir, including shingle roof, rafters and sheeting cut to fit, built-up door frame, hoops bent to form, wrenches and draw rod. Full building instructions.

To take advantage of this special discount you must act at once. See our local agent or use the coupon.

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Salem, Oregon

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Owner Holstein Herd of Forty to Sixty Cows

who will move to our farm and operate dairy for production of cream. Will contract for cream and skimmed milk; build barn and silos and furnish hay and grain on basis to be agreed upon. This to be dairy department of farm operated by us to furnish supplies for our four Pasadena Hotels. Vegetable, grain and poultry departments now in operation. Unlimited opportunity for expansion as we consume over one hundred thousand dollars worth of dairy products annually. Farm location seven miles from Riverside on Boulevard.

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Pasadena

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HEREFORDS AVERAGE $236

The 57 head of Hereford bulls and females consigned to the sixth public sale held under the sponsorship of the Pacific Coast Hereford Cattle Breeders Association at the university farm, February 23 brought the 13 consignors an average of $236.50. This sale, like the Shorthorn the day previous, proved to be a buyer's sale rather than a seller's, and while the general average was considerably lower than former sales held by the association the values were not greatly out of line with Eastern sales and only reflected the present stringency of the money market. Many men were present who expressed themselves as in need of cattle and willing to pay fair values for the better sorts but stated that they were unable to finance themselves until such a time as they could move such grain as they had in storage.

A weakness of the present situation was disclosed in the lack of a strong demand for females and indicated that before there is established a real market for the better sort of herd bulls more breeding units must be scattered throughout the state. The bull demand was confined largely to range men, and in as much as they were not forced to extend themselves they were able to fill their needs from a superior collection of bulls. Such cattle as were offered were a histinct improvement over the 1920 spring sale and the buyers can feel themselves fortunate in securing a class of cattle as were offered were a distinct their herds.

For the first time entries were received from Oregon breeders and the quality of cattle from the North was excellent.

The top of the sale was obtained by the University of California for their 2-year-old, California Prime Donald 3d., that was phrchased by the Simon Newman Company of Newman for $675. The top female was Lady Gladys from the Cazier offering that sold with a November bull calf at side sired by the noted Engle bull, Beau Blanchard and rebred to the Cazier sire, Beau Blanchard 76th. This lot was picked up by John A. Bunting of Mission San Jose at the extreme bargain price of $525.

The sale was efficiently managed by C. L. Hughes of the California Breeders' Sales and Pedigree Company. Col. H. L. Hull of Des Moines was the auctioneer and made a most favorable impression on the breeders present. He was assisted in the ring by Cols. John A. Davis of Manteca and George W. Bell of Tulare.

A representative list of sales follows:

Consigned by H. M. Barngrover, Santa Clara

1, Diablo Hope, 886045, Oct., 1919, McCreery Estate, San Francisco, $150.
2, Donald Patrician, 804170, Mar., 1919, McCreery Estate, $180.
3, Patrician Fairfax, 804175, Mar., 1919, McCreery Estate, $290.
4, Ananias, 804169, Feb., 1919, Cornwell Bros., San Benito, $150.
5, Rosemont 2nd, 813627, Feb., 1919, J. W. Emde, Lodi, $200.
6, Edgewood Dick, 828713, May, 1919, McCreery Estate, $190.
7, Rochampton 41st, 813615, Feb., 1919, C. F. Havens, Woodland, $400.
8, Belle 2nd, 732814, Feb., 1918, G. F. Silliman, Watsonville, $235.
9, Penelope 35th, 643863, May, 1917, G. F. Silliman, $265.
10, Dorrill, 611922, Oct., 1916, G. F. Silliman, $290.

Consigned by A. H. Barnum, Moro, Ore.

11, Don Carlos, 744622, May, 1918, Roland Bass, Standish, $550.
12, Prince Carlos 2nd, 839869, April, 1919, H. B. Perrin, Santa Ynez, $450.
13, Deacon Carlos, 839859, April, 1919, Cornwell Bros., $350.
14, Hesoid Carlos, 839862, May, 1919, Simon Newman Co., Newman, $350.
15, Ray Carlos 3rd, 839874, April, 1919, J. A. Niles, Porterville, $440.

Consigned by Roland Bass, Standish

18, Western Stamp, 875025, Jully, 1919, J. W. Emde, $260.
19, Columbia 6th, 645548, Mar., 1917, E. F. Forbes, Marysville, $210.

Consigned by Wm. Bemmerly, Woodland

24, Charlie C., 809747, Mar., 1919, McCreery Estate, $150.
26, Elmer Francis, 809727, Feb., 1919, Cornwell Bros., $225.
28, Marian C. P., 483526, May, 1914, G. F. Silliman, $235.

Consigned by John H. Cazier & Sons, Wells, Nevada

29, Beau Del Sierra 19th, 887453, Feb., 1920, J. D. Grieve, Davis, $205.
30, Eudemon 6th, 888718, Sept., 1919, C. L. Silliman, Pope Valley, $285.
31, Eudemon 20th, 922198, Feb., 1920, J. A. Bennett, Chico, $150.
32, Nevada Lad 92nd, 826068, May, 1919, J. A. Bennett, $190.
33, Lady Gladys, 719484 (and b. c.), Feb., 1918, John Bunting, San Jose, $525.

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ANTHRAX

Of all livestock diseases, anthrax is one of the most fatal.
For the preventive and curative treatment of anthrax we offer

ANTHRAXOIDS
(Spore Vaccine)

For immunizing cattle, horses, sheep and mules.

Anthraxoids are Anthrax Spore Vaccine in pill form. Each Anthraxoid is a dose ready to be injected under the skin of the animal.

Antianthrax Serum

A serum to be used when animals show symptoms of anthrax.

Anthraxoids-Antianthrax Serum
(Simultaneous Treatment)

Double vaccination with serum and vaccine. Used when anthrax is established or suspected to be in a herd.

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Will pay big money to men with autos. Install Rideezee, the BETTER THAN AIR INNER TIRE. Cheaper than tubes, a light resilient substance guaranteed ten years. Equip your car at agent's price. Sell to friends. The business of the future.
RIDEEZEE CO., ST PAUL, MINN.

34, Bedrop 2nd, 732812, May, 1918, G. F. Silliman, $405.

Consigned by Finnell Stock Farm, Galt

35, Howell, 865441, April, 1919, J. A. Bennett, $150.
36, Roswell, 902227, Jan., 1920, R. M. Dunlap, Sacramento, $150.
37, Nyssa, 620138 (and c. c.), Feb., 1917, G. F. Silliman, $225.
38, Hermie, 887560, July, 1919, G. F. Silliman, $150.
39, Beneather, 470961, May, 1914, G. F. Silliman, $255.
40, Ruth, 577684 (and b. c.), June, 1916, G. F. Silliman, $190.

Consigned by H. H. Gable, Esparto

42, Don Alamo, 829445, April, 1919, E. F. Forbes, $160.
44, Rumsey, 829454, May, 1919, J. W. Emde, $160.
45, Yolo Fairfax, 829459, Aug. 1919, W. D. Duke, Gazelle, $410.

Consigned by Geo. W. Harwood & Son, Milford

46, Blossom, 799924, Mar., 1919, J. A. Niles, $160.

Consigned by Jas. B. McNerney, Carlton, Oregon

47, Blanchard Heir, 815937, Jan., 1919, Cornwell Bros., $335.
48, Blanchard Lad 7th, 815939, Jan., 1919, Cornwell Bros., $260.
49, Hazel, 365421 (and c. c.), April, 1910, E. F. Forbes, $375.

Consigned by Napa State Hospital, Napa

51, Eudemon 10th, 888722, Oct., 1919, C. L. Silliman, $200.
52, Sonoma Lass 5th, 722563, April, 1918, J. D. Grieve, $165.
53, Sonoma Lass 6th, 722564, Mar., 1918, Miller & Lux, $300.

Consigned by University of California

57, California Prince Donald 3rd, 803284, May, 1919, Simon Newman Co., $675.

Consigned by University of Nevada

58, Beau Del Sierra 18th, 887452, Jan., 1920, J. A. Bennett, $165.
59, Beau Del Nevada, 887450, Feb., 1920, C. L. Silliman, $150.
60, Beau Del Sierra 17th, 887451, Jan., 1920, C. L. Silliman, $200.

PUREBRED SIRES ON FOREST RANGES

Purebred bulls have proved their value for improving range herds, and the number being bought in the cow country of the West is rapidly increasing each year. The scrub bull is now blacklisted on the big national forest pastures.

During the season of 1919 three local livestock associations, the members of which use the ranges of the Sierra national forest in California, adopted rules for the purchase of purebred bulls. Under a special rule each association was required to place on the range a sufficient number of purebred Hereford, Shorthorn, or Aberdeen-Angus bulls. A committee to purchase and pass upon the credentials of each animal to be turned loose on the ranges was appointed.

Under this plan, during the grazing season of 1920, 105 Herefords, 97 Shorthorns, and six Aberdeen-Angus bulls were purchased by the stockmen through their associations and placed upon the range. It is estimated that at the end of the season of 1920 the stockmen had not less than 200 registered bulls on their ranges, resulting in a great improvement in the grade of steers turned out.

The forest service assists these local associations in enforcing the rules which require that the same kind and grade of bulls be placed on the same range. Permits to graze on the national forest pastures are refused those who do not conform to the association's ruling and who have not paid their share toward the purchase of the association bulls.

JERSEY BREEDERS ASSOCIATION

Judge Peter J. Shields presided at the recent annual meeting of the California Jersey Breeders Association at Davis. There was rather more enthusiasm among the Jersey breeders than usual. The matter of a special publication to be distributed at the University Farm picnic was referred to a committee; also committee appointed to secure funds to finance California's part of the expense of maintaining a Western Jersey representative. This committee consisted of Messrs. Jenkins, Wherrell and Fortini. Calf club work was discussed with State Farm Bureau Leader Ryerson. Guy H. Miller reported regarding trip to Portland as delegate of the California Jersey Breeders. Congratulations were extended through committee, consisting of Messrs. Miller and Hayworth, to Mr. Conant because of record of one of his cows, in a start on her official test, of 100 pounds of fat per month. It was voted to give fullest support to a Western Jersey show to be held as soon as a Western field man could be secured on the job and sufficient financial assistance guaranteed.

TUBERCULOSIS ERADICATION

At the end of the last calendar year there were in the United States more than 5,000 accredited herds free from tuberculosis. One June 30, 1920, there were 3,370 such herds, and six months later, on December 30, there were 5,013, according to figures just compiled by the bureau of animal industry, United States department of agriculture. During the six months period there has been a marked increase in the number of herds that have successfully passed one test. On June 30 there were 16,599 such herds, and on December 30, 27,842. The department issues a report each month showing by states the number of herds that have been tested, the number of cattle that have reacted, and the number that have been found to be free from the disease.

Minnesota, with 731 accredited herds, leads all other states, with Wisconsin second with 496 herds, and Pennsylvania third with 425. During December 1,447 herds, in which there were 13,979 cattle, were tested in Mississippi. In Wisconsin 851 herds, having in all 15,411 animals, were tested.

We are going to disperse our entire herd of Guernseys. We offer you one or all.

50 GUERNSEY FEMALES

with records up to 751 lbs. in A. R. Springing heifers and heifer calves. Bull calves of all ages. All tuberculin tested and guaranteed breeders.

Hollow-Hill Farm
COLTON, CAL.

SENSATIONAL DISPERSAL
180 Registered Holstein Cows and Heifers 180
3 HERD BULLS 3
Jane Garden Farm, Sacramento, Cal.
April 6-7, 1921

In Announcing This Sale the Following Items May Be Taken into Consideration:

EVERY FEMALE in the herd will be sold.

THE THREE HERD BULLS, King Korndyke Pontiac, Prince Gelsche Walker Korndyke, and Aristo Korndyke Pontiac will be sold.

SIR AAGGIE DE KOL ACME, owned jointly by Mr. Kiesel and A. W. Morris & Sons Corporation, will not be sold. The Morris firm has just purchased Mr. Kiesel's half interest at private treaty.

NO YOUNG BULLS will be offered in this sale. Jane Garden Farm has for several years had a well organized and successful method of disposing of young bulls, and this plan will be carried out with the young bulls now in the herd.

EVERY ANIMAL is positively guaranteed to be a breeder; no animal is sold tuberculin tested.

Because of their influence on this offering, please consider carefully these three bulls:

SIR AAGGIE DE KOL ACME, son of Aaggie Acme of Riverside 2nd, 1331.78 lbs. butter in one year, the world's strictly official record. He is one of the outstanding young bulls of the breed today.

KING KORNDYKE PONTIAC, son of King of the Pontiacs and May Korndyke 2nd, who is half sister to the dam of the new world's record milk producer, Segis Pietertje Prospect, and is out of May Korndyke, for many years the youngest 30 pound cow of the breed.

PRINCE GELSCHE WALKER KORNDYKE, son of Prince Gelsche Walker, and the same dam as King Korndyke Pontiac, May Korndyke 2nd. He is a proven sire, with daughters up to over 31 lbs. butter in 7 days at 3 years.

The breeding represented by these three bulls holds a foremost place in the breed today, and makes their blood a valuable addition to any herd. Consider now that there are

40 DAUGHTERS OF SIR AAGGIE DE KOL ACME IN THIS SALE
30 DAUGHTERS OF KING KORNDYKE PONTIAC IN THIS SALE
30 DAUGHTERS OF PRINCE GELSCHE WALKER KORNDYKE IN THIS SALE

and that the sale also includes

OVER 25 FEMALES BRED TO SIR AAGGIE DE KOL ACME
OVER 30 FEMALE BRED TO KING KORNDYKE PONTIAC

An outstanding feature of this herd is the growthiness of the individuals as a whole, for proper feeding and growing of the young stock has always been rated a cardinal principle in successful breeding at Jane Garden Farm. In connection with this, the element of age enters largely into the value of this offering, which is essentially one of young cattle. In surveying the ages of the females we find that one was born in 1911; three in 1912; four in 1913; six in 1914; twelve in 1915; eighteen in 1916; twenty-two in 1917; twenty-three in 1918; forty in 1919; twenty-nine in 1920. This accounts for 158 of the 180 females in this sale, the balance being heifer calves born since Jan. 1, 1921.

Unquestionably this offering presents an opportunity for the selection and purchase of highly bred young females carrying blood of proven and popular worth, seldom if ever equalled before in California.

As to Production Records

A very large percentage of the females of milking age in the herd have official short time records, or semi-official 305 and 365 days records, or are now on test. Included in the offering is a wonderful group of two, three and four year olds, with official records ranging up to over 34 pounds butter in 7 days for a 3 year old. A large group is now on yearly test, some well along on their records, and all females now fresh or to freshen before sale will be carried on test up to sale day so that buyers may carry them on if they wish.

Just consider the great value of the calves from these high record young females, sired by such bulls as Sir Aaggie De Kol Acme, King Korndyke Pontiac, Prince Gelsche Walker Korndyke, and Aristo Korndyke Pontiac.

The owner is prepared to extend most liberal terms to those who make satisfactory arrangements for credit with him prior to sale. Applications may now be made either in person or by letter to FRED W. KIESEL, California National Bank, Sacramento, Calif.

Catalogs will be ready for distribution on March 26. Write for one now.

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

Classified Liners

The direct selling method from producer to consumer, and a clearing house for over 40,000 subscribers. Weekly Liner rates: Single insertion 4½ cents per word; 45c per issue minimum charge. Cash with Order

Mail all classified copy to Los Angeles Office.

POULTRY

Best Chicks Grow Into Greatest Winter Layers, cost little more, yield greatest profit. Our White, Brown, Buff Leghorns, Andalusians, Anconas, Reds, Rocks, Minorcas, Wyandottes (ducks, turkeys), bred 20 years to lay winters and 180-290 eggs yearly, often clear customers $5.00. "Pullets raised from your chicks averaged 209 eggs last year"; "114 hens cleared $612 in 12 months." "Fourteen pullets laid 300 eggs January, 330 February." "Get more winter eggs from 60 your hens than from 200 formerly;" 140,000 electrically hatched. Half booked, yet nearly every week open for thousands, reasonable. Former customers take half. Don't delay. Write (rarely home) Profitable Poultry, 19 North Fair Oaks, Pasadena.

Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

Buy Early Chicks—Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, California.

S. C. White Leghorn Baby Chicks from heaviest laying (Hoganized) stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June $5.00 per 25, $9.00 per 50, $14.00 per 100. Special prices 500 and 1000 lots. Largest electric hatchery in the World. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh Street, Petaluma, California.

Sly's Old Mission Strain Rhode Island Reds. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. SLY, 1642 (D) Middleton Place, Los Angeles, California.

Baby Chix—S. C. White Leghorns from open range standard bred parent stock of utmost utility. Protect yourself in having your order booked early. Prices, etc., on application. I. X. L. Hatchery, 519 Upham Street, Petaluma, Sonoma County, California.

S. C. White Leghorn Baby Chicks from my carefully selected, pure-bred stock of S. C. White Leghorns. Orders for spring delivery booked now at $15.00 per 100, $140.00 per 1000. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks — Barred Plymouth Rocks and Rhode Island Reds in 25, 50 and 100 lots 20c each. Hatching eggs $2 per 15. We ship by Parcel Post, pay all charges. Write for circular. Hargett & Son, Route 2, Compton, California.

Baby Chicks hatched to order from Black, White and Buff Minorcas. Eggs for sale. Also 4 White Minorca Cockerels $5.00 and $10.00 each. Black Cochin Bantam Eggs. Horace W. Crowell, 58 N. Craig Avenue, Pasadena, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, California.

For Sale — Hoganized White Favorolle with laying records 230-240. Setting of 15 eggs $5 and $10. White Favorolle Poultry Farm, Andres Stammerjohann, Ontario, California.

Light Brahma Eggs for Setting — Stock from University Farm, Davis. $5.00 for 15. Also two cockerels, same stock. Mrs. C. W. Keys, El Monte, California.

Purebred Buff Orpington Eggs $3.00 per setting of 15. Incubator lots to suit. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Single Comb Black Leghorns—Combine beauty and utility. Why? Write for circular. Hatching eggs, etc. Fred Turnbull, Box 108, Alameda, California.

Exhibition Quality Reds, trapnested, bred to lay. Write for descriptive circular. Satisfaction guaranteed. T. S. Caldwell, 335 B West Broadway, Glendale, Calif.

Hoganized Rhode Island Red Eggs for hatching, $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Baby Chicks—Can book a few more orders S. C. White Leghorns, McFarland strain. Mrs. F. C. Reineking, Inglewood, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jesch, Fallon, Nevada.

POULTRY

White Leghorn Hatching Eggs now hatching 75%. Bred for over ten years for vigor and heavy egg production. During high priced season we shipped more eggs to market than any other ranch near. We have more hatching eggs than necessary to fill contract with big hatchery which has taken our eggs for several seasons, which we will sell during March and April in 100 and 1000 lots at $6.00 per 100. No baby chicks. Verity Egg Ranch, 511 West Broadway, Glendale, California.

Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made such a remarkable record in the state laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

For Sale—10,000 W. L. Baby Chicks every week from California's heaviest layers. Each year some customer reports 200 eggs average in large flocks from our pullets. Lay large eggs from the start. $14.00 per 100, $130.00 per 1000. Rocks and Reds $17.50, Pekin Ducklings 30 cts. We ship everywhere. Free circular. P. Cook Chick Ranch, Alhambra. P. O. Los Angeles. Rt. 8 Box 45.

Baby Chicks—We have 8,000 selected Hoganized hens, all on free range on different ranches, all mated to Tom Barron roosters. We guarantee full count of strong, healthy chicks. Book your orders with us now and avoid disappointment, as orders are coming in fast. 30 years in the business. Lasher's Hatchery, Petaluma, California.

Get Chicks Now and have layers for next winter when eggs are high. Hatches every week. Prompt reliable service. Safe arrival of vigorous chicks from good layers guaranteed. Hatched by electricity. White and Brown Leghorn, R. I. Red, Barred Rock. Reasonable prices. Stubbe Poultry Ranch and Hatchery, Box 67-D, Palo Alto.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

White Leghorns—hatching eggs our specialty, produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the West. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R. 1 Box 29, Gardena, California.

Chicks hatched in Petaluma Electric Incubators are a superior class; strong, vigorous, sturdy, grow rapidly, lay early. Our free catalogue tells the reason. Petaluma Electric Incubator Co., Petaluma, California.

Chicks — Eggs — Hoganized White Leghorns, Brown and Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, Calif.

White Leghorn Baby Chix from heavy-laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Price for April, May and June, $14.00 per 100. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

Baby Chicks hatched from our utility S. C. White Leghorns, a result of many years selecton and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

"Better Hatched Chicks"—S. C. White Leghorns, R. I. Reds. Our chicks are Bred Right, Hatched Right, Priced Right, Delivered Right and they Grow Right. Hatch each week. San Diego County Hatchery, San Diego, California.

For Sale—Baby chicks every week. Barred Rocks, R. I. Red, Black Minorcas, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Barred Rocks That Lay—Records 210, 220. Customers quote 196 and still laying. Eggs $2.50, 15 eggs; chicks 30c, limited number. Mrs. M. A. Warren, P. O. Box 517, San Jose, California.

Baby Chicks—White Leghorns and large breeds. For prices and description address Sunny Stanislaus Hatchery, Riverbank, California.

Baby Chicks — Can book a few more orders for early S. C. White Leghorn and S. C. Rhode Island Red chicks. Tupman Poultry Farm, Box 7C, Ceres, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

Partridge Wyandottes, some superfluous cockerels, well matured birds. Mrs. J. L. Dunn, Valley Home, California.

For Sale—White Wyandotte eggs, $2.50 per 15, $9.00 per 100. Mrs. Flora Cox, Anaheim, California.

POULTRY

Petaluma Hatchery — Established 1902. Capacity 30,000 chicks a week. White Leghorn chicks from heavy laying free range stock after April 15th, $15.00 per 100, $140.00 per 1000. During May and June $14.00 per 100, $130.00 per 1000. Brown Leghorns $1.00 per hundred more than White Leghorns. We positively guarantee safe arrival and full count of good strong chicks and no questions asked. L. W. Clark, Proprietor, 615 Main Street, Petaluma, California.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

Booking Orders For Eggs from our wonderful utility and prize stock of Bronze turkeys, geese, Pekin ducks, Muscovy ducks, White King pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, guineas. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

White, Light Brown and Dark Brown Leghorn Hatching Eggs from highest class exhibition stock, competitive with any flocks in the United States. Splendid layers. Eggs $3.00 per 15, $15.00 per 100. From best pens, $5.00 per 15. Mahajo Farm, P. O. Box 597, Sacramento, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Baby Chicks—White Leghorns, 10s, 100s, 1000s hatched right in $60,000 brick and concrete hatchery from Hoganized, Trapnested heavy layers. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Eggs from Hens that lay and pay. R. I. Reds and Brown Leghorns. Fertility guaranteed. Price low. Eva Conklin, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

Black Leghorns—Yellow legs, real Leghorns. Silver Campines of good size, eggs $2.00 per 15. A. C. Hayes, Cupertino, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

Two White Guinea Cocks, Eastern stock. The Ferris Ranch, Reservoir St., Pomona, California.

Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

DUROC-JERSEYS

Bred Sows and Gilts and young stock. Pathfinder and Great Wonder I Am breeding. Monthly payments if you wish. Derryfield Farm, Capital National Bank Building, Sacramento.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

Grape Wild Farm—Berkshires, Guernseys, Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

POLAND-CHINAS

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

HAMPSHIRES

Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

RABBITS

Pedigreed Fleming Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California.

DUCKS

Caldwell's White Muscovy Ducks win, weigh, lay and pay. The largest duck of the duck family. The duck without the quack. Eggs, ducklings, breeders. Free circular. Caldwell Duck Ranch, Lock Box 274, Los Angeles.

Mammoth White Pekin Duck Eggs for hatching. $1.00 per dozen. A. Surtman, Petaluma, California.

LIVESTOCK

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

For Sale—Team of Mares—Would accept good young two year old mule in exchange. W. D. Friend, R. F. D. 3, Box 80, Burbank.

FARM LAND FOR SALE

For Sale — Foothill poultry ranch; two acres of land; three shares water stock; 465 Tom Barron White Leghorn hens; coop for housing 800. Barn and four room house. Alta Loma, ½ mile N. E. Pacific Electric Station. Mrs. E. K. McKeig, Alta Loma, California.

For Sale—27 acres, plenty water for irrigation, good house, garage and chicken house. Lots of shade trees, good schools, ½ mile from town of Manzanar. For further particulars write owner. Address Box 11, Manzanar, California.

For Sale—Two hundred acre ranch. Good soil. Private mountain stream. Ninety acres alfalfa. Complete equipment, buildings, livestock and machinery. Address P. O. Box 103, Laws, California.

30 Acre Dairy Ranch at Escondido, San Diego County, at Auction, April 12th, 1921. Good soil, good improvements, watch for big advertisements later. G. Pickering.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192, Indio, California.

For Sale—180 acre Dairy Ranch in Tulare County, 30 acres in alfalfa, 30 cows and all equipment. Owner—215 West Tulare Avenue, Visalia.

For Sale—Beautiful residence lot, clear of incumbrance. Sightly location on High Street, Oakland, California. Address 1342 Sherman Street, San Jose, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

For Sale—11 Acre Olive and Orange Grove. For price and description write to owner. M. G. Davis, Oroville, Calif.

TURKEYS

Turkeys — "Goldbank Boy." Champion Giant Bronze young tom. First Prize Cockerel at the New York, Madison Square Garden Show, the premier show of America, with 4311 poultry exhibits, held January 18th to 22nd, 1921, has just been imported by us, arriving at our mountain ranch February 26th. His sire, "Goldbank VIII," was grand champion at the same show, winning first in Cock class. We have mated this young champion bird to a limited number of twenty and twenty-one pound fancy, highly colored, eastern bred hens, also just imported. No eggs of this strain for sale this season at present.

A thirty-six pound yearling son of "Copper King V," the famous thirty-eight pound yearling giant bronze grand champion of the 1919 Madison Square Garden Show, will head our other flock—having mated him to our choice twenty pound hens. Egg prices reasonable. Two young toms of this last strain on hand for immediate delivery. For further particulars address: Bronze King Mountain Farm, Box 308, Calistoga, Napa County, California.

"Points on Successful Turkey Raising," our illustrated pamphlet, as described last week, price 50c a copy. R. M. Dodge and Son, Stafford Farm, Route 2, Bakersfield.

National Bourbon Red Turkey Club Year Book. Those interested send stamp. Florence G. Ferris, Club President, Reservoir St., Pomona, California.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

"Goldbank" Strain — Giant Bronze turkey toms. Partridge Plymouth Rock chickens. Chicken and turkey eggs in season. M. M. Reiman, Planada, California.

Turkey Eggs—Mammoth Bronze — Write for folder. Guarantee stock built up by 5 years of untiring effort. Andrews & Andrews, "Bo-K-Haunt" Hemet, Calif.

For Sale—White Hollands, Quality, Size and Vigor. Tom $15, eggs 50c each. Blue ribbon flock header. L. A. Robinson, Hemet, California.

Mammoth Bronze Turkey Toms — Have two good cockerels to sell. Mrs. C. W. Keys, El Monte, California.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St., Pomona, California.

TRACTORS

For Sale—Union Tool Sieve-Grip 12-25 h. p. tractor only slightly used and in absolutely A-1 condition. Also 3 bottom 14 inch P. & O. powerlift plow in first class condition. Complete outfit for $2,250. Would accept team of first class young draft mares or mules as part payment and would sell plow or tractor separately. C. F. Seccombe, R. 2 Box 110, Van Nuys, California. 19801 Ventura Blvd., ½ mile east of Chalk Hill. Phone Van Nuys, 119-R-5.

Avery Orchard Tractor with magneto and Ensign carburetor installed. Motor overhauled recently. Price $250. Ten-twenty-five tractor in good running order. This is a tractor that will pull an eight horse load easily. Price $350. Wm. Peckstein, Oxnard, California.

Merry Garden Tractors — Circulars and demonstration free. Dwight E. Smith, Southern California Distributor, 1645 North Normandie Avenue, Los Angeles.

For Sale—International tractor, good condition, $550. Stored at Hemet Garage. Ellen Stout, Hemet.

For Sale—Oldsmar Tractor, practically new, liberal discount. Box 65, Santa Ana, California.

GEESE

Toulouse Goose Eggs 50c each. Pekin, White Muscovy, Rouen, Fawn, Indiana Runner duck eggs, $1.50 dozen. ¾ Giant Bronze Turkey eggs 35c each. Drakes $3.50. Mokelumne Poultry Ranch, Lockeford, California.

McNeely's Mammoth Geese $5.00 each, $15.00 for trio. Eggs in season 25c each. Peacocks $5.00 each. Chas. McNeely, Alpaugh, California.

PHEASANTS

Pheasants — Three pair Chinese Ringnecks $8.00 per pair. Eggs $3.50 a setting. El Nido Pheasantry, Fairoaks, California.

SEEDS AND PLANTS

"Burbank," the improved Golden Bantam Sugar Corn. Seed purchased from Luther Burbank in 1920 to grow this offering. Quantity limited, price 50c a pound.

Field Corn—Yellow Hybrid, enormous ears, deep kernels, early maturing, strong grower, leads all for shelled corn, equaled by few for ensilage. Price 25c a pound.

Tomato Seed, true San Jose Canner. My personal selection of fruit in the field from healthy, heavy producing plants, insures you the finest seed obtainable. Tests of other varieties have proven to me that no other tomato compares with this one in quality and quantity yield of marketable fruit. Ounce price 50c, pound $5.00. L. B. Wright, R. 1, Box 121, Santa Rosa, California.

For Sale—1,200 Grape Vines — Muscat, Malagas, Thompson Seedless, Zabalganski, and Emperor 10 cents each. 500 Burbank Thornless Blackberry plants 20 cents or 6 for $1.00. 10,000 Strawberry crossed wild with Brandywine (None Better). 5,000 Arizona Everbearing $1.00 per hundred, $8.00 per thousand. I pay parcel post. B. E. Wilhite, Aguanga, California.

For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

Cory Thornless Mammoth Blackberry—Guaranteed true plants from Cory Ranch where first discovered and propagated. Dozen $3.00 postpaid. Also Loganberry, Phenomenal, Currant, Gooseberry, Giant Rhubarb. G. S. Wills, Jamestown, California.

Rhodes Grass—The time is at hand for planting Rhodes Grass—The greatest land reclaimer — will grow fine on the worst alkali and hard ground and will soften it up and will crowd out Bermuda Grass. Imperial Valley Seed House, El Centro.

For Sale—Sweet potato plants; Jersey Yellows $4 per 1,000; White Southern Queens, Georgia yams or Pumpkin yams, $1 per 100. No personal checks. Ready now. B. F. Crutchfield, R. F. D. No. 3 Box 6, Santa Ana, California.

Tomato Seed—Improved Stone, San Jose Canner. 25 cents oz., $3 pound, postpaid. Stamps or Money Order. Thomas Murray, 3209 West Washington St., Los Angeles, California.

Tomato Plants — Chalk's .Early .Jewel grown from choice seed for my own use, more than I need, 15c per dozen. $1 per 100 postpaid. Wm. T. Mantz, San Luis Obispo, California.

R*O*S*E*S $1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue C. KAVAN NURSERIES, San Bernardino, California.

Brandywine Strawberry Plants from stock which produced $3,000 worth of berries from acre this season. Price reasonable. Lon King, 1158 West Fourth, Riverside, California.

Peas—"Blue Bantam" earliest and sweetest of all table peas. Heavy yielder, 15c per lb. SEVIN-VINCENT CO., Seedgrowers. Established 1860. 512 Washington Street, San Francisco, California.

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Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch —767 S. Central Avenue, Los Angeles, Cal.

Sudan Grass—Best seed, high germination, free from Johnson grass, $3 per 100 pounds; 1000 pounds $27.50. All kinds Texas grown seed, lowest prices. B. E. Miller, Dallas, Texas.

Large Returns quickly, small investment, tree blueberry, easily grown throughout South, markets everywhere. Southern Blueberry Co., Tampa, Fla.

50,000 Vines, rootings, Thompsons, Emperors, Sultana, Muscats, $30.00 a 1000. Fruit trees, berry plants, farm and garden seeds. Box 501, Fowler, California.

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California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

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GUARD ROOFING COMPLETE
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Fruit Trees of dependable varieties and quality. Santa Rosa, Satsuma and Beauty Plums; Elberta, J. H. Hale, Krummels Oct. and other varieties freestone Peaches. Tuscan, Phillips and Strawberry (McClure) Cling Peaches. BARTLETT PEARS on Japan Root. FRENCH and SUGAR PRUNES, PERSIMMONS. Early Red Nectarine Stock in perfect condition, large well rooted trees. Submit list of your requirements. Phone 692, Los Nietos Valley Nursery, Downey, California.

PLENTY OF TIME TO PLANT
Our fine dormant trees. Our clean-up sale is now on and you can well afford to plant at prices we are making on French, Sugar, Silver and Robe de Sargent prunes, Bartlett pears, plums, Jap. persimmons and other trees, grapes and berries. Write today list of your wants. Don't send any money, we ship on approval. J. F. MILLER & SONS, Healdsburg, California.

For Sale—Fruit trees, all leading varieties, including Bartlett Pears, Royal Apricots, Tuscan Cling and Phillip Cling Peaches, Satsuma and Santa Rosa Plums, Eureka and Placentia Perfection Walnuts. Write for catalog and price list. Orange County Nursery Co., Anaheim, Calif. Salesyard: North Los Angeles Street.

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Home Grown Budded Eureka, Placentia and Chase Walnut Trees, 50 cents and up. None better. Choice lemon trees $1.00 each. Balled. Bartlett Pear, etc., 50c each. Trees of all kinds for sale. We deliver. Tel. 122-J, Burbank, California. Opposite High School (West), Burbank, California. Snyder Nurseries.

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Cling Peaches, Apricots, Almonds — All varieties and sizes. Concord, Mayette, Franquette Walnuts, Cory Thornless Blackberry; large stock. State your wants and let us quote. Ekstein Nurseries, Modesto, California.

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Fine Straight Rooted Florida Sour and Sweet SEED BED STOCK, 10 inches to 15 inches high. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

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Bartlett Pears, Spitzenburg Jonathan apple trees 30c, 100 25c. Cash Nursery, Sebastopol.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited.

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For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

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For Exchange — 500 Acres, stock ranch. Owner, Box 25, Valley Springs, California.

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YOUNG FARMER WANTED

As assistant motor truck salesman. We are organizing local sales force in every locality and want farmers, mechanics, or good drivers to assist traveling sales managers all or spare time; experience not necessary as our men will be coached and trained. Unusual opportunity to attain position paying $50 to $100 a week in the next big business of the country.

Address Peerless Commercial Co.,
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Wanted—Owner Holstein herd of forty to sixty cows, who will move to our farm and operate dairy for production of cream. Will contract for cream and skimmed milk; build barn and silos and furnish hay and grain on basis to be agreed upon. This to be dairy department of farm operated by us to furnish supplies for our four Pasadena Hotels. Vegetable, grain and poultry departments now in operation. Unlimited opportunity for expansion as we consume over one hundred thousand dollars worth of dairy products annually. Farm location seven miles from Riverside on Boulevard. Address California Hotel Company, Pasadena.

Wanted To Hear from owner of good ranch for sale. State cash price, full description. D. F. Bush, Minneapolis, Minnesota.

Wanted—Walnut grafting wood. Franquette, Mayette, Parisienne. Also guaranteed genuine Texas Umbrella seed. Monthan Bros., Box 686, Tucson, Arizona.

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Wanted to Buy—Combined side hill harvester—16 to 20 foot cut complete with motor, Box 5, Cultivator.

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For Sale Rebuilt Windwills, Tanks, Pumps, 50 Brass Cylinders, Rods, Piping. Why Pay More?
Guaranteed do same work as the new ones you pay so much for. We make new galv. tanks, 300 gal. $17.50; 600, $27.25; 1,000, $43.25, 2,000, $59.25; used Redwood and Galvanized, various sizes. Save you 60% on windmills. Several small single acting deep well pumps, also double acting Ames pumps, handles 20-inch at 100 ft. Piping, Rods, at 40% 1st cost. Send for bargain sheet. Demmitt Co.'s. Office, 120 No. Main, L. A. 15191.

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Land Levelers—You will save money and time by getting our proposition before you buy a land leveler. We manufacture the Throop Leveler for every size and make of tractor and also can supply horse drawn levelers. Ask for Catalog and Agent's discount. Conley Hewitt Machinery Co., 120 South Aurora Street, Stockton, California.

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For Sale—Complete plowing outfit, two International 8-16 tractors, plows, double disk; 20 ft. harrow, wagons and tools. Price very reasonable. G. F. Crowell, Box 623, Newman, California.

For Sale—One No. 6 centrifugal pump—35 ft. 8 in. suction discharge and check valve complete. A bargain. Jas. Hughan, Downey, California.

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STOP THAT SLIP

In 5000 PUMPING PLANTS
Those SLICK, SHINEY, "SLIPPY" Pulleys are taking MONEY out of your BANK ACCOUNTS.

$6.50 Package of MASTER-GRIP PULLEY COVERING, sent to you by mail, ready to put on the pulley, will "Stop that Slip" and also deliver more power with a loose belt.

SO EASY AND QUICKLY PUT ON A BOY CAN DO IT.

Tell us the sizes of your pulleys, or send for a package of "MASTER-GRIP" Pulley Covering — "THE CORDED SURFACE THAT STOPS SLIPPAGE."

MASTER-GRIP MFG. CO.,
Masonic Temple, AUSTIN, TEXAS.

Lumber for Sale—At this time we can offer bargains like these: No. 1 Common Fir Dimension, Boards and Shiplap $20 per M, Clear Fir Drop Siding $30. Extra "A" Red Cedar Shingles $2.75 per square. Everything else on same basis. Send list for estimate including freight paid to your station. Pay when lumber is received and found as represented. J. F. Jacobson Lumber Co., 2310 East "D" Street, Tacoma, Washington.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Distributors to appoint agents and sell Powerene at wholesale. Agents make $30 a day. Special terms to distributors. Equals gasoline at 5c. The equivalent of 20 gallons, express prepaid, $1.00. P. Barnes, H424, Santa Rosa, California.

Mesquite Honey—Can 60 pounds $6.50. Five case lots $10.00 per case, 120 pounds. F. O. B. Parker, Arizona. G. E. Striplin.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

For Sale — Vegetable plants, all kinds. Ancona hatching eggs, 7c each, chicks 20c. Ancona Farm, Ontario, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

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Guernsey Bulls of all ages at bargain prices. Bulls out of imported and high record dams are filling space we need. Priced low to move quickly. Grade dairymen take advantage of this to raise calves that will increase your butter fat production. Hollow-Hill Farm, Colton, California.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

For Sale—Jersey bull 6 months old out of imported bull Helen's Oxford Son. Price $75.00. J. R. Carhart, Fullerton, Calif.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Ayrshires—A few well marked and well put up bull calves from high producing stock. Wyndham Dairy, Redding, Cal.

For Sale—Fresh Durham Milk Cows. 215 West Tulare Avenue, Visalia, Calif.

TO LET

To Let—160 acre improved ranch 5 miles south of Shafter, Kern County, touching Santa Fe track. Good buildings, electric pumping plant, plenty water, shallow lift, good for dairy, general farming (including cotton), hog or turkey ranch. Crop or cash rent. Owner—W. F. Marks, 1318 West Third Street, Los Angeles. Phone 52471.

LEGAL QUERIES

(Continued from Page 399.)

has postponed the hearing on the case. I now wish to know when this case will outlaw and how I can obtain return of the bail money.—Subscriber, Obispo.

The case having been postponed at the request of the defendant, the defendant could not take advantage of his own requests to claim the benefit of the statute requiring a criminal case to be brought to a speedy trial. The most expeditious remedy in the above case would be for him to pay the attorney the fee which the attornew is evidently waiting for and proceed with the trial. If he is found innocent, bail money will then be returned.

Water Polluted

What are the penalties for dumping garbage, refuse and cleanings from a hog pen on a bank of a running stream so that the seepage thereof runs into the stream and pollutes the water of the neighbor just below?—Subscriber, Santa Barbara.

Probably the quickest action would be to take the matter up with the district attorney of your county under the provision of the penal code, providing that anyone who places offal of any kind in or on the borders of the stream from which water is drawn for the supply of any portion of the inhabitants of the state, so that the drainage thereof is taken by the stream, is guilty of a misdemeanor, punishable by imprisonment in the county jail not exceeding one year or a fine of not exceeding $1000, or both such fine and imprisonment. This section also applies to one who keeps horses, mules, swine, sheep, or livestock of any kind penned, corralled or housed on or over the borders of said stream, so that the waters may become polluted thereby. You also have a civil action to enjoin the nuisance.

In ancient times on the morning of Easter it was the custom for one person to salute the other:

"Christ is risen."

Then the reply would come:

"Christ is risen, indeed."

This same custom still prevails among the peasants in some of the European countries and also in our own America among members of the Moravian church.

Dr. LeGear Says:

"You can hasten the growth of your chicks"

Thrifty, fast-growing chicks are money-makers.

Why suffer chick loss, when it costs so little to use Dr. LeGear's Poultry Prescription, which helps to fortify their systems against disease, build up their vitality and health and helps pullets develop into early fall layers.
The use of Dr. LeGear's Poultry Prescription will mean more poultry profits to you, as thousands have already proved.

Get it from your dealer today. Satisfaction guaranteed or money back.

35c, 70c, $1.40 packages. 25-lb. Pails $3.50

For any curable ailment among your stock or poultry, call for Dr. LeGear's Remedies. All guaranteed.

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At the first sign of Diarrhoea among your chicks, use Dr. LeGear's Chick Diarrhoea Tablets.

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Graduate Ontario Veterinary College, 1892. 29 years' Veterinary practice. Noted authority on ailments of Stock or Poultry.
DR. LEGEAR'S POULTRY PRESCRIPTION
GUARANTEED
POULTRY PRESCRIPTION

Poultry Queries

Conducted by J. A. Koethen

English Red Caps

Two weeks ago I noticed in the Cultivator that a reader wanted French Red Caps. I have not heard of the French but do know of the English Red Cap and would be glad to send address if the reader is interested in that variety.—Mrs. G. H. Kittmann, Rt. 3, Bx. 307, San Jose.

Nodular Taeniasis

On dressing a chicken I found the intestines almost covered with what looked to be small yellow pustules, only hard. In the back were small particles of a hard yellow substance. We thought they indicated tuberculosis till we cut into an intestine and found it full of tapeworms, flat and white. Can you tell me cause and remedy?—R. H. B., Lodi.

No one knows just where these tapeworms come from. Some say, from eating slugs, but it seems more likely that their eggs are picked up on contaminated soil. This particular worm is known as Nodular Taeniasis. Extract of male fern, turpentine, areca nut, powdered kamala, pumpkin seed, pomegranate root bark and Epsom salts are the chief drugs used for tapeworms. Salmon recommends mixing in the mash a teaspoon of pomegranate root bark for every 50 birds. This is followed with two or three teaspoons of castor oil for each affected bird if the number is not too great for individual treatment. Powdered areca nut may be given in doses of 30 to 45 grains mixed with butter and made into pills. Male fern may be used in powder form (dose 30 grains to 1 dram) or in liquid extract (dose 15 to 30 drops). It is given morning and evening before feeding. The dose of oil of turpentine is 3 teaspoons, but it is most effective when introduced directly into the crop with a catheter. Sometimes tapeworms can be cured by chopping up pumpkin seed and letting the birds eat all they will. As you are not sure that others of the flock are affected you might try the pumpkin seed or pomegranate root treatment first. If you find worms in their droppings you will know that they are affected, otherwise you cannot know.

Hatching Ducklings

I have duck eggs under a hen, which will hatch Easter Sunday. When should I test them? How shall I feed the ducklings? Shall I sprinkle eggs? —Subscriber, Nipomo.

Duck eggs with pure white shells are often tested as early as the fourth or fifth day, when the embryo can be clearly seen. Test again on the fourteenth day all that do not show a clear, distinct line of demarkation between the air cell and the growing embryo. The eggs are usually sprinkled two or three times the last ten days with water heated to about 100 degrees. A good nursery feed for ducklings consists of equal parts rolled oats and bread crumbs with 3 per cent sharp sand added. This is fed 5 times a day on a clean board. After 3 days change to equal parts bread, rolled oats, bran and corn meal. After 7 days change to 3 parts bran, 1 part middlings or low grade flour, 1 part corn meal, 10 per cent cut greens and a little beef scrap which may be gradually increased to 5 per cent. Moisten with water till crumbly. Ducklings do not do well on dry feed. After the third week increase the amount of beef scrap till it reaches about 15 per cent, and also the proportion of corn meal if the ducklings are to be fattened for market.

Brown Droppings

Lately my hens' droppings have been brown, some light, some dark brown. They are White Leghorns, and last month their production reached nearly 60 per cent. I feed scratch feed at 7 a. m., alfalfa at noon, whole barley at 5 p. m., dry mash before them all the time.—H. B. B., Inglewood.

Your hens are feeling the effects of heavy feeding through the winter. The best thing to do is to make the mash a little lighter by adding bran. You can tell by experimenting just how much is needed to make the droppings normal, and no harm will be done if you add more than necessary. Be sure the hens have all the greens they will eat.

Worms

What is the best remedy for worms? —Subscriber, Lugonia.

If you mean the common round worms which generally infest the intestines of fowls, mix 1 pound tobacco dust in 50 pounds dry mash, and keep before the birds three or four weeks. Then remove the same length of time, and repeat again for three or four weeks until worms disappear. Remedies for tapeworms are given elsewhere in this column.

Cripples

What is the cause of chicks coming from the incubator in a crippled condition?—Mrs. K. B. H., Redlands.

Cripples are caused either by insufficient airing of eggs or by the heat running too high at hatching time. The fact that nearly every large hatch contains a few shows that the heat is not quite evenly distributed. Some eggs get a little more than others, and the chicks come out with crooked feet.

Feeding Turkeys

How shall I feed my baby turkeys which are cared for by chicken hen?—Subscriber, Nipomo.

The first feed, which is given when the poults are 48 hours old, usually consists of chopped hard boiled egg, very stale bread, and green feed

A&M reliable SEEDS

Plant Whip-Poor-Will Cow Peas

For Summer Cover Crop

Prevent June Drop

These Peas are the Most Satisfactory Cover Crop for Summer Growing in this Section

We Now Have a Supply on Hand and Can Make Immediate Delivery

ASK YOUR LOCAL DEALER

Aggeler & Musser Seed Co.

LOS ANGELES

Sick Baby Chicks?

Germozone operates just as these people say. It is preventive as well as curative, and satisfaction is absolutely guaranteed. Twenty years on the market. Sold by drug and seed stores at most towns.

Wm. E. Shepherd, Scranton, Pa., wrote—"Two weeks after we started last spring we were a mighty discouraged pair. Every day from three to six chicks dead. A neighbor put us next to Germozone and we are now sure if we had had it at the start we would not have lost a single chick." Ralph Wurst, Erie, Pa.—"Not a case of white diarrhoea in three years." C. O. Petrain, Moline, Ill.—"I never had a sick chick all last season." Mrs. Wm. Christiana, Olive Ridge, N. Y.—"Have 800 chicks now 5 weeks old and not a single case of bowel trouble."

GERMOZONE is a wonder worker for chicks, chickens, pigeons, cats, dogs, rabbits or other pet or domestic stock—for roup, bowel trouble, snuffles, gleet, canker, swelled head, sore head, sores, wounds, loss of fur or feathers.

If no dealer, order by card. Postman will collect. No extra charge. Handy as phoning. 75c and $1.50 pkgs. Baby Chick Book FREE.

Geo. H. Lee Co., Dept. F30, Omaha, Neb.

"HILLVIEW" GOLDEN BUFF PLYMOUTH ROCKS

An American bird—originated in America for Americans. Unexcelled for Beauty, Eggs and Table.

Blue Ribbon Winners 1920—Oakland, 1st Cockerel; 1-2-4-5 Pullets. Riverside, 1st Cockerel, 1-2-3-4 Pullets. San Diego, all awards.

Write for mating list. Eggs for Hatching —for Exhibition Stock, $5 to $10 per 15; commercial, $3.50 per setting.

Life member Poultry Assn.; member American Buff Plymouth Rock Club. Life member American Poultry Assn.

Hillview Poultry Ranch

(Registered in State of California)

Chatsworth Park Los Angeles, Cal.

Kills Mites and Lice

Wegner Medicated Poultry Roost

The greatest proposition ever offered to the poultry raisers of this country.

Write us for full information and our introductory trial offer.

We want a Live Wire Poultryman to represent us in every poultry district.

E. W. BADGER SALES CO.

Manufacturers and Coast Distributors, Long Beach, California.

(onion tops, alfalfa, dandelion, lettuce) mixed or ground together with a little chick grit or sand added. This is fed three or four times daily at first, care being taken not to feed enough to satisfy the birds. Change gradually after a week or so to rolled oats and greens. Some turkey people continue the egg a month or so. Some give cottage cheese or clabbered milk. The main thing is not to feed too heavily. Be particularly careful not to let the hen feed them. She would soon kill them.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, February 28, 1921. Report for week ending February 27;

In the seventeenth week the hens in the egg laying contest at Storrs produced 3,582 eggs, or a yield of 51.2 per per cent. Of this total the 470 heavy breeds laid 1,721, or a yield of 52.3 per cent. The 530 light breeds laid 1,861, or 50.2 per cent. The average egg production for each bird in the contest was 3.7 eggs for the heavy breeds and the average production for the light breeds was 3.5 eggs. The increase in egg production over last week was 215 eggs, 78 eggs more than for last year for the same period and 369 eggs more than for the six year average.

The best pen for the week was a pen of Rhode Island Reds owned by Charles H. Lane, from Southboro, Massachusetts, with a production of 53 eggs.

The four leading pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

W. H. B. Kent, 586 eggs; Rock Rose Farm, 478; Ernest W. Picker, 478; Oregon Agricultural College, 371.

Rhode Island Reds

Charles H. Lane, 623; F. S. Chapin, 574; H. S. Bickford, 572; Deer Brook Poultry Farm, 546.

White Leghorns

James O. Le Fevre, 574; A. P. Robinson, 555; Lion Head Poultry Farm, 524; Hollywood Farm, 503.

Other Varieties

Obed G. Knight (White Wyandotte), 653; H. P. Cloyes (Buff Wyandotte), 479; A. E. Hampton (Black Leghorns), 337; Oregon Agricultural College, 310.

THE MARKETING GAME

"The placing in the consumers hands of a little the best product to be obtained in any given line can only be accomplished by cooperation all along the line from producer to retailer, and if we are to secure for our members a maximum return it means greater care in handling by every one," is the opening paragraph in the last market letter sent out by the executive committee of the Poultry Producers of Southern California. It further says:

"To that end we are planning for a more careful handling of our empties at the station, more rigid specifications in purchasing all case material and increased care and inspection in putting up our pack.

"That the members may contribute their share to our campaign for 'better eggs,' we have rewritten our 'Suggestions to Shippers.' We also have these suggestions printed on heavy cardboard—one side only—so they can be tacked up over your candling bench, and we will be pleased to forward a copy to any member requesting same.

"Let us one and all do our part in an attempt to give to the consumer a quality that will result in increased demand for our product and so help at both ends of the line.

"As to washed eggs, we have explained before that anything which removes or breaks the albuminous protective covering on the outside of the egg shell opens the door to contamination and thereby spoils that egg for storage purposes.

"When candling and grading eggs for storage it is not always possible for the candler to detect the washed egg, hence should we permit washing of any eggs during the period we are placing eggs in storage we run the risk of deteriorating our pack to that extent.

"By being able to assure our customers that absolutely none of our shippers are allowed to wash their eggs, we secure greater confidence in our pack and to that extent are able to return more to the members for their entire product than would be the case with a few washed eggs coming in and so lowering the reliability of our storage stock.

"Members will, therefore, watch out for the colored slip to be mailed in the near future, giving notice to discontinue washing and thereafter ship their eggs just as gathered, but segregating the dirty eggs by themselves."

Layne & Bowler Pumps Irrigate Prosperous Ranches

No ranch can have the insurance of prosperity without the protection of a dependable water supply. On more than 7,000 ranches Layne & Bowler Pumps are helping keep ranchers prosperous. Among those who prefer Layne & Bowler Pumps are included Wylie M. Griffen, Pres. of the Calif. Raisin Growers Association; C. C. Teague, President of the Calif. Fruit Growers Exchange and the Calif. Walnut Growers Association; Goodyear Tire & Rubber Company, Pacific Gas & Electric Company, Sacramento Valley Colony Company, Salinas Land Company and U. S. Indian Service.

The Eugene Kimball Ranch, six miles east of Ventura, California, is irrigated with water produced from a Layne & Bowler Heavy Duty Full Floating Direct Connected Pump illustrated here. Mr. Kimball also uses the pump for supplying water for domestic purposes, storing the water in the tank shown in the background.

Write for illustrated, descriptive Folder No. 30. Layne & Bowler Pumps are made in sizes to go in wells 10 inches or larger in diameter. Capacities: 180 to 4500 gals. per minute. We shall be pleased to send a field man to your property to discuss with you the cost of installing a new pump.

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900 SANTA FE AVE..... LOS ANGELES, CALIF.

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Baby Chicks

All the Popular Breeds Every Day

Baby Ducks, Baby Turkeys

We can supply Baby Chicks in any quantity. Best quality. Place your order now to insure prompt delivery. Can ship to any point within seventy-two hours' ride from Los Angeles.

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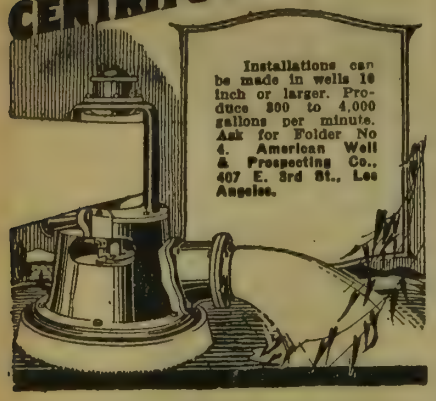
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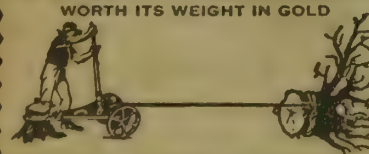

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Mohr Steel Co., 2877 26th St., San Francisco, California.

Los Angeles Markets

Los Angeles, March 16, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price, 43 cents.

Mar.	9	10	11	12	14	15
'21 ...	44	44	44	..	42	43

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 33 per dozen. Case Count Produce Exchange closing price 31 per dozen; pullets, produce Exchange closing price 30 per dozen.

Dairy Exchange price last week on extras:

Mar.	9	10	11	12	14	15
'21 ...	33	33	33	..	33	33

Manager Stanley of the Poultry Producers of Central California reports:

New York quotations on large whites is 38@44 which is the lowest of the season. Los Angeles is storing but San Francisco is still sending occasional cars to Chicago and New York.

POULTRY

Price to producers: Hens, lt., 35; heavy 35; colored, 35; broilers, 42@48; roasters, 40; old roosters, 15; wryers, 55; ducks, old 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 14@19; old, 9.

LIVESTOCK

Los Angeles, March 15. — Weighed and delivered off cars without food or water:

Hogs, (hard grain). 125 to 175 lbs., 11.50; 175 to 225 lbs., 12.00.

Cattle (on foot, gross weight): Steers, good, 9.50@10.00; medium, 9.00@9.50. Cows, good, 9.00; medium, 7.00@7.50. Calves, 1.25 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 6.00; lambs, 12.00@12.50.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock March 15, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market dull on Stocktons, strong on Idahos. Stocktons: Burbanks, quality poor, 1.75@1.85; few best, 2.00@2.25. Idahos: Russets, mostly 2.25@2.35; Rurals, 1.65@1.75. Sweet potatoes: Supplies moderate, market steady. Best mostly 2.00@2.25 lug, stock, 1.00@1.25; Browns, mostly 50@75

Onions: Supplies heavy, market weak. Stocktons: White Globes, cold storage stock, 1.50@1.75; Browns, mostly 65@85 per cwt. sacked.

Garlic: Local best mostly 12@15 lb.; poorer 8@10.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock March 15, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 75@1.50; mostly 1.00@1.25.

Asparagus: Supplies increasing, market weak. Imperial Valley, choice, 30@ ket weak. Imperial Valley, choice, 20@ 30 per lb. Northern, 25@35 per lb. Local, 30@40 per lb.

Beets: Doz., 30@40; sk., 1.75@2.00.

Cabbage: Field cr. best mostly 65@ 75; poorer 50.

Carrots: Doz., 25@35; sk., 1.00@1.25.

Cauliflower: Supply moderate, field cr., best, 2.00@2.50; poorer, 1.00.

Celery: Field cr., 3.00@3.50; poorer, 2.00@2.50.

Cucumber: Hothouse, best, 2.00@2.50 dozen.

Lettuce: Local field cr. mostly 50@1.25; best mostly 1.00@1.25.

Peas: Supplies liberal, market firm. Imperial Valley, quality good, 12@14 per lb.; poorer, 8. Local, best 12@14 per lb.

Radishes: 15@17½ doz.

Rhubarb: Crimson Winter, best bx., Rhubarb: Crimson Winter, best bx., 1.85@2.10 poorer, 1.75; Strawberry, 4.50 @5.00.

Spinach: Doz., 15@20.

Squash: Local Hubbard and Banana, lb., 1½@2; Summer, 2.75@3.00 cr.

Tomatoes: Mexican, per lug, original 3.00; repacked lug, 3.50@3.75. Much poor stock at wide range in prices.

Turnips: Per doz., 25@35; sk., 90@1.10. @1.10.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 2.00@2.50; special packed brands, 2.50@3.25; Imperial box, 4.75@5.25; small

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.50 @2.25, few high as 3.00; loose, bx., 75@ 1.00; lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack large size 2.75@ 3.25; small low as 1.75; special brands small sizes 2.75@3.25 large 4.25@4.50; packing house culls, 25@85 box; few large size 1.00. Tangerines, best, 6@7 lb., small, 4.

HONEY

Conditions very unsettled. Market very weak and prices lower. Practically no carlot sales are being made at this time. F. o. b. usual terms, quotations range in 60-lb. cans White Orange Blossom 12½ @13½; White Sage, 12@14; White Alfalfa 9; Light Amber Alfalfa, 6¾@7½; Light Amber, 8½@12; Hawaiian White, 7½; Light Amber, 6. A large percentage of honey shipments are now going out in small containers rather than in the customary case holding two cans of 60-lbs. each. One, five and ten pound glass jars and 2½ lb. individual containers are all being used with a movement which though slow, is better than that on bulk goods. Most shipments are going to Eastern markets to be sold by brokers in less than carlots. Sacked beeswax of good clear color is priced in less than carlots at 33@35 per lb.

WALNUTS

California Walnut Growers Association's prices: Soft Shell, No. 1, 22½; Soft Shell, No. 2, 16½; Budded, fancy, 26½; Budded, standard, 22½.

GRAIN AND FEEDS

Grain Exch. price bid March 15:
Milo: Eastern No. 2 bulk, 1.62½@1.72½.
Eastern Kafir: No. 2, 1.55.
Barley: 1.30@1.32½.

HAY

Alfalfa Growers of California report under date of March 15:

Receipts of alfalfa hay showed a further reduction during the week and were easily taken care of by the demand for immediate consumption; the smaller arrivals graded proportionately the same as during the past weeks, that is a relatively large percentage consisted of lower grades, forcing buyers to fall back on these to some extent in substitution of the higher grades, of which the supply was limited. The market was steady throughout the week, with prices practically unchanged, while during the same time the markets for grain and other feeding stuffs suffered further sharp declines and closed at the bottom at the end of the week.

There were 560 tons received on the Los Angeles tracks the week ending March 12, with 190 tons held over as against 1,320 tons received the week before.

Rabbit Alfalfa	36.00
No. 1 Dairy	24.00
Standard	21.00
Stock	16.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@30.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@18.00
Straw	11.00@14.00

San Francisco Markets

San Francisco, March 15, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 41

Dairy Exchange prices extras this week and year ago:

Mar.	8	9	10	11	12	14
'21 ...	44½	44	43	41½	40½	41
'20 ...	60	64	64	63	..	..

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Ore. Y. A.	35
Ore. Trip.	30
Cal. Y. A.	32
Cal. Flats	23½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Mar.	8	9	10	11	12	14
Extras						34½
Extra Pullets						31½
Undersized						29
'21 ...	36	35	36½	35	35	34½
'20 ...	40½	41½	41½	40½	..	..

POULTRY

Wholesale prices are:

Hens: Colored, 36@38; White Leghorn, 37@39; strictly young roosters, 40@42; old roosters, 22@25; fryers, 50@55; broilers, 54@63.

Ducks: 30@35.

Squabs: 80@85 per lb.

Turkeys: Dressed, fancy, 50@54; poor quality 42@45 per lb.; live, 43@45.

Geese: 32@35 per lb.

Pigeons: Old, 2.50@3.00 dozen.

Belgian Hares: Live, 25@28.

Jackrabbits: 2.50@3.00 per doz.

LIVESTOCK

Western Meat Co. prices:

Cattle: Steers, No. 1 8@8½; do, second quality, 7@7½; do, thin, 4@5½.

Cows and Heifers: No. 1, 6@7; do, second quality, 5@6; do, thin, 3@4.

Calves: Light weight, 8½@9½; medium, 8@9; heavy, 7@8.

Lambs: Yearlings, 8@8½.

Sheep: Wethers, 6@7; ewes, 3½@4.

Hogs: Hard, fat, grain-fed, weighing 100 to 225 pounds 11½; 225 to 300 pounds, 11; 300 to 400 pounds, 10.

California Farm Bureau Marketing Association reports:

No. Hogs	Ave. Wt.	Dock	Prices
Tulare, March 8			
9	129	...	$11.00
99	162	...	10.70
84	193	...	10.60
76	211	...	10.45
68	214	...	10.40
78	205	50	10.35
15	379	300	7.50
Total 5 cars, 14 consignors, $8,869.56.			
Visalia, March 9			
88	161	...	10.65
87	199	...	10.25
2	130	...	10.15
2	325	...	9.65
Total 2½ cars, 30 consignors, $3,403.18.			
Hanford, March 10			
19	135	...	11.00
78	196	...	10.40
65	197	...	10.05
18	206	...	10.05
26	196	...	10.05
90	173	...	9.95
69	154	...	9.55
63	234	10	9.25
9	306	...	8.25
17	378	890	5.85
Five cars, 16 consignors, $8,126.01.			
Corcoran, March 11			
95	193	...	10.30
5	130	...	9.00
One car, 7 consignors, $1,966.26.			
Total for the week 13½ cars, 67 consignors, $22,365.71.			

HIDES AND PELTS

No. 1 heavy hides, 60 lbs. up, 3; do, medium, 45 to 60 lbs., 3; do, light, 30 to 45 lbs., 5; do, native bulls, 2; No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 5; No. 2 wet salt kip, 15 to 30 lbs., 3; No. 1 wet salt calf, trimmed, 7½; No. 2 calf, 2 per lb. less.

Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Dry Horse Hides: No. 1, large, skinned to hoof, 1.00; do, medium, 75; do, small, 50; No. 1 colt, 25@50. All cut, scarred or badly cured hides are culls, and worth proportionately less.

Wet Salted Horse Hides: No. 1, large, skinned to hoof, 2.50; No. 1, medium, skinned to hoof, 1.50@2.00; No. 1, small, skinned to hoof, 50@1.00; No. 1, colt, skinned to hoof, 25@50.

Dry Horse Hides: No. 1, large, skinned to hoof, $1.50; No. 1, medium, skinned to hoof, 1.00; No. 1, small, skinned to hoof, 50@75; No. 1, colt, skinned to hoof, 25@50. All cut, scarred or badly cured hides are culls and worth proportionately less.

Goat Skins: No. 1 large, not matted, Angora, 30 up; No. 1, medium, not matted, 15@20; No. 2, 5@10. Damaged skins and very small kids, worthless.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearings, good, 1 to 3 months' growth, 10@20; shearings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20;

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, $1.75@ 2.25 for No. 1; do, Oregon Burbanks, 2.15 @2.25; Salinas, 2.85@3.00; Idaho Gems, 2.15@2.25; sweet potatoes, 7.00@7.50; Nancy Hall, 6.00@6.50 per 100 lbs.; Arkansas, 6.00@6.50. New, lb., 12½.

Onions: Australian brown, 75@1.00 per box.

Garlic: New, 7@9 lb.

VEGETABLES

Wholesale selling price:

Asparagus: Lb., 15@20; fy., 23@25; off grades 10.

Artichokes: Doz., 30@90.

Beans: 15@22½.

Beets: $1.50@2.00 sk.

Brussel Sprouts: 5@7 lb.

Carrots: 1.00@1.25 sk.

Cauliflower: Doz., 40@60.

Cucumbers: Hothouse, small, 4.00@4.50 box of 2½ dozen; large, 2.00@2.50 per dozen; English, 2.50@2.75 per dozen.

Cabbage: Lb., 1.

Celery: Cr., 1.50@2.25.

Eggplant: Floridas, 30@40.

Endive: 10@20 per lb.

Lettuce: L. A. cr., 1.50@1.75; Imp., 2.00@2.25.

How Much are YOU Leaving Unharvested?

YOU wouldn't leave actual fruit *on* your trees—yet you are leaving lots of it *in* your trees; unless you bring it forth with

NITRATE OF SODA

A FACT: In actual use in California it resulted in an increased yield of 89 boxes per acre, and improved the quality.

Write for book of results.

DR. WM. S. MYERS
Chilean Nitrate Committee
231 Douglas Bldg., Los Angeles, Cal.

Onions: Green, per lug, 1.25@1.60.
Peas: Lb., 7@14.
Parsnips: Sk., 2.00@2.25.
Peppers: Bells, Southern, 8@12 lb. for green; Florida, 25@30; No. 2, 20@25; Chili, 10@15.
Rhubarb: 1.75@2.25 L. A. bx.; Alameda, lb., 8@10.
Spinach: Cr., 1.00@1.50; lb., 5@6; San Joaquin, 1.50@2.25.
Squash: Italian, nominal; Imperial Valley cream squash, 60@75 per lug; Hubbard and marrowfat squash, 1.00@1.25 per sack; Imperial Valley summer squash, 2.75@3.25 per crate.
Tomatoes: Hothouse, 35@40 per lb.; Mexican, repacked, 1.50@1.75 per crate, 2.00@2.50 per L. A. lug.

FRESH FRUITS

Avocados: California, doz., 4.00@7.50.
Bananas: Lb., 9@10.
Pineapples: 4.50@5.50.

CITRUS

Navel oranges, 2.00@4.75; lemons, 2.00@3.50 per box; lemonettes, 1.50@2.00; grapefruit, new crop, 2.00@3.50; tangerines, 2.00@3.50 per half orange box; 1.50@2.50 L. A. lug.
Turnips: Sk., 50.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 18 lb.; Sunmaid, seeded, 36 15-oz. pkgs. 22 lb.; seedless Sultanas, 25-lb. bxs. 19 lb.; Thompson Seedless, 25-lb. bxs. 21 lb.; do, 48 15-oz. bxs. 22 lb.; 3-cr. L. M., 25-lb. bxs. 19 lb.; 2-cr., do, 18 lb.; 1-lb. clusters, 20-lb. bxs. 5.40 box.
Apricots: Fancy 25 lb. boxes, 25 lb.; extra choice, do, 20 lb.; choice, do, 18 lb.; standard, do, 15 lb.
Peaches: Blue Ribbon brand, 48 11-oz. to cs., $10 cs.; Blue Ribbon brand, 24 2-lb. bxs. to cs. 11.00; fancy, 25-lb. bxs., 17½; extra choice, 25-lb. bxs., 13½; choice, 25-lb. boxes 12½.
Pears: Fancy, 25 lb. bxs., 18; extra choice, 25 lb. bxs., 14; choice, 25 lb. bxs., 11.
Figs: Fancy black, 25 lb., boxes, 12 lb.; extra choice, do., 9 lb.; choice do, 8 lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4 layer, 10 lb., 2.00 box; choice 4 layer, 10 lb. boxes, 1.75 box.
Prunes: 30-40s, 25 lb. boxes, 14; 40-50s, do, 11 lb.; 50-60s, do, 9½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.
Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8 lb.; choice, do, 7 lb.

NUTS

Peanuts: Japanese, 8.
Pecans, 25.
Almonds: California Almond Growers Exchange quote:

Nonpareil	26
I. X. L.	26
Neplus	25
Drake	18
Languedoc	17
Hard Shell	12

BEANS

Below California Bean Growers Association shippers prices choice recleaned, March 14:

Pinks	5.75
Large Whites	3.85
Small Whites	3.55
Mexican Reds	6.20
Blackeyes	6.25
Red Kidneys	8.25
H. B. Limas	5.40
Bayos	8.75
Cranberries	6.70

HOPS

Cal. 1920, lb., 33@35.

RICE

Pacific Rice Growers Association prices: Fancy Cal. Japan, 4.50; choice, do, 4.25.

GRAIN

Sales grain exchange, March 15:
Wheat: Milling, 2.70@2.80; feed, 2.55@2.75.
Corn: Cal. Yellow, 1.70@1.80; White Egyptian, 2.60@2.70.
Oats: Red feed, new crop, 1.45@1.55. seed, 1.65@1.75.
Barley: New feed, 1.30@1.40; off grades lower: shipping, 1.50@1.65.
Bran: 33.00@37.00.
Shorts: 32.00@42.00 ton.
Mill Run: 32.00@38.00 ton.
Middlings: 42.00@46.00 ton.
Milo: Cal. Red, 1.95@2.00; Eastern Red, 1.60@1.75.
Kafir: Eastern, 1.60@1.70.

HAY

Alfalfa Growers of California report under date of March 15:
There were 1,245 tons received in San Francisco.

No. 1 Dairy	20.00
Standard Dairy	18.00

Under date of March 12, A. W. Scott Co. says:
Receipts past week 1,245 tons. Although receipts continue heavy, prices have held up. Business generally has been better and there has been more life on the market than for some time. We do not look for any raise in prices, as at its best our probable demand will only consume the visible supply. While farmers still complain that these prices do not give them net returns sufficient to cover the cost of production, nevertheless there seems to be a general sentiment that it is just as well to sell hay now as later, and that not much will be gained by holding any longer through the season. Throughout the interior movement is good, trading has been more satisfactory and in greater volume than for some weeks. Export trade has been extremely light, the governm being practically our only customer in any quantity. Coastwise shipments have been a little more active and helped the general demand. Alfalfa has been doing the worst of any of the hay grades this week. The supply has exceeded the demand and some sales are reported at slightly reduced figures, although the market closed at the end of the week at normal levels.
We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00

Citrus Markets

Los Angeles, March 16, 1921.

The orange situation is fair. No long prices are being received but there is a continued demand which is keeping the market fairly clean. Picking was stopped a few days, but packing houses are now in full swing again.
The lemon market is dead.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 10,668 cars; lemons, 2,320; total, 12,988. To same date last season: Oranges, 10,566; lemons, 2,195; total, 12,761. From Central California to date, this season: Oranges, 4,305; lemons, 112; total, 4,417. To same date last season: Oranges, 3,495; lemons, 264; total, 3,759. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

AT THE AUCTIONS

March 9

New York: 15 or., 4 mixed, 3 lem. Nav. 2.95-4.90, Tangerines halves, 2.90-4.05, Navelencias 3.25-3.65, lem. 2.45-3.50.
Boston: 11 or., 3 lem. Nav. 3.30-4.45, Tangerines halves 3.40, lem. 2.80-3.40.
Cleveland: 6 or., 2 lem. Nav. 2.85-3.80, lem. 2.65-3.70.
Pittsburg: 6 or., 1 lem. Nav. 3.10-4.10, Tangerines halves, 1.35-2.50, lem. 3.10.
Cincinnati: 1 or., 1 lem. Nav. 3.25-3.55, lem. 3.35-3.60.
Philadelphia: 3 or., 2 lem. Nav. 3.60-4.15, lem. 2.85-3.45.
St. Louis: 2 or., 1 lem. Nav. 3.15-4.05, Bloods 4.00, lem. 3.85.
Baltimore: 1 or., 1 lem. Nav. 3.70-4.55, lem. 3.05-3.40.

March 11

New York: 11 or., 1 Blood, 2 mixed, 2 lem. Nav. 3.20-4.45, Navelencias 3.20-3.70, Tangerines halves 2.60-3.50, Bloods halves 1.90-2.20, lem. 2.55-3.00.
St. Louis: 7 or., 3 lem. Nav. 3.08-3.95, lem. 2.17-3.80.
Cincinnati: 1 or., 1 lem. Nav. 3.65-3.80, lem. 3.05.

March 14

New York: 28 Nav., 5 mixed, 3 lem. Nav. 2.50-4.45, Tangerine halves 2.55-3.85, Bloods halves 1.65-2.00, mikes halves 1.45-1.55, Sweets halves 1.75, lem. 3.25-3.60.
Cleveland: 8 or., 1 lem. Nav. 3.15-4.40, lem. 2.70-3.20.
Baltimore: 2 or., 1 lem. Nav. 3.40-3.75, lem. 3.50.
Boston: 21 or., 3 lem. Nav. 3.15-4.45, lem. 3.15-3.90, Tangerine halves 1.85-3.70.
St. Louis: 8 or., 1 lem. Nav. 2.70-3.80, lem. 3.50-4.00.
Philadelphia: 10 or., 2 lem. Nav. 3.15-4.15, Tangerine halves 2.80, Ruby Bloods halves 2.30-2.45.

March 15

New York: 28 or., 2 lem. Nav. 3.15-4.90, Tangerine halves 2.05-3.00, Bloods halves 1.70-2.50, lem. 2.85-3.85.
Boston: 12 or., 3 lem. Nav. 3.35-3.90, Tangerine halves 2.95, Ruby Bloods halves 2.40-3.10, lem. 2.45-3.60.

POTATO PLANTING

Potato planting in the San Gabriel and San Fernando Valleys and southern districts in general was completed nearly a full month earlier this spring than for the first crop of 1921. Last year light but continuous rains deferred planting until too late to insure good crops. This crop deficiency was particularly noticeable in British Queen as far north as Bakersfield, resulting in many acres of the later plantings not being dug, the value of the crop not being equal to that of the labor necessary. This year the growers are jubilant over the early planting and are unanimous in the opinion that promise of heavy yields is likely to be fulfilled.
Geo. H. Peters of Bakersfield and R. G. Risser of the Sacramento office of the California Vegetable Union were interviewed and stated planting throughout has been early this year, last year's late planting proving a severe lesson. Mr. Peters stated his planting was finished the first week in March, or earlier than that general in the Los Angeles district. Mr. Risser has recently visited the San Joaquin and Sacramento Valleys and reports early planting and conditions favorable to a bumper crop.

RIPENING OF AVOCADOS

Of the five varieties officially recommended for planting, we give herewith the season of ripening, the weight, shape and color of each. Fuerte, January to April, 10 to 16 ounces, pear shaped, dull green. Spinks, March to October, 16 to 20 ounces, egg shaped to pear shaped, purplish black. Dickinson, May to September, 14 to 20 ounces, egg shaped to pear shaped, dark purple. Sharpless, September to January, 16 to 20 ounces, pear shaped, dark purple. Puebla, November to January, 6 to 14 ounces, pear shaped, dark purple. Fuerte is a cross between the Mexican and Guatemalan type; Spinks, Dickinson and Sharpless are Guatemalans (hard shells); Puebla is a Mexican (thin skin).

JAPANESE LACQUER TREE

It seems highly probable that California will some day grow Rhus vernicerfa, the lacquer tree. Climatic conditions are favorable and all sumacs thrive here for we have several native species. Its sap production is of considerable value but on the skin of some persons produces the same eruptions as the closely related poison sumac, known locally as poison oak or poison ivy. The bureau of plant industry at Washington, which has distributed seeds of the tree, thus describes it and its uses:

"A slender branched tree with winged leaves, attaining a height of 20 feet. It is common throughout Japan and is cultivated for its sap which flows from stem and branches on being wounded. It is first cream colored, but on exposure to the air soon turns black and is the varnish which the Japanese use for lacquering their furniture or ornamental articles. The varnish or lacquer is valuable because of its great hardness without brittleness or becoming cracked; its high luster and mirror like surface which remains untarnished for centuries; its resistance to the agencies which attack resinous varnishes, as it is not injured by boiling water, hot ashes, hot alcoholic liquors, acids, etc. Unlike ordinary paints which dry because of oxidizing properties of the oil in them, this Japanese lacquer dries better in moist than in dry air as the result of a supposed enzyme which acts upon an albuminoid in the presence of a vegetable acid and a gum. The industry is one well worthy the serious consideration of paint manufacturers."

POTATOES ABOVE AND BELOW

In Paraguay grows a wild potato, a variety of the common Solanum tuberosum, but more of a vine, that bears potatoes both above and within the soil. An American visitor thus describes it: "It will stand frost equal to tomato vines. The tubers above ground are very similar to potatoes, but the color is dark, from yellow to red. There are also white tubers below the ground, the same as regular potatoes, but very small. It may be possible by selection and crossing to induce plants to bear marketable potatoes, both above and below ground. It is not as heavy a cropper as the regular potato and the necessity for a trellis makes its economic value doubtful."

WEATHER REPORT

San Francisco, Cal., Saturday, March 5, 1921.

Stations	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	.21	40.47	32.79	60	44
Red Bluff	.24	23.82	18.23	76	48
Sacramento	.25	14.41	14.43	74	48
San Francisco	.45	20.27	16.99	69	46
San Jose	.12	13.11	12.25	76	44
Fresno	.00	6.29	6.74	82	50
San Luis Obispo	.03	15.11	14.72	82	46
San Diego	.00	3.37	7.47	64	49
Los Angeles	T.	7.04	11.51	66	48

WEATHER REPORT

San Francisco, Cal., March 12, 1921.

Stations	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	.02	40.49	34.47	54	44
Red Bluff	.18	24.00	19.16	70	40
Sacramento	.07	14.47	15.17	64	44
San Francisco.	.39	20.66	17.88	59	46
San Jose	.36	13.47	13.07	64	46
Fresno	.24	6.63	7.16	62	41
San Luis Obispo	.98	16.09	15.57	64	44
Los Angeles	1.00	8.04	12.28	66	49
San Diego	.60	3.97	7.89	62	52

Rosebud Shorthorns

A Choice Herd of Fifty Females
Headed by Milmar Stamp
a Cruickshank Secret

FOUR BULL BARGAINS:

We have for sale at real bargain prices four extra good yearling bulls that are well bred and of good color. These calves are just right for the range man who wants to improve his cattle. Visit our herd or write for prices. Satisfaction guaranteed.

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( ) 8 Double Cropping
( ) 9 Beans
( ) 10 Vegetable Growing
( ) 11 Irrigation and Drainage
( ) 12 Sugar Beets

(This project has been submitted to the State Real Estate Commissioner and has been approved by him.)

SUTTER BASIN CO.

Sutter Basin Company
Land Department
California Fruit Bldg.,
SACRAMENTO, CAL.

SAN FRANCISCO OFFICE: Balboa Building, 593 Market St.
LOS ANGELES OFFICE: 509 Security Building.

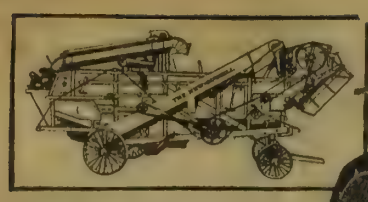
Sunny Side Holstein Dispersal

I am dispersing my good Holsteins on April 14, 1921. These will include the daughters of Sir Veeman Korndyke Pontiac and a yearling son of King Korndyke Pontiac 20th out of K. P. Tola who made 36.16 lbs. of butter in 7 days and 1000 pounds in a year.

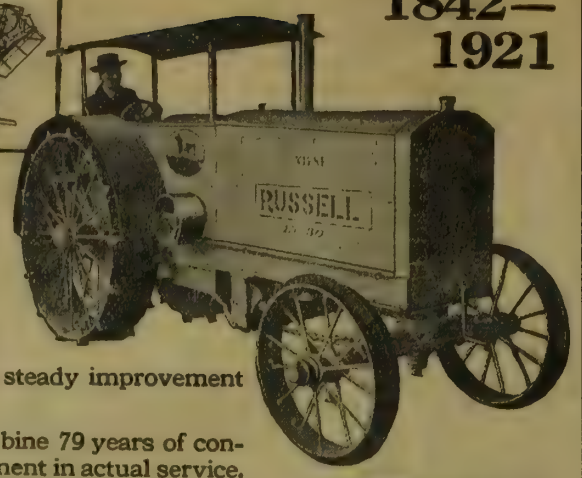
R. F. Guerin Visalia, Cal.

MERRITT-BOWERS COMPANY, Tagus Ranch, Tulare, California

have just got in two carloads of registered Shorthorns and Hereford bulls, and have a large assortment of draft stallions of all breeds, work horses and mules, as well as Mammoth Jacks, Duroc-Jersey Hogs and Poland China Hogs for sale, with a guarantee on every animal.



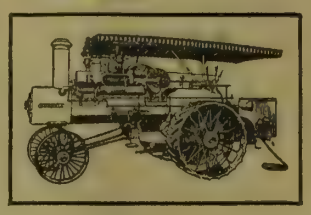
1842—
1921

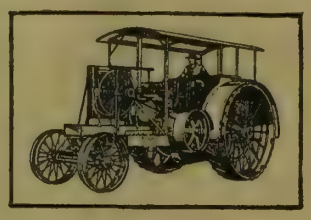


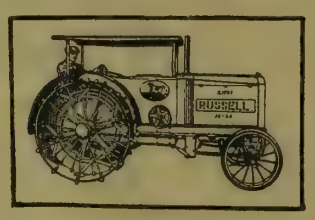
RUSSELL MACHINES are PEDIGREED

Like blooded live stock, they are the result of painstaking selection and steady improvement over many years.

Russell Threshers combine 79 years of constant try-out and development in actual service. Russell Tractors, first made in 1875—several years ahead of any other, are still *first* in Reliability, and years ahead in proven good features.







How Russell Machines Stand Up

"Our Russell Thresher was purchased by James Reese and Geo. Greer from you way back in 1865. It did the threshing for the whole neighborhood up to 1870, then was sold to Chandler Bros., and still remains with the undersigned. It has done more or less work every year and is today doing good work" — J. L. and FRANK CHANDLER, Lisbon, O.

"I purchased my Russell Tractor from you second hand in 1914; I don't know how long it had been used when I got it, but it is just as good as ever and runs fine. I have only spent an average of $20.20 a year for repairs and have certainly had good results. Have had the very best success burning kerosene" — W. G. HARTUNG, Newport, Minn.

"My old Russell Traction Engine No. 3404 was built back in 1886; it has been in use ever since and is still doing good work for me every season. It has plenty of power and my repair bills have been very small, considering the length of service with this outfit."—JOHN VOGEL, New Sheffield, Pa.

"I bought my Russell 12-24 Tractor in 1917 and have used it more in four seasons than most people do in ten; it pulls three 14-inch Oliver plows in Buffalo sod, black land very satisfactorily and will pull three 14-inch plows on old ground almost any depth . . . . I have farmed 500 acres for the past three years and have sold all my horses and farm these 500 acres with my tractor. I find it 50% cheaper than using horses."—F. IVAN TINSLEY, Canton, Kas.

YOU can have the SAME SERVICE by using the SAME MACHINES—*RUSSELL*

Russell Tractors in 4 sizes; Russell Threshers in six sizes including the 20x34 for individual use; Russell Steam Traction Engines in five sizes.

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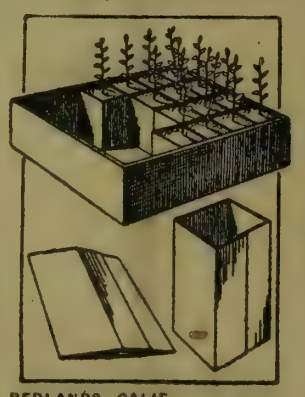
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.



COLLAPSIBLE PLANTING POTS

Why not raise your early

Tomatoes, cabbage, chili, and egg plant for home use or for market. Do you know that you can start Cucumbers, Cantaloupes, Melons of all kinds in these pots in flats until they have three and four leaves, then plant pot and all, have melons two or three weeks earlier for market. Just the thing for Propagating Eucalyptus and Olive cuttings.

Write for samples and prices of both Pots and Protectors. State which you are interested in.

THE EXPAN CO., 935 E. CENTRAL AV E., REDLANDS, CALIF.

FRUIT TREES FREE

Until April we will give FREE with each purchase of FIVE DECIDUOUS FRUIT TREES your choice of one Pear, White Fig, Apple, Apricot, Elberta Peach Tree.

With Ten Trees we will give FREE one two-year-old Washington Navel Orange Tree.

With every Twenty Trees we will give FREE one ten-foot Budded Walnut Tree.

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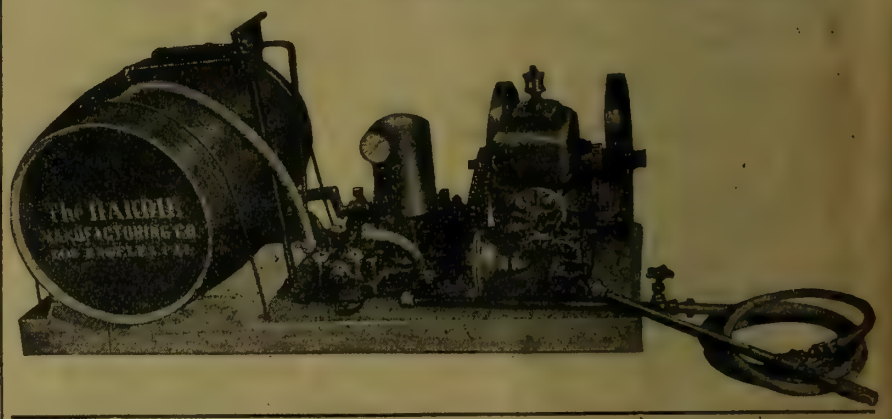

SIZE OF PLUNGER 1⅝ IN.	LENGTH OF STROKE 5 IN.	HORSE-POWER 1½ MAGNETO IG.	SPEED OF PUMP 60	CAPACITY 4½ GAL. PER MINUTE	WOOD FRAME	WORKING PRESSURE 225 LBS.

Our Special for Small Orchardists

can't be beat. It has been said that this Hardie Junior is the "biggest little power sprayer" on the market, big in everything except price.

This Hardie Junior Power Sprayer is in use in every fruit section of America, and our records will show that this machine is making a wonderful record. For satisfactory service and low upkeep cost it its very low price makes it available to the small grower who has thought he could not afford a power sprayer. In fact, thousands have seen in this Hardie Junior Power Sprayer their opportunity to get away from the hard work of hand pumping and the inefficiency of low pressure hand spraying.

SPECIFICATIONS.

1. Engine 1½ h. p. HARDIE Magneto ignition.
2. Pump—Famous HARDIE Junior pump.
3. Tank—50 gal. barrel, fitted with mechanical agitator.
4. Regulator—HARDIE relief valve.
5. Drive—Steel roller block, chain running on steel cut sprocket.
6. Equipment—25 ft. HARDIE best spray hose fitted with "Stay-there" hose clamp, one angle cut-off, one Vapo nozzle, one 10 ft. bamboo spray rod.
7. Price—$270.00 F. O. B. Los Angeles.
8. Weight—500 lbs.
9. Hardie Gun instead of rod, add $5.00.
10. Truck—add $60.00.

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — March 26, 1921 — No. 13

One Little Nook at Santa Clara Blossom Festival Time

It was our privilege to attend one of the very first of Santa Clara Valley's blossom festivals. It was many years ago but the memory is still fresh. Some of the prune orchards are located on the floor of the valley, but there are enough of the orchards over the hillsides to make one of the most striking of scenes. In the larger orchards the wide spreading branches cover practically all the ground so that even the roadways scarcely make a break between the trees glistening white. The beauty of these hills down the valley from San Jose and about Los Gatos, Saratoga, Congress Springs, Edendale, Morgan Hill and almost to Gilroy has been so exquisite that the world has been invited to come in and help observe the spring time blossom festival. This year's festival has been held during the past week. The valley gave the following invitation to the world: "Santa Clara Valley, in springtime the most radiant spot on the earth, holds at this season a Blossom Festival, to which it invites you. On fragrant hillsides, overlooking a vast bowl of blossoms, the festival is held yearly, a spontaneous gathering of the people of the valley, to drink in the beauty of mile upon mile of orchards. Double purpose gathers the dwellers of this rare region at this modern Festival of the Golden Bough. Not only do the peoples delight in the prospect of this stormless sea of dainty white and pink petals of the present spring day, but they glory in the promise of the harvest that the blossoms predict, for the floral wealth of March and April becomes the fruit of summer and fall, and from this Valley go forth to all the world the golden and purple trophies of the trees." The scene above is taken from the hills near Los Gatos.

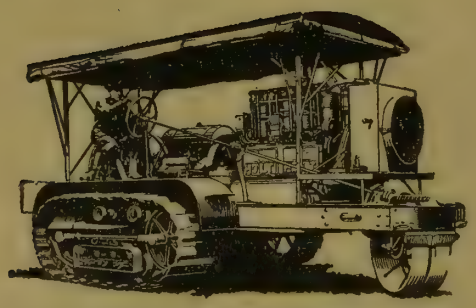
For consistent, continuous, low-cost tractor performance, this quality is essential-

DEPENDABILITY

It is the dependability of Holt construction, perhaps more than anything else, that has made the "Caterpillar" Tractor supreme in performance and in low operating and upkeep costs.

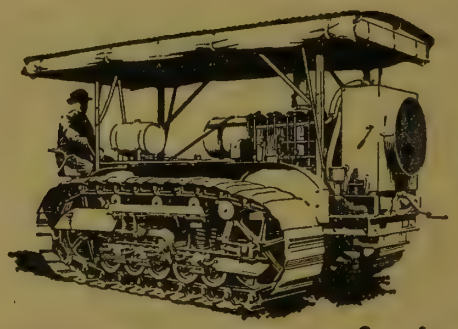
Ask any of the thousands of "Caterpillar" Tractor users why they have made this tractor their choice. Ask the owners of fleets of "Caterpillar" Tractors why they have standardized on this machine. The answer will be—"Because the Holt product is absolutely dependable." This quality—the result of correct design, scientific choice of materials and careful, accurate workmanship—makes the "Caterpillar" Tractor able to do your work at lowest cost per horsepower-hour.

CATERPILLAR



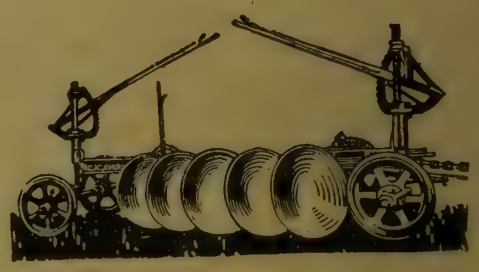
The "75"—the only tractor for your big power needs

"Caterpillar" 75 Tractor is the one and only tractor for big work—pulling a big harvester, land leveler or sub-soiler, or plowing deep—without danger of overloading, which causes 60% of all upkeep expense. The "75" stands supreme in power—the most powerful tractor on the market today. Yet, because of its economy and reliability, the operating and upkeep costs are exceptionally low—actually lower than of other tractors of considerably less horsepower. Don't underestimate your power needs; don't be handicapped with insufficient power—the "75" has ample capacity for your heaviest requirements.



The "45"—Famous for its compact power, versatility and economy

"Caterpillar" 45 Tractor is small in size but big in capacity for work. It is compact, easy handling, extremely versatile. Its hinged truck—an exclusive Holt feature—gives wonderful flexibility for working over rough ground, ditches, checks and levees. Big track surface makes the ground pressure, per square inch, exceptionally low. Besides the standard model, the "45" is offered in a special orchard model that makes particular appeal to the orchardist who wants a high-powered tractor for deep tillage and quick cultivation.



"Caterpillar" combination disc and moldboard tractor plows

A tractor can give no more consistent, continuous performance than the tools it handles will permit. That's why we developed a tractor-plow that will give the same trouble-free service as the "Caterpillar" Tractor, uninterrupted by annoying and costly delays. "Caterpillar" Plows, moreover, are light of draft and, because of their exclusive four-wheel construction, adaptable to widely varied conditions of soil and work. The standard frame can be equipped with discs or moldboard bottoms or heavy tractor chisel points.

The Holt Manufacturing Company

STOCKTON, CALIF. PEORIA, ILLINOIS

Los Angeles, San Francisco, New York, Spokane, Wash.

There's only one Caterpillar Holt builds it

California Cultivator

Vol. LVI, No. 13 | Los Angeles, March 26, 1921 | One Dollar Yearly

Tariff on Lemon Products

THE big meat packers maintain that they make absolutelv no profit on meat. For the time being we will grant the claim, though we confess to a degree of skepticism as to the real foundation for such a statement—referring now to meats and meat products. We have seen so many times where a commission appointed to investigate, instead of investigating has resolved itself into a judicial body to hear evidence which may be brought before it. In the packer investigation the case for the packers was logically and shrewdly presented by the ablest attorneys and was most convincing that there was no profit anywhere. The case of the producer and the consumer, on the other hand, had neither intelligent nor just presentation. The commission "investigated" sufficiently and rendered its judicial decision.

But, as noted above, for the time being, we will admit the truth of the statement that wastes save the day and apply the lesson to the present lemon situation. With lemons the wastes have not saved the day, because the wastes have not been saved at all. There have been no by-products. The prices received until nearly three years ago were sufficient to justify wasting the wastes and depending upon the high grade lemons to maintain the industry. That day is now past, and until the thousands of tons of cull fruit can be turned into one of the two principal by-products of the lemon industry, lemon oil or citric acid, there will be no profit, and unless there is profit the industry will perish. The lemon growers feel that one of the steps toward saving the industry is the securing of a protective tariff on lemon oil and citric acid which will give a margin that will justify American manufacturing chemists in establishing factories to handle these by-products.

We referred last week to a brief Argument on The Lemon Industry of California by the lemon growers of the state and we now note figures from the same source giving an idea of profits on the Mediterranean fruit and the possibility of profits to the California lemon grower which may be made to save the industry.

Some Items of Cost

A ton of fruit costs the grower to grow it 2½ cents a pound, amounting to $50 for a ton. It costs to pick and haul it to the factory over $10 a ton; it costs to manufacture it into lemon oil and citric acid $17.52 a ton (see Products Brief), but we deduct $2.79 as we can have processing plants within hauling distance if we use all grades of fruit, leaving the cost of processing $14.73, making a total of $74.53, the amount the Products Company must receive for the lemon oil and citric acid from a ton of lemons in order to pay the growers 2½ cents a pound for the lemons on the tree. At the present time Italy is receiving $94 for the oil and acid from a ton of lemons, in their money.

The recent highest price obtainable for lemon oil, i. e., 80 cents a pound, less the present tariff of ten per cent ad valorem, makes the price unaffected by the tariff 72 cents a pound. A 220 per cent ad valorem tax based on 72 cents value would amount to $1.58 a pound and added to the 72 cents would give a price of $2.30 a pound. The oil from a ton of lemons, 6 pounds, at $2.30, would bring $13.80.

The present price of citrate of lime in Italy is 16 cents a pound, our money, from that we conclude that the present price of citric acid in Italy is about 32 cents a pound. Add to this a tariff of $1.20 a pound, and it would make a price of $1.52 a pound. The citric acid from a ton of lemons, 40 pounds, at $1.52 a pound would bring $60.80, which demonstrates that, on the basis of present prices, if a tariff of 220 per cent ad valorem was levied on importations of lemon oil and $1.20 a pound on citric acid and those tariffs increased the prices obtainable for the products, the full amount of the tariff, the Products Company would receive $74.60 for the oil and acid from a ton of lemons and would be able to return to the growers 2½ cents a pound for the lemons on the trees.

The result would most assuredly fall below that mark a Italy has not said the last word in the line of price cutting when she is returning her lemon growers 4 1-5 cents a pound for the fruit while selling the acid at the present price, 32 cents a pound.

Also the above ad valorem figures are based on the highest price recently obtainable for an average grade of American lemon oil and should be based on the Italian price for a similar grade of oil. The Italian price is undoubtedly lower and that would make 220 per cent ad valorem not enough to secure the end desired.

Whatever cuts are made in the Italian profits will come out of our growers' returns of 2½ cents a pound.

We plan to send all grades of fruit in certain localities to the products plant as Italy does.

Importance of Duty

If we can not have both the duty of three cents a pound on fresh lemons and the full duty asked herein on lemon products it would be better for the industry to cut the duty on fresh lemons to two cents a pound and levy the full duty asked on the lemon products. The full duty asked on lemon products is of the greatest consequence to us. These figures are made in all seriousness and not with allowance for paring down. They are not high enough to produce the result sought, 2½ cents a pound for the fruit on the tree.

Not a Local Case

The lemon industry is not alone in its distress. It is one of a host of industries large and small all over the nation that are now fighting with might and main the tidal wave of foreign competition that will surely engulf them if they receive no succor. It is of vast importance to each of them and to all the industries of the United States that all industries be kept going. A little export or import business is as nothing compared to a lively domestic trade.

Europe can not pay us what she owes us in gold. She can only pay it by doing for us and furnishing for us the things our people should do or furnish for each other. If we permit her to do these things for us it will curtail the operations of our industries, causing widespread unemployment and distress here. It would be better to forget about those debts than to let Europe beat us in this big trade.

California lemon growers have been spending $300,000 a year in advertising and special dealer service work in an effort to increase lemon consumption in the United States. The importers of Italian lemons have reaped a share of whatever benefit accrued from this expenditure. The Italian lemon growers dominate the world's traffic in lemons and lemon products but have made no corresponding effort to increase their sales of lemons and lemon products to the thousands of millions of people living outside the United States. It is only reasonable that they should be compelled to develop those other markets for their lemons.

In 1909 when our committee asked the Republican ways and means committee to levy a tariff of 1½ cents a pound on imported lemons it stated, "under the stimulus of an increased duty the setting of lemon trees would be so great that in ten or 12 years California would produce all the lemons consumed in the United States." The duty was increased and the promise has been fulfilled.

Suggestions to Shippers

IF your organization is to succeed in placing your products in the best markets at the highest prices it must be done by giving the buyer a better pack than he can obtain elsewhere.

This means that our grading must be strict and uniform and the interior quality of the eggs of the very highest.

We can then command the confidence of buyers anywhere and be assured of permanent business at remunerative prices.

To produce an egg that will fulfill the above conditions we must begin with the hen. Producers should see to it that their birds are healthy, strong and vigorous; that they are well housed—not overcrowded; that all surrounding conditions are sanitary, and that every hen is given the best of care.

The item of feed is most important and should always be closely watched to see that nothing but sound, clean grains are used, and that the mash should be compounded from simples of first quality, free from any material that might contribute to deterioration of the eggs when in cold storage. A freshly laid egg, produced by a healthy hen, is a perfect food product, but from the instant it is dropped into the nest it is subject to influences which tend to impair its quality and therefore reduce its value.

Causes That Reduce Value of Eggs.

Dirt, heat, wetness and also excessive dryness are the principal enemies of quality in the fresh egg. Dirt directly affects the appearance of the egg, making it unattractive to the buyer. It also brings into close contact with the egg mold germs and other undesirable bacteria which tend to spoil the contents. It frequently imparts an unpleasant flavor.

When an egg gets wet the albuminous protective covering is dissolved, allowing the bacteria of decomposition free access through the pores of the shell, causing the egg to spoil rapidly.

Heat breaks down the albumen or "white," making the egg "weak" or watery. It has the contrary effect on the yolks, making them dark and "heavy" and undesirably high colored. Weak eggs and eggs with dark, heavy yolks are classed as "baker" eggs. In fertile eggs heat starts incubation (which begins at 70 degrees), causing "blood rots."

When eggs are exposed to a drying wind or draft of air the contents evaporate quite rapidly, causing "shrunken" eggs. The grading rules provide that "extra" eggs must be "full," therefore shrinkage reduces the quality and causes the egg to be graded as a "first" or a "baker's" egg, according to the amount of shrinkage. Many people seem unaware of the extent to which fresh eggs will shrink in a few hours when exposed to a dry wind. If the weather at the same time is hot, the egg so exposed will almost inevitably become a "baker," even though in point of time a fresh laid egg.

Proper Care of Eggs

The above considerations suggest their own remedies. In order to preserve the fine quality of the new laid egg, the nests should be located so that they are protected from direct sun rays and from wind.

Nests should be kept strictly clean and well supplied with dry, odorless nest material. Laying house floors and yards should at all times be reasonably clean and the floors always dry and covered with litter or sand.

Eggs should be gathered twice a day, especially in hot weather. They should be put at once into cool room or cellar,

(Continued on Page 442.)

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard — D. F. Reichard
J. W. Mills — J. B. Neff
Fred M. Reed — Louis B. Stanton
G. E. Gordon — M. E. Bemis
A. R. Gould — E. L. Koethen

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EDITORIALETTES

Almost any section of California gives a view these spring blossom days which is ample recompense for a long trip. Our cover illustration this week gives only a slight indication of some of the beauty amongst the prune orchards of the Santa Clara Valley. The Blossom Festival is over but the beauty still remains, though it is rapidly changing to a rich green.

* * *

Now comes the Date Festival. The Coachella Valley, the "low-down" section where dates grow, has scheduled a great festival to be held October 21-23, 1921. It is a festival to chronicle the joy of the people of that valley in growing the finest dates in the world and in addition to give a bit of advertising to a product which is already coming in such quantity that soon larger markets must be developed.

* * *

The farmer of the East, or rather of the entire Cornbelt, is saving out some of the corn which he was burning because of its not bringing in sufficient to buy fuel, and is sending it to hungry children overseas. The farmers' contribution has been supplemented by the offer of railways to carry the corn without charge. The railways' offer has been supplemented by that of their employes to give their services in the transportation of the corn without charge; the big commercial corn shellers have made no charge for shelling; elevators have stored and loaded on trains without charge; and from start to finish there has not been a penny of expense to put the corn in the hands of hungry Europe.

* * *

It may be that the income tax is vicious and that many exceptionally rich people engaged in manufacturing or mercantile lines have simply added enough to their prices to meet the excess profits tax, but they can't all do that. The savings organization of the twelfth federal reserve district reports that it is roughly estimated that one man, John D. Rockefeller, has a gross income of some $43,000,000. Under the excess profits tax something like two-thirds of this goes to the government. Gasoline may be marked up to meet this, but not all.

* * *

It is now reported that there are about the same number of idle men as were drawn into the service during the great war. Still the immigrants are coming by the thousands and without the slightest hindrance.

* * *

The date for the university farm picnic has been fixed; it is Saturday, April 23. This annual event at Davis has attracted from 12,000 to 15,000 people every year for the past dozen years. It is more or less of a festival occasion and results in an all around good time and at the same time gives opportunity to farmers within automobile reach of Davis to learn as to the very latest in scientific agriculture.

* * *

"Sensible Optimist" in the Rural New Yorker suggests to a worried and discouraged farmer: "Do not unload anything. Hang on 'like a pup to a root' and grab more. 'Better bear the ills you have than flee to others' that will surely get you. This condition affects everyone, but least of all the farmers. Only 50,000 auto workers at Detroit, instead of 300,000. Census of Akron now 100,000; was 200,000. Farmers have only lost $5,000,000,000, but have stamina yet to kick like everything. Try that kind of a loss on any other industry, try it on any two, and they will be dead as Balaam's mule."

We don't know how dead Balaam's mule may be by this time, but he isn't much deader than the possibilities for a living through farming as conducted by some farmers in this year 1921. A year ago almost any type of farming could be made to yield a living and some profit to the farmer; today only the shrewdest of management and most persistent stick-to-it-iveness can win. "Optimist" may be justified in his optimism, though we note he closes his suggestions with: "Our planting this year must be done temperately with an eye to maximum yield and minimum acreage.

"Prosperity will come when the farmer gets profitable prices for his yields and buys things. The alleged enormous crops will prove mythical, and they will hasten the day they can buy things."

* * *

President Howard of the American Farm Bureau Federation asked regarding the former congress: "Will the house leaders allow the packer control bill to come to a vote?" His question was answered by a very loud silence in the negative. Maybe the special session will think differently; meantime practically all organizations representing farmers; the National Consumers League, the League of Women Voters, the American Federation of Labor, are making audible protests which indicate that something will drop if this matter of packer control is not attended to.

* * *

The California Bud Selection Association is not dead nor inert, notwithstanding the papers are saying but little regarding it these days. The foundation is being laid for an association which will mean much to California fruit growers.

* * *

Santa Clara Valley Japanese have accepted the American cooperative idea in both theory and practice. Japanese vegetable and fruit growers of that valley have now organized and purchased a large canning establishment which will handle their surplus. Strawberries will be one of the principal products.

MORE EFFICIENCY

The California Tractor Association and the Southern California Tractor and Implement Dealers Association have both voluntarily terminated their existence. This has been brought about partly in the interests of economy and to make possible reorganization in a single association. The membership of the two associations was in many cases identical, that is, members of the northern association were also members of the southern association because of having distributing houses in both centers. It costs a vast sum of money to stage a farm power and farm implement show. Two great shows were staged in this state during the past year, one at Verdugo in the outskirts of Los Angeles, and one during the state fair at Sacramento in September. Presumably arrangements will be made for a great exhibit at the coming state fair and very probably an exhibit will be made in conjunction with the livestock show at the sixth district fair, Los Angeles, though this is not definitely arranged. But it is probable that if these two exhibits are staged they will be largely under the direction of one association and at less expense than the shows of the past. The demand was never more insistent for efficiency and labor saving appliances than it is today, and our implement dealers and manufacturers of farm power will in no way lessen their efforts to meet the need of the farmers.

TRADING IN "FUTURES"

The believers in gambling as carried on in the Chicago board of trade are making strenuous effort at this moment to show the benefits derived from the transactions in the pits. They are trying desperately to befuddle the public mind as to the curse of this gambling to the consumer and the fearful loss to the farmer. It is asserted that less than 28 hundredths of one per cent of the number of bushels of grain bought and sold on the board of trade is actually available for delivery at Chicago. In other words, over 99 per cent of these "sales" on "futures" are never followed by delivery of the grain. There are sold approximately 18,500,000,000 bushels on futures market annually (more than three times the grain production of the world). The value represented in this vast quantity of sales is around $20,000,000,000.

Many years ago when the Louisiana lottery aggregated $60,000,000 annually, which it fleeced from the dear people, we thought we had reached the limit and wiped it off the face of the map, at least so far as the United States was concerned. And there is Monte Carlo at which we hold up our hands in horror. But all these great gambling schemes combined do not make a start toward competing with grain gambling in the injury caused to the people of this country.

In making an address concerning the proposed tax on "future trading" before the house committee on agriculture, Clifford Thorne, general counsel for the American Farm Bureau, summarizes the situation in these words:

"If a purchase and sale of grain consummated by parties who do not have any grain to deliver on the contract, and who do not want to receive any real grain, who do not expect to have any grain delivered or received, and who, in more than 99 cases out of a hundred, settle their contracts by the payment of differences, is gambling, then we have demonstrated the fact that the Chicago board of trade is the greatest gambling institution ever seen upon the face of the earth.

"This stupendous speculative market constitutes our price determining machinery on grain. We object to certain phases of its present operations because the most important function of the entire institution is under the control and domination of speculators. The dealer in actual grain is completely overshadowed."

WORKING FOR THE FARMER

For the first time the farmers have a friend at court, in fact, several of them. These are organizations which have made headquarters at Washington, have kept tab on legislation, have promptly reported to the farmers the action of congressmen and have started a lot of things intended to be of real benefit to the producing interests, in fact, to the entire country. Unfortunately, there has been more of starting than of satisfactory finishing. But in any case we are getting a little bit of attention and have now risen to the dignity of being investigated. Congress seemed to get an idea that too great an amount of money was being spent on their lobby so a committee was appointed and made report in which the following appeared, as noted by the Indiana Farmers Guide:

"The representatives of the American Farm Bureau Federation, the National Grange, the National Board of Farm Organizations and the Farmers National Council were among those called before the investigating committee.

"The American Farm Bureau Federation is spending about $30,000 a year, paid from the treasury of the federation. Gray Silver, in charge of the office, receives a salary of $12,000 a year, and his assistant, O. M. Kile, is paid $5,000.

"The expenses of the National Grange amount to about $6,200 a year, coming from the Grange treasury. Prof. T. C. Atkeson, who has charge of the office, receives a salary of $3,000 a year.

"The National Board of Farm Organizations expends around $15,000 a year, this amount coming as contributions from 15 member organizations and from rent from a building which it owns in Washington. Chas. A. Lyman, the secretary, receives a salary of $3,600 a year.

"The Farmers National Council, which consists mainly of Geo. P. Hampton and Ben C. Marsh, spends about $16,000 a year received as contributions from three agricultural organizations, two individuals, and from the Fels Foundation, the Plumb Plan League and the All-American Cooperative Conference. Mr. Hampton's salary is $6,000 a year and Mr. Marsh's $3,600."

And we may be permitted to ask: "What's the harm?" We do not all agree with all of the aims of every one of these associations, but they are looking after the best interests of the farmer. The results which were not accomplished in the last session show that their work is not ended.

California's Wealth of Water

By J. L. Mathews of the State Water Commission

PRESIDENT CHARLES H. LEE of the state water commission, in his report to Governor Stephens for the biennial period just closed, says in figures that the commission has hundreds of times over paid its own way in the amount of new values created through the releasing of water rights upon lands that had never before been brought under water, or which were struggling with seemingly inextricable legal knots that tied up the rights to water.

The estimated area possible of irrigation in California is 9,669,600 acres, and the commission already has applications for water for a large proportion of this. The commission has issued permits for water for 618,400 acres. Possible water power development in the state is estimated at 9,250,000 horsepower, and applications for water rights have been received by the commission amounting to 5,590,000 horsepower. Permits have been issued amounting to 243,000 horsepower.

Financial houses are demanding that a showing of water right permit issued by the state water commission be made before lands can be given a loaning value. It has come to be accepted that a definite water right title is as essential in California as a land title, and is, of course, more essential for actual operation. This applies to riparian and non-riparian lands alike. It has come to be understood that a riparian right merely entitles the owner to a reasonable use in common with other riparian holders and that the amount of water to which they are entitled is vague, depending not only upon the stream flow, but upon the number of riparian owners. The right by appropriation and beneficial use, which is the method followed by the commission, entitles the owner to a definite amount so long as there is a sufficient amount of water in the stream to supply appropriators with senior priorities.

All unappropriated waters are subject to appropriation under the terms of the act upon which the commission is established. It is decidedly significant to know that there were but few permits for large projects issued in the biennium, but that the great total is made up very largely of permits to comparatively small land owners. Among the acreages upon which permits were issued is that of the Happy Valley Irrigation District operating 18,110 acres. The Natomas Company received permits to irrigate 14,510 acres; the Sutter-Butte Canal Company, 27,500 acres; T. B. Cross, 8436 acres in the Sacramento delta; San Joaquin Light and Power Company for the development of 63,636 theoretical horsepower at a cost of four millions; the Sierra and San Francisco Power Company for the development of 31,704 theoretical horsepower at a cost of $740,000.

But the tremendous potential work of the commission lies in the program for the determination of water rights perticularly on streams where large stream bed reservoirs are proposed in which to store storm water on a scale that has not been dreamed of in the past. This is a part of the great work that confronts the commission at the present time, and its achievement rests upon whether the state legislature will provide the necessary funds for surveys and investigations, together with power to supervise to a greater degree than before the streams by patrolling and measuring and dividing fairly the stream flow.

Before the water commission act was passed the only method of attempting to define water rights and to adjust disputes was through the courts. But the primary function of courts is not to make determination of water rights, but to adjust differences between litigants. Courts do not act on their own initiative or upon the desire of the water user, but only act upon the filing of a complaint by an injured party. It is almost never the case that all owners of water rights on a stream are made parties to the suit when it comes into court. Only those parties bringing action are included, and the court action decides nothing except the question brought by the complaining litigants.

There is no way by which a court decree can be effectively and quickly enforced. Contempt proceedings for a violation of the decrees of the courts are ineffective and costly and subject to the usual delay and hindrances of court routine. All of which works to shut out the small owner, who can seldom stand the cost of such suits without going into bankruptcy.

In contradistinction to this procedure the water commission can act upon the petition of one or more water users, or upon its own intitiative, and all claimants to water or use of water are required to appear. The findings in these cases are definite as to priority, and the water right certificate when issued affords the owner and the loaning agency a tangible and reliable evidence upon which to base right or title.

The work of adjudication is done by the commission after a thorough investigation by expert, unbiased engineers in the employ of all the people and not merely by engineers representing one group of people.

A tremendous saving through the prevention of litigation in the courts is effected through commission methods. An example is seen in the reference of the Bear Creek Mining Company vs. the Happy Valley irrigation district in Shasta County and the recent Stanislaus river adjudication, where there existed a most formidable legal tangle, but which was settled in two contests before the commission, straightening out the situation for 81 claimants. The costs of these adjudications to the water users are nominal and on a parity with the obtaining of an abstract of title to land, as against the extremely costly, cumbersome and oftentimes ineffective litigation of the old methods before the courts.

The commission has now come to the point where it is confronted with the problem of issuing permits for large reservoirs in many parts of the state and upon many streams, designed to store storm water. But it is easily predicted that with the storage of great amounts of water at an upper point on a stream, endless friction will arise when this water is started down stream to be used as irrigation water at a point that causes it to traverse territory where there are numerous water users intervening. In order to protect the builders of stream bed reservoirs from losing the water, and in order to distribute the water to the water users in accordance with their rights, the commission believes it would be advantageous to water users to put into effect by enabling legislation the power which it already has to appoint what are known as water masters, or zanjeros, under the direction of the commission, whose duty it shall be to measure the water and to divide it at all times.

This system of water administration is in use in most of the western states where irrigation is practiced. It calls for an intelligent officer, not necessarily an engineer, but one who can accurately measure water, and who will be an unbiased employe of the people, rather than the employe of any corporation or group of individuals. The ditch interests on the Kings river were the first to appreciate this system, and in July of 1919 appealed to the commission for the appointment of a water master. Settlement of water litigation had not been effected through a period of 50 years of wrangling in the courts, but a commission engineer has succeeded in successfully apportioning the water to the expressed satisfaction of all the numerous parties concerned.

The Sacramento river last season was another instance of state supervision of diversions. The threatened shortage of water was prevented by the commission water master and a corps of assistants, who apportioned the flow and stopped wastage to the extent that all crops were pulled through the shortest water season in 23 years.

In order to carry out the water master idea throughout the state, and to make possible the operation of numerous great storage reservoirs that are now projected with a certainty, the commission must have enabling legislation and more funds to handle the situation, and the broadening powers are contained in bills now before the state legislature. These bills should pass, and the money to operate the commission on a larger scale should be appropriated, and it should be done from the standpoint of economy and the increase of wealth within the state.

Tractors in the Rice Fields

By Arthur L. Dahl

IN the rice growing sections of the South the farmers used to dub their work horses or mules "mud hens" because they had to do so much of their work in the mud. In rice culture there is more water than soil used to produce a crop, and the grower must carry on his operations on ground that has been saturated with long standing water and where mud is so deep as to render difficult the use of horses and ordinary farm implements.

The modern tractor has been a boon to rice growers, and in no branch of agriculture has their value been more thoroughly demonstrated than in the rice fields of California. They do the plowing and preparation of the fields for the crops, and when harvest time comes they are the first in the field. In California, when the rice is ripe and ready for cutting, a delay of several weeks, or even several days, to permit the ground to dry out for animal use, often results in severe losses through unfavorable weather. Tractor farmers, on the other hand, frequently go upon the land almost immediately after the water is drawn off, for the tracklaying type in common use here, by distributing the weight of the machine evenly over the ground, and the superior traction thereby secured, enables the outfit to go anywhere and at the same time pull the rice cutting or harvesting machines. Sometimes the owner will equip his binders or harvesters with specially designed skids, or sleds, to prevent them from being mired, but the tractor will pull the load if properly handled.

This ability to go anyhere at any time makes the rice grower independent of ground conditions and is a positive insurance against loss through delay or unfavorable weather conditions.

In the spring or early fall when plowing is to be done the tractor will do the job better than horses, for it can plow deeper, work faster and longer, do more uniform work with less labor for the operator. The system of levees which traverse all rice fields, and which are necessary to insure a uniform stand of water upon the growing rice, is one of the serious drawbacks to the use of animals in plowing and cultivating the fields. The water stands for long periods in the borders of these levees, and the resultant mud makes plowing impossible close up when horses are used. The tractor, however, with its superior power and traction, can easily navigate this no man's land, thus preparing all portions of the field. In the building or repair of the levees themselves or in digging canals or laterals the tractor furnishes adequate power for the work and is more easily handled than horses.

Rice requires a long growing season, and sometimes the grain does not ripen in California until close to the beginning of the wet season, and growers are anxious until their crops can be harvested and stored where early rains can do no damage. Possessing the power of many horses the tractor can perform more work in a given time, and being tireless the task of cutting, raking, binding and stacking can be carried on continuously so that the preparation for threshing can be pushed with all possible speed.

When the rice has been cut and

(Continued on Page 417.)

Agricultural News Notes of the Pacific Coast

Northern California

Farmers of Glen Olive, Yolo County, are donating work on local roads.

Cloverdale, Sonoma County, expects to have a new cooperative cheese factory.

Effort is being made to hold cooperative fat hog auctions in Tehama County.

The Banta-Carbona irrigation district has been formed in Alameda County.

The first carload shipment of asparagus left Sacramento for New York on March 11.

A peach growers department is being organized in the Sutter County farm bureau.

There is talk of constructing a cooperative grain elevator at Lincoln, Placer County.

The free market project for Marysville, Yolo County, is arousing interest among growers.

A poultry breeding contest has been started in Sonoma County to extend over three, and possibly four, years.

A mutual fire insurance company has been organized in Glenn County as a result of effort in the farm bureau.

Hog growers of Mendocino, Sonoma, Napa, Solano and Marin Counties are cooperating in holding hog auction sales.

Nevada County farm bureaus will have a series of demonstrations in pruning and soil erosion control this spring.

Plans are in the making for cooperative work in the building of a road over Hatchet Creek mountain in Shasta County.

A community meat ring has been formed at Mount George, Napa County, members taking turns in killing and distributing.

Twenty members of the Orangevale farm center, Sacramento County, recently made auto tour of the pear growing section along the river.

Central California Wool Growers Association has fixed $70 as maximum monthly wage for herders, probably after the lambing season to be lowered to $60.

The Hayward Pea Growers Association has signed up the growers of the Pismo district and will ship the southern crop first. The peas are auctioned at Hayward.

The farm center at Paradise, Butte County has organized a strawberry growing club which will take up work under direction of the committee of the berry growers department.

The Lake farm center of Glenn County reports a very successful business being done by its cooperative meat market. The market operates on a 15 per cent commission basis.

A shipment of 500 bales of Australian wool was received in San Francisco last week. This is said to be the first of a 300,000 bale consignment to be put into this country before a protective tariff can be passed.

The Central California Wool Growers Association held a joint meeting at Stockton with the San Joaquin Valley Wool Growers and Marysville Associations to decide on prices for spring shearing. Ten cents per head for hand shearing and 13 for machine shearing was decided on, board furnished.

Central California

Effort is being made to build a grain elevator at Stratford, Kings County.

The Fresno County farm bureau has appointed a permanent road committee.

Watsonville has shipped 2652 carloads of apples, with 150 yet in storage.

The farm center at Dixieland, Madera County, has purchased community scales.

The Stanislaus County farm bureau now employs four men in marketing veal calves.

The Salinas high school, Monterey County, is carrying on an egg incubation contest.

The Stanislaus County Poultry Association is planing to cooperate in buying feeds and supplies.

The Corralitos farm bureau of Santa Cruz County is planning to construct a new community hall.

Grain growers of Monterey County are discussing the building of a cooperative grain elevator.

Grain growers of Fresno County are planning to establish a cooperative grain elevator at Burrell.

Modesto, Stanislaus County, expects to have a sorghum syrup factory ready for operating next season.

The Turlock local of the Farmers Union has unanimously endorsed the Associated Raisin Company.

The Grangeville center of the Kings County farm bureau is serving a hot lunch at noon to 165 school children.

Petition has been presented to Kern County supervisors for formation of the Indian Wells Valley irrigation district.

The Stanislaus County Holstein Breeders Association is carrying on calf club work among the boys and girls of the county.

The handling of cantaloupes and watermelons will be added to the activities of the Tri-County Marketing Exchange of Madera, Merced and Stanislaus.

Earl D. Schlaman has been appointed assistant farm adviser for San Joaquin County to succeed Frank Spurrier, who goes to take charge of club work in Northern California.

More than 100 growers and shippers of Lodi, San Joaquin County, have formed the Lodi Growers and Shippers League, electing Geo. W. Ashley, president, and G. L. Bennett, secretary.

Fresno County occupies fourth place for the number of motor vehicles registered in 1921. Los Angeles leads with 161,736, San Francisco has 47,969 Alameda 36,132 and Fresno 30, 899.

An experimental vineyard under the control of the United States department of agriculture, will be maintained at Fresno. Grafting and other viticultural experiments will be carried on with the idea of developing new varieties and finding use for wine grape vineyards that ranchers may desire to convert into raisin or table grapes.

With a two day celebration assured (April 29 and 30) plans for the California Raisin Festival for 1921 are being rapidly completed. The first day will feature a parade pageant of allegorical character, and a mammoth chorus of one thousand voices, and a special oratorio arrangement. The Raisin Day Classic, speedway automobile race, will be held on April 30.

Southern California

The Santa Barbara farm bureau is planning a county fair this fall.

Placentia, Orange County, will hold a May Day fete, Monday, May 2.

Yucaipa, San Bernardino County, is organizing a center of the farm bureau.

Carpinteria, Santa Barbara County, is planning extensive road improvement.

A boys' pig feeding contest has been started at Chino, San Bernardino County.

The farm bureau center at Mound, Ventura County, has purchased a community fruit sprayer.

Trial is being made in Imperial County of the acetylene flash gun in controlling wild ducks.

The farm bureau of Lankershim, Los Angeles County, has elected A. P. Stoutwell president.

The Covina farm center of Los Angeles has adopted a wage scale for tractor and team work.

Coachella Valley onion growers expect to send out their first carload shipments about April 10.

Permanent tree pruning demonstrations are being established at Fallbrook, San Diego County.

Victor Valley, San Bernardino County, has a chamber of commerce which has declared war on mistletoe.

Plans are being made for the drainage of the lowlands west and southwest of Oxnard, Ventura County.

The onion acreage in the Coachella Valley is estimated at 1,700. This is only about half of last year's planting.

San Dimas lemon growers have figured out that they can save $80,000 by shipping lemons by Panama Canal.

Dairymen of Tierra Bonita, Los Angeles County, are requesting the farm bureau to extend the cow testing work to their section.

Lemon growers of California generally estimate that the sales of the past 12 months make a net loss of $1 per box to every grower.

Imperial County farmers have secured the assistance of an expert from the U. S. biological survey to work out a method of controlling blackbirds.

Los Angeles County farm bureau is to hold meeting of poultry producers at Pomona, Tuesday, April 5, to be in the form of a picnic at Ganesha Park.

The dairymen's department of the Los Angeles County farm bureau is to hold a meeting on the Pellissier ranch near Whittier early in April, exact date not yet named.

Imperial Valley cotton growers are endeavoring to find a market which will pay 30 cents for its remaining cotton. It is now proposed to make direct shipment to Europe.

A survey of the Imperial County Cow Testing Association shows 22 out of 23 members have purebred sires at the head of their herds and the other one now negotiating for a purebred.

Inspector Hosford reports the sale of some 3,000,000 strawberry plants by one firm this year in the district southwest of Los Angeles. He estimates 750 of additional acreage next year. This will make a total of some 1,250 bearing acres in the spring of 1922.

The Coast and General

Sheep are being taken off the winter range in Utah.

Portland, Oregon, will hold her Rose Carnival June 8-10.

Nevada stockmen report cattle and sheep in excellent condition.

During last year 130 new silos were built in Wallowa County, Oregon.

Colorado reports light snow cover in most counties with livestock in good condition.

The Annual Northwest Livestock Conference was held at Spokane, Washington, March 22-24.

The lower ranges are becoming accessible in Idaho and the movement of cattle has started. Stock is in good shape.

Reports from Santa Fe, New Mexico, are that the weather has been warm and dry with fruit trees too far advanced.

Rains in the southern part of Arizona early in March were particularly welcome to range men, as the pastures were becoming dry and prospects for spring feed were anything but bright.

The Oregon state land settlement commission has authorized the purchase of 60 acres near Prineville to be used as a model state farm. Four other such farms will be established in that state.

The proposed four-state farm meeting which was to have been held March 21 at Spokane has been postponed until some time in June because of inability of President Howard of the American Farm Bureau Federation to attend at the early date.

Quarantine regulations of the Arizona horticultural commission now prevent the introduction of sweet potato plants from Texas on account of the sweet potato weevil, and of peach trees from Nevada, Florida, Alabama or the northeastern states on account of peach yellows.

The plans of the Committee of Seventeen for a farmer owned national grain marketing system will be placed before grain growers of the United States at a conference in Chicago, April 6. One delegate will be allowed from each state producing $10,000,000 worth of surplus grain and an additional delegate for each $15,000,000 worth.

Cattlemen and sheepmen in Gila County, Arizona, are trying to settle amicably the matter of a trail over which the sheep may be driven in the fall from the higher elevations to the lower deserts and valleys for winter feeding and for the return trip in the spring. One trail is now in use but sheepmen ask for another, and cattlemen are objecting on the ground that it would destroy too great a proportion of the feed on the ranges of some of the smaller cattlemen.

Land owners under the Auxiliary Eastern Canal in the Salt River Valley of Arizona voted recently to raise $2,000,000 by the sale of bonds for the purpose of building canals, ditches and substations to bring their lands under water. The area involved is approximately 38,000 acres. A part of the necessary water will be supplied from wells and a part from the flood waters of the Salt River or Roosevelt project. This land lies to the east of the lands watered from the Roosevelt dam.

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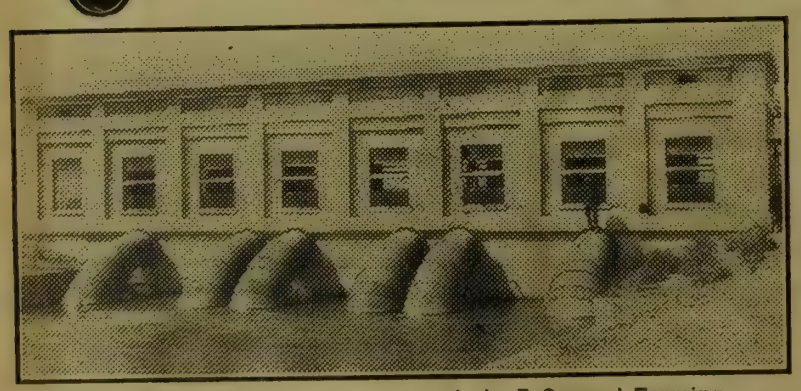

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BORDEAUX-OIL EMULSION SPRAY FOR CITRUS

Since the beginning of spraying for citrus disease control in Florida growers have been handicapped in the use of Bordeaux mixture because of the marked increase of scale insects following treatment of citrus trees with this fungicide. This increase is attributed to the killing by the fungicide of certain beneficial fungi that parasitize the scale insects and hold them in check. In other words, the Bordeaux mixture incidentally cures the scale insects of their fungous diseases; hence Bordeaux spraying always had to be followed closely by special oil or soap sprays to control scale insects. This added greatly to expenses and deterred many from using Bordeaux mixture.

The advent of lime-sulphur sprays obviated this difficulty in part. They are somewhat weaker than Bordeaux mixture in general fungicidal value but have, in addition, distinct insecticidal value against the scales in their young stages, and effectively control rust mites. But this somewhat lower fungicidal value gives less effective control of fungous diseases, such as citrus scab and melanose, especially under conditions very favorable for the development of these diseases. The problem still remains of getting a spray that would have the fungicidal effectiveness of Bordeaux mixture without the bad after effect of scale increase.

The very simple solution of this problem, worked out jointly by plant pathologists and entomologists of the United States department of agriculture, is to combine the Bordeaux mixture fungicide with the oil emulsion scalecide. A method of making this mixture has been devised and has been tested out in grove practice by a number of representative growers for the first time during the last season and proved generally effective. The secret of doing this successfully is to have a good agitating outfit in the spray tank and to keep it churning while the oil emulsion is being poured into Bordeaux mixture made in the usual way, as well as later while spraying. Such a combination of 3-3-50 Bordeaux mixture and oil emulsion carrying one-half per cent of oil is safe to use on citrus fruits; it retains apparently the full fungicidal value of the Bordeaux mixture; it has sufficient scalecidal effect to eliminate the usual post Bordeaux increase of scale, and it spreads nicely over the plant surfaces. This does not replace the fall or winter special spray with one per cent oil emulsion usually required in scale infested citrus groves.

SELECTION OF GUAVAS

As we have before stated, budded varieties of all guavas are needed. As an example, the Paraguay guava, Feijoa Sellowiana, may be cited. Had not the best seedlings been named and perpetuated through budding, this guava would before now have passed out of the market, for seedlings, even from the best types, are extremely unreliable. We need budded varieties of the common strawberry guava for one or more in every dozen plants purchased are not worth growing. All plants so vary to some extent, even in their native habitat, as witness the following description sent, with seeds, to the United States department of agriculture and so published:

"Seeds from Tlacotalpan, Vera Cruz, Mexico (1910). An evergreen arborescent shrub, 12 to 20 feet high, indigenous to the tropical mainland of America, from where it has been introduced to practically all parts of the tropics. The fruit is round, oblong or pyriform, the best varieties attaining a weight of eight to ten ounces. The skin is smooth and yellowish; the flesh, in which the numerous seeds are embedded, is whitish, yellowish or reddish and usually very aromatic. The quality and flavor vary exceedingly, certain types being flat and insipid, others very sweet, and still others more or less acid. The sweet and subacid sorts may be eaten with cream as a dessert fruit. From the acid fruits a superior jelly is manufactured. By-products obtained in its manufacture are guava marmalade and guava cheese."

DEHYDRATORS LEAGUE OF CALIFORNIA ORGANIZED

At a recent meeting in San Francisco of producers of dehydrated fruits and vegetables and manufacturers of dehydration machinery, and as a result of previous deliberations by a committee headed by E. M. Sheehan, president and manager of the California Grape Growers' Exchange, the dehydrators League of California was established.

Three previous meetings, largely in the nature of conferences on dehydration, had been held prior to the meeting of March 8. The new organization is the result of the conference on dehydration held at the 53d State Fruit Growers and Farmers Convention in Fresno, November 9-12, 1920.

The Dehydrators League has for its aims and objects the standardization of dehydrated fruit and vegetable products and dehydration machinery. Matters of general interest to the trade will also be taken up. The plan of organization is based on that of the National Canners League and is a long step forward in the development of this important industry.

PANAMA PAPAYAS

More than 10 years ago W. G. Ross, Empire, Canal Zone, Panama, sent to the United States department of agriculture seeds of a splendid Carica papaya fruit, registered at Washington under the number 28533. Mr. Ross wrote that the fruit weighed more than 16 pounds, was cylindrical in shape, very rich in flavor, with very small seed cavity and less seeds than most others. It has been demonstrated that the papaya will produce fruit in California in practically frostless localities and large plants are growing in many favored spots. Why experiment with small fruited varieties when Uncle Sam has introduced such a mammoth fruiting strain.

HIGH NUTRITIVE VALUE IN AVOCADO

That the avocado has a high nutritive value and that its content of fat in some instances exceeds that of butter were the statements today of Professor M. E. Jaffa of the University of California. He says: "The avocado combines a natural combination of fruit and oil. The fact that the native Cubans prefer this fruit to any other of their abundant supply may be due to its flavor alone, but it is more than likely that the preference is more deep seated, and that it is the result of generations of experience or of a knowledge of its beneficial effects."

The avocado was introduced into California, at Santa Barbara, in 1870.

STRAWBERRY PLANTS SHOULD BE SPRAYED

The office of pest control, California department of agriculture, is conducting experiments to assist strawberry growers in controlling the strawberry leaf beetle (Typophorus canella), which is proving very destructive to berry plants throughout the state. Until definite results are available it is suggested that growers give the strawberry fields an application of arsenate of lead, 2 pounds to 50 gallons, or dust the fields thoroughly with arsenate of lead dust. If the dust treatment is used it should be applied to the plants early in the day when they are still wet with dew. Both sulphuring and dusting should be done immediately before the berries become too greatly advanced.

RULING PERTAINING TO INTERSTATE GRAPEVINE STOCK

In reply to numerous inquiries, the department of agriculture recommends that the following procedure be adopted in the handling of grapevines from all points outside of California.

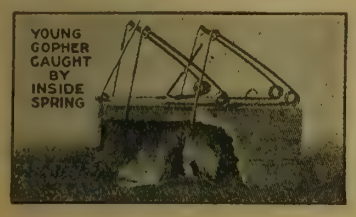
"If vines show evidence of phylloxera infestation refuse admittance."

"If no evidence of infestation is found, subject vines to hot water treatment as recommended by the viticultural service, department of agriculture, and pass vines."

Successful Gopher Trapping

In studying the habits of pocket gophers, and investigating thoroughly gopher-trap-construction, it was found that a trap to be a real success must be large enough and so constructed that when placed directly in front of, not in, the runway the gopher would actually be in the trap before discovering it.

The illustration below will give the reader an idea of the construction of this new invention called the **Double Catch Gopher Trap.** It will be noticed that the young gopher has been caught by the inside spring, proving that in working towards the light shining through the light-hole in rear of box the rodent was pushing a small amount of dirt tripping the trap after passing the first or end spring.



Now look at the illustration below. Here is a gopher nearly a foot in length and so large that a trap placed in the run would have failed. This rodent was pushing a lot of dirt towards the light-hole in an effort to shut out the light, and throwing the dirt against the trip-plate in rear of box sprung the trap. Had there been one spring only in this trap, as in the ordinary box trap, this gopher would still be destroying the farmer's crop.

The illustration below shows two pocket gophers, a very small one and a very large one, both being caught in a **Double Catch Trap.** This is the only trap which when placed in position before the gopher's run is set for either the smallest or largest rodent. Many letters we receive from customers mention this excellent and valuable feature. It may also interest the reader to know that farmers writing to us about this truly wonderful trap say that they never fail to catch the gophers.

We have now come to the most interesting part of this article. The illustration below shows a "catch" of pocket gophers by Lisle Percival, a **seven-year-old boy,** of Lathrop, California. This boy catches gophers with the **Double Catch Trap** without failures. We can furnish no more convincing evidence of the value of this trap than this picture.

All illustrations used in this article are from actual photographs.

We manufacture the **Chubbuck Double Catch Gopher Traps** and same are being distributed by Seed stores and Hardware dealers. If you cannot secure these traps from your dealers send direct to us. **Price, post-paid, 75c.** Instructions with each trap. Illustrated circulars free.

E. J. CHUBBUCK COMPANY
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731 Market Street, San Francisco, Cal.

TRACTORS IN THE RICE FIELDS

(Continued from Page 413.)

stacked ready for threshing, the tractor is an ideal form of power to use in operating the thresher. By belting the motor of the tractor to the threshing machine a uniform and adequate supply of power is secured, and there is no danger from straw fires such as are often associated with the old fashioned threshing machine.

When the rice has been sacked and placed on trailers or wagons the tractor is used to haul them to the store house, particularly if the threshing field is some distance from the warehouse. Since the tractor will pull six or seven loaded wagons at one time, the rice can be hauled and stored with the minimum amount of supervision and delay.

The tractor will also furnish the power to operate a baling machine for the rice straw, rendering it fit for immediate shipment to market. The market for rice straw is constantly increasing, for new uses have been found for this material, including the making of an insulating material for cold storage purposes, the use of rice straw for filling mattresses, or bedding stock and other purposes. By baling the rice straw as it comes from the thresher it can be kept clean and retain its fresh color so that better prices can be secured for the material.

Although the culture of rice in California is a comparatively new industry it has met with remarkable success in the northern part of the state, and the acreage has expanded until now more than 100,000 acres are devoted to the growing of this cereal. The quality is excellent, and owing to the long, hot, dry summers, the growing season is ideal. On the other hand, because of the fact that the growers have but two seasons to contend with, the wet and the dry, it is essential to have the work on the plantation done according to strict schedule. Sometimes the fall rains set in earlier than expected, and when the crop is ripe and ready to harvest, if subjected to the cold, torrential rains that sometimes usher in the rainy season, great damage is done.

Almost without exception the California rice growers rely upon tractors to do the work in their fields because they know from experience that the tractor is dependable and will carry on the various field operations on schedule time. Several of the most successful of the tracklaying type of tractors are made in the Secramento Valley, in the midst of the rice growing sections, and the manufacturers have studied the problems of the rice growers and have adapted their machines to meet the peculiar conditions of the industry.

The rice growers use the tractor for plowing the fields in the fall just after the harvest. The soil is then left to the action of the winter rains, and early in the spring the tractors are used for getting the soil in shape for planting. The plowing, harrowing and seeding is all done by tractor power, and when the water is turned in to the fields, and the long growing season begins, the tractors are used for building up the levees, doing belt work around the ranch, pumping water, or some other useful work. On the other hand, if there is none of this kind of work to do, the farmer can run his tractor into the barn and leave it there until needed. He has no idle horses to feed and care for, and there is no expense of maintaining during the slack season the power needed to carry on the work when the peak period of labor is on.

The use of tractors for hauling purposes has reached its greatest development in California, and in the rich agricultural regions of the interior valleys it is a common sight to see a long string of heavily loaded wagons coming along the highway pulled by a tractor, and much of the grain from the big ranches is hauled to the mills and warehouses in this manner. The broad tread of the tractor, free from cleats, is not injurious to the roads, and they are permitted to operate on the public roads when equipped in compliance with highway regulations.

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Preferred Avocados

The committee on registration and classification of the California Avocado Association is active every month and usually many times during the month, visiting trees of promising new varieties, sampling their fruits when in season, and obtaining further information about the older kinds which have been recommended by the association for commercial planting. In October, 1917, a circular was issued recommending eight named varieties. After careful observation of these for three years longer, in August, 1920, another circular was sent out, reducing the number of preferred varieties to five, giving the reasons therefor and brief descriptions of those retained. From this last report we present their conclusions as to the relative merits of the eight originally recommended.

Unsatisfactory Varieties

"This association occupies the position of guide and advisor to the men who come into our young industry and plant avocado orchards. With few or no exceptions they will want rapid returns on their investments, with as little hindrance and unexpected expense as possible while awaiting crops. We must consider their interests and, as a matter of justice to them, we find the Taft, the Lyon and the Blakeman varieties should be dropped from the list of varieties recommended for commercial planting, which we do with regret.

"The Taft fruit is very fine, one of the very best, and the tree itself beautiful, and one that when it finally does come into bearing will compensate those willing to wait a long time for returns; but it is longer in coming into bearing than the others that have been recommended and more susceptible to frost injury. It is no longer commercially planted.

"The Lyon is also a good fruit and the tree remarkably precocious and prolific and best adapted for interplanting, by reason of its slender shape, but it has proved too generally weak and hard to raise; many trees in many plantings have died and a decay has developed in some of the fruit while still on the tree. We find this has occurred even in the parent tree. Fortunately, these defects do not interfere with the continuance of good prices for the sound fruit from the good crops being given by the good trees, nor do they interfere with planting of the trees by those willing to take the risks involved.

"The Blakeman is one of the hardier varieties, with fruit of desirable size and quality, weight about one pound, color glossy green, and seed comparatively small. Some three year old trees are bearing well and the parent tree is a good and regular bearer. The growth of the tree is too spreading and needs pruning when young to produce a compact and proper shape in the older tree. What we lack with this variety is experience with the young budded trees. It has been very limited and we feel that until we have more the variety should not be continued on the list."

Varieties Recommended

"The Fuerte is one of the hardier varieties on the list, one of the most vigorous growing trees, an early and productive bearer, with fruit of the higest quality ripening at a very desirable period, but with a greater variation on the same tree in size and shape of fruit than usual, and with some coming too small.

"The Spinks is also a strong growing tree. The large fruit is noted for its handsome appearance and has a long ripening period lasting from early in the year until October. Some fruit tested in October by Mr. Wilson Popenoe was pronounced, in a letter which he wrote, equal in flavor to best he had found in Guatemala. The committee was also greatly pleased with fruit tested that month, finding it of the highest charcater, but found some tested early in the season, though well colored and of good flavor, far from equal to the late fruit. The seed of this variety averages large in proportion to the flesh.

"The budded trees of the Dickinson are proving better than the parent, both in tree and fruit. An outstanding feature of this fruit is its notably rough, warty skin, which becomes a glossy, handsome purple and identifies the variety. The quality is good and it comes in a period of its own—in the summer.

"The Sharpless is well known for its handsome, large fruit, comparatively small seed, high quality and very desirable ripening period of fall and early winter. It requires about a year and a half from the blossom to maturity of the fruit.

"The Puebla tree is one of the best types of the avocado, sturdy, hardy, compact, precocious and productive. The glossy, handsome, pear shaped, purple fruit matures at a good season, but is smaller and with thinner skin than the others on the recommended list. The period required from the blossom to the maturity of the fruit is the shortest of any kind on the list, requiring about eight months, and the seed is of medium size."

Fruit Marketing Convention

SAMUEL ADAMS, of the American Fruit Grower, has recently been touring orchard sections of the Pacific Coast, calling attention to a big meeting of fruit growers which is to be held in Chicago, April 5. Mr. Adams is not only editor of a national fruit journal published in Chicago, but he is a commercial grower of apples, having large properties in West Virginia. Hence he has inside information on some of the marketing difficulties confronting fruit growers in general. On this point he writes:

"The marketing of fruit is the largest problem confronting fruit growers everywhere, no matter what kind of fruit or where produced. But the time now is ripe for such a meeting as is made possible by the combined action of the American Farm Bureau Federation and the American Pomological Society. The meeting should have a large attendance of representative fruit growers and cooperative marketing associations from every important locality. The far western, southern and eastern states particularly should be represented by a large number of delegates at this conference. Those desiring appointment as delegates should take the matter up immediately with their county agents and the presidents of their state farm bureau."

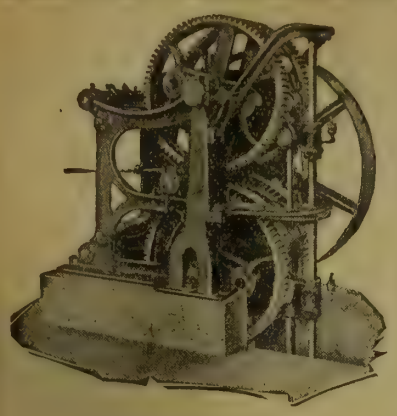
Regarding the big meeting of fruit growers:

"A national conference of fruit growers is to be held in Chicago, starting April 5, for the purpose of devising plans that will simplify and improve the marketing of all fruits produced in the United States, and the call has just been issued by the American Farm Bureau Federation. It is the outgrowth of a movement started by the American Pomological Society at its meeting in Columbus last December and brought to a definite conclusion at a conference between J. R. Howard, president American Farm Bureau Federation, C. H. Gustafson, director of the cooperative marketing division of the federation, and Samuel Adams, editor of American Fruit Grower and acting president of the American Pomological Society.

"At the Columbus meeting the society appointed a ways and means committee whose duty was that of arranging for the appointment of officers and obtaining finances for the proposed marketing division of the society. This committee held a meeting in Chicago, January 28 and 29, those in attendance being H. H. Hardie, G. H. Minnich, Paul C. Stark, Frederic Cranefield, R. B Cruickshank and Samuel Adams. Through the absence of Prof. L. H. Bailey on a prolonged trip to South America, the committee appointed Mr. Adams acting president, and entered into a discussion of the possible duties and service that might be rendered by the marketing division of the society. Plans were made for

the solicitation of funds that would enable the marketing division to function. Upon the outcome of the meeting will in a large measure rest the solution of some of the gravest difficulties fruit growers now face and the creation of means for bettering conditions that can be improved most quickly only by united action."

Mr. Adams' name was presented to the Republican convention held in Chicago as nominee for vice-president of the United States.



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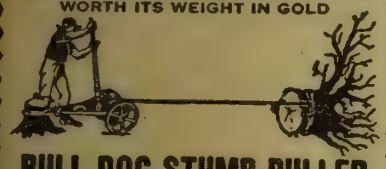

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FEDERAL QUARANTINE NO. 37

Dr. C. L. Marlatt, chairman of the federal horticultural board, has issued a ten page circular explaining the workings of Federal Quarantine No. 37. This is so comprehensive and enlightening that anyone reading it must be convinced that the board will aid in the importation of any plants, stocks, grafts, buds or seeds that would prove a benefit to the horticulture of this country. The ground covered by this "statement of facts" is very clearly indicated in the opening paragraph.

"Any law or regulation which restricts freedom of action on the part of the individual necessarily has enemies. Federal and state plant quarantine legislation aiming to protect this country from new important plant pests is not an exception to this rule. Just now Federal Quarantine No. 37, which restricts the entry of foreign plants to prevent such entry of pests is being unjustly criticised by a few persons who would like to see this quarantine abolished or amended so that in large measure the old time free importation of foreign nursery stock and other plants could be resumed with all its attendant dangers. It would hardly be worth while to pay attention to these criticisms except that they absolutely misrepresent the quarantine and have been widely circularized through a fairly active propaganda and unfortunately have been accepted at face value by many plant amateurs and societies of such amateurs. Such persons and societies, from lack of acquaintance with the quarantine and its workings, have thus obtained a very erroneous idea of the actual restrictions now being enforced on the entry of foreign plants. The agricultural and horticultural and nursery interests of this country appreciate the need for this quarantine and understand the provisions limiting plant importations. But for the information of plant amateurs throughout the country and of amateur horticultural and garden societies, etc., it seems desirable to issue a statement of facts in relation to Quarantine 37, indicating the provisions which are made under it for the importation either free or under restriction of any plant whatsoever for which a necessity can be shown and to correct the more important of the misrepresentations which have gained acceptance in some quarters through lack of accurate information about the quarantine."

STATE ISSUES PUBLICATIONS

Some exceptionally good stuff is appearing in the publications sent out by the state department of agriculture. Among them:

The December Monthly Bulletin reporting proceedings of the fifty-third convention of fruit growers and farmers at Fresno, 1920, is now being distributed.

The following publications are on the press and will be issued within the next 30 days: January Monthly Bulletin devoted to "Agricultural Chemistry and Fertilizers." February Monthly Bulletin reporting the "Second Dehydration Convention," held at Fresno, 1920. March Monthly Bulletin reporting the proceeedings of the Potato Growers Convention, Fresno, 1920.

The new Brand Book Supplement, issued by the cattle protection service will be ready for distribution within a few days and contains all cattle brands recorded up to June 30, 1920.

"California Dairy Production," issued as Circular 3, division animal industry, will be ready for distribution this week. In addition to dairy production figures this publication contains a directory of all milk establishments, cheese factories, ice-cream plants, butter factories and by-product houses.

A report of the biological control of the black scale of citrus will be included in the coming April number of the Monthly Bulletin.

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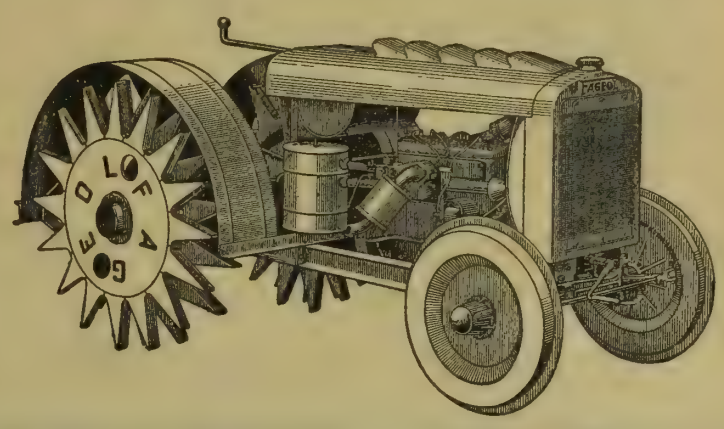

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Joint Homestead

Husband and wife have a joint homestead recorded. There are three children. In case of the husband's death what are the rights of the wife? What becomes of the personal property, such as machinery and stock?—Subscriber, Hanford.

Upon the death of either of the spouses the whole of the property upon which the homestead has been recorded reverts to the survivor as a homestead is in many respects similar to an estate with right of survivorship. It is necessary only to establish the fact of death by a comparatively simple court procedure. The homestead, of course, does not cover any personal property, and such personal property is subject to administration by the usual method.

Deed to Avoid Probate

If a husband desires that his wife shall inherit all of his property, is a deed properly signed and given to the wife or a third party in trust to be delivered to her at her husband's death a satisfactory procedure, the property having been acquired since marriage with funds acquired by husband both before and after marriage. —Subscriber, Hanford.

If such deed is properly executed and delivered, it is a legal transfer and will be upheld. The difficulty has always been about proving the delivery and sometimes difficulty has arisen through subsequent disagreements between husband and wife, so it could hardly be said to be a satisfactory procedure.

Wife's Property

In case of the death of the wife, does property inherited by her go to the husband? What legal proceedings should be taken?—Subscriber, Hanford.

It does not. Such property is subject to absolute disposition by the wife through her will, and in case of her death without will, according to the law of succession. If she leave a husband and no children one-half such separate estate would go to the husband and the other one-half to her father and mother in equal shares, or in case of the death of either of them, then to her next of kin. If she left a husband and one child, then in equal shares. If more than one child, one-third to the surviving husband and the remainder in equal shares to the children.

Employer's Liability

If I hire help and furnish implements or tractor am I liable if the help is injured? If I contract at so much per hour or so much per acre with the party owning tractor or implements am I liable?—Subscriber, Covina.

In the first instance, except in the case of labor employed for domestic service, agricultural, viticultural, or horticultural purposes, the employer is liable under the employer's liability act. In the second instance the party contracting is not liable as the liability is transferred to the independent contractor giving the tractor and employing the parties to operate such tractor.

Fence Misplaced

A owns 40 acres improved with fruit. B buys land lying along the whole of A's place. Both places are fenced. B puts $5,000 in improvements on his land, including a well located on the southern corner. A then sells to C. A recent survey shows that the line should run 40 feet to the west, which places all of B's improvements within C's property line. What can B do? Can C charge B improved prices for the strip of land? Can he refuse to sell?—Subscriber, Madera.

The direct question is in respect to the sale. If the land belongs to C he can, of course, refuse to sell, or, if he sells, he can sell for any price he chooses, but the answer for such a question is not quite so simple. The places when purchased were fenced. Undoubtedly, these fences were placed there for some reason. If C or A, or either of their grantors, stood by and saw B place his improvements upon this land, it is probable that they would be estopped to claim the land. It is possible that in the past history of this land there has been an agreement with respect to the placing of this fence. The parties purchasing, purchased with reference to the actual fence upon the property, and it is highly probable that a court would hold them to the fence so located irrespective of any actual or technical error in the true line. These boundary questions depend so much upon the exact facts in the history of the land that it is difficult in a medium of this character to give a definite opinion. It would undoubtedly be highly advisable for B to see a local attorney and delve into the past history of the fence. It is very probable that in an equitable action he could maintain the fence as it stood when he purchased the land as the boundary of the property.

Easement Demanded

An easement is demanded through my land. I am offered practically nothing for it, let alone damage to fields by going crosswise and thus leaving pointed rows and loss to growing crops. Can I demand a price for the loss? How shall I proceed if I am not given due compensation for my land?—Subscriber, Thermal.

It is a constitutional provision in this state that private property cannot be taken or damaged for public use without due compensation being first paid therefor. The individual is not required to accept any offer made nor is he required to accept any payment made other than through an action properly brought in court where the actual price of the land, together with any and all damage or loss occasioned to growing crops or by reason of the severance of the land is determined by the judgment, which judgment, together with the cost of such proceeding, must be paid to the land owner before the land can be taken.

Diverting Run-off

Is it unlawful for a land owner to fill up a wash through his property which in case of high water would force a flow of water across other property? Can he stop the natural passway of the stream simply to improve his own property?—Subscriber, Owensmouth.

The whole property involved at one time undoubtedly belonged to some one party owner, under which ownership the property, through which the wash is located, became burdened with the easement for the run-off of the natural waters on the other lands. After separation from the original ownership the lands remained so burdened, so that if at the time of the division of the lands there existed the right to

discharge natural waters from the upper lands to the lower lands, the lower lands were purchased with the implication of a reservation of that servitude. The lower proprietor cannot, therefore, effect a change in his property so as to bank the water upon the upper property. Certainly, he could effect no such change as to send this natural flow upon the property of another man, which was originally free from the easement existing against the property through which the wash ran.

Wife's Signature to Deed

Ranch stands in the name of the husband, although a portion of the purchase price was separate property and a portion was community property. Can the husband sell the ranch without the wife's signature? Can the wife force him to give her one-half ot the purchase price? — Subscriber, Fallbrook.

The husband has the management and control of the community and real property, but the wife must join in executing any instrument by which the community, real property, or any interest therein is sold, conveyed or encumbered, provided, however, that the instrument signed by the husband, if he holds the record title to the property, is presumed to be valid in favor of the third party acting in good faith and without knowledge of the marriage and no action to avoid such instrument may be commenced after the expiration of one year of filing of record of such instrument in the recorder's office. The wife could not require the husband to give her one-half of the purchase price for she is not entitled to manage the whole or any part of the community property whether real or personal.

Cow Recovers from Tuberculosis

Eighteen months ago a cow was taken from the pasture after snow, with very bad cold. It was found that she was tubercular. Since that time she has seemed to be in perfect health. Am I entitled to a second test? —Subscriber, Lancaster.

The provision of the dairy act requires the veterinarian in making the tubercular test to indelibly mark the ear of a reacting animal with a letter "T," one inch long. There seems to be no provision for a second test, but it would seem that if the cow was cured you should have your own veterinarians ascertain that she was cured and then you could have a second official test. The law makes no provision either way in this respect.

"THEM WERE THE HAPPY DAYS"

I am thinking today of the days of long ago when winds and sun began to melt the deep Canadian snow, and Father would come in and say, "I guess we'd better tap the maple trees back in the bush and get a run of sap." We kept a few score buckets then stored somewhere in a loft, and when the sun was getting warm, and snow was melting soft, we'd get them down and scrub them out, till all were clean and sweet, and get the spiles and boiling pan all ready and complete. Then if Old Sol kept on the job we'd find a brace and bit and hitch the team up to the sleigh and take the whole outfit back to the lot where maples grew, stored with their sweetened sap, just waiting for the spring to come when Dad would start to tap. What sport it used to be just then, when days were bright and fair, to gather in the sparkling sap and watch the fire's glare, and see the sap within the pan boil to an amber flow as hour by hour the boiling mass would sweet and sweeter grow. And if the run was good and long we'd boil far in the night and sit and watch the shadows dance around the firelight till Dad would say, "I guess she'll do. We'll draw her off right now, for Mother will be waiting home, to warm us up some chow." And when the sugaring-off day came, O how we youngsters then would beg to stay at home from school and work like little men so we could have a chance to pour hot taffy, don't you know, out in a pan to cool a while on freshly gathered snow. Oh yes, "them were the happy days," my memory's calling yet. If I could just go back again I'd surely go, you bet, and gather sap and cut the wood to keep the fire aglow and eat my fill of taffy hot, poured on a pan of snow.—G. D. Lee, Yucaipa.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Cow Fails to Breed

I have a Holstein cow that dropped her second calf October 29, 1920. The calf will be five months old this month and the cow shows no signs of wanting to breed again. She seems perfectly well every way and her nose is always moist. She has plenty to eat and water stands by her all the time. What do you think is the reason for this?—Subscriber, Terra Bella.

Cows that get very little exercise and are fed one kind of feed continually are liable to act as you describe. Reduce the feed and change to some other kind if you can. Turn her on grass and do not let her have all she wants of that. Once a week take her out on the road and drive or lead her eight or ten miles. This will warm her up and probably it will not be long until she comes in heat. She should have a little salt regularly. Mix one ounce of tincture of iron in a mash for her once a day for a week.

Tapeworm in Dog

Kindly inform me what is the best remedy for tapeworm in a dog. I have a sheep dog about 15 months old which is greatly troubled and from time to time I have noticed him straining and occasionally getting rid of lengths of worm, but the main portion apparently remains. He is always in poor condition and has little appetite.—Subscriber, Hopland.

Get of your druggist five powders each containing ten grains of powdered areca nut. In the morning before he gets anything else to eat give one powder mixed in half a cup of sweet milk. This may cause the whole worm to pass in a very short time. If not, give one powder every morning while they last or until you see the worm. Watch him and if he does not thrive repeat the treatment in about a month. He may have the second one. Would like to know what success you have.

Cow Pox

Rather large ulcerous sores have developed lately on the udder of my cow. She is giving about two gallons of milk a day. She has not been fresh for over a year and will not be fresh again until about July. For some time there have been hard lumps in parts of the udder which at times seem to disappear. The milk does not show any unusual conditions. What may be the trouble and what can be done for it?—Subscriber, Porterville.

The lumps in the udder are probably due to rather rich feed causing thick blood. The ulcers are probably cow pox. For the lumps give a large handful of epsom salts in the feed once a day for two or three weeks. While the cow pox is annoying and interferes some with the flow of milk it is not considered serious. When the ulcers first appear as blisters they should be opened and the liquid they contain washed away so it does not get on the other parts, as it will cause the disease to spread. The ulcers should be dressed every time the cow is milked, with a solution of permanganate of potash, one dram to the pint of water. If the ulcers get dry and have a tendency to crack they should be softened with carbolized vaseline. If you have other cows you should milk the one with the cow pox last as the disease is often carried from one cow to another on the hands. The fluid from the ulcers on a person's hands may take effect and be as good as vaccination against smallpox. It is always best to try to prevent the spread of the disease for if one of the ulcers comes on the end of a teat and gets inside it may clog the teat and cause inflammation and loss of the quarter. No internal remedies are needed more than the salts. Feed laxative feed. Turn her out to grass if possible.

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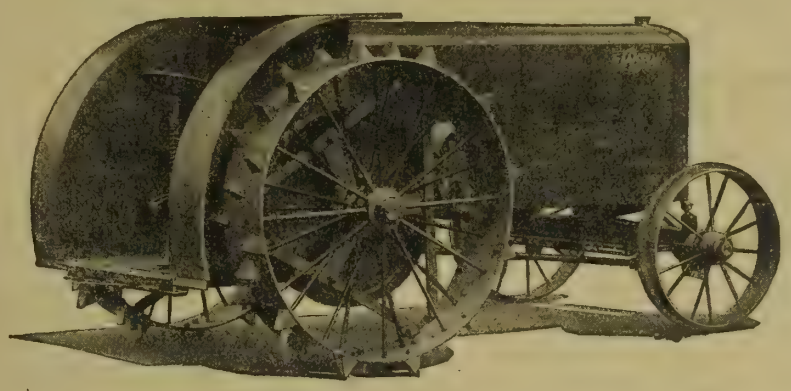
15 H.P. at the Draw Bar



25 H.P. at the Belt Pulley

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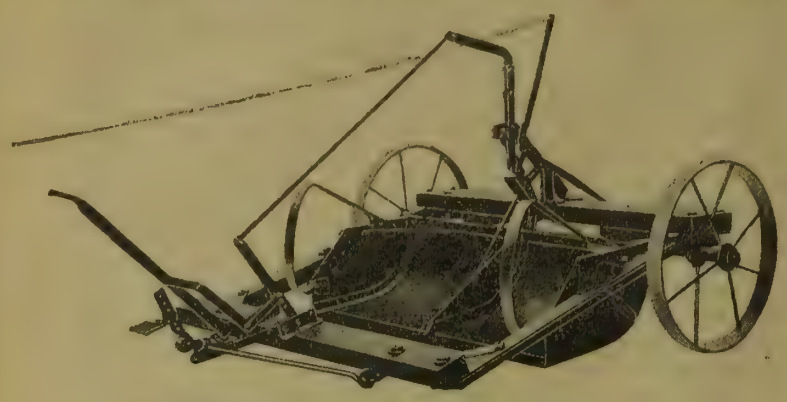

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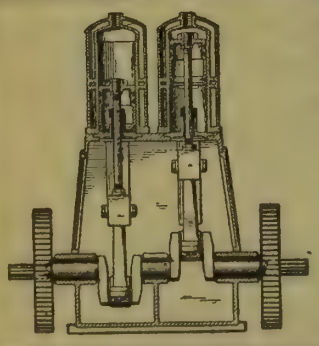

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Treatment for Gum Disease

Is there any remedy for gum disease without the use of lime? When is best time to apply, when trees are dormant or sap is up?—Subscriber, Ontario.

We would get busy with gum disease as soon as it appears, regardless of sap conditions. There may be formulas for preventives of this trouble not containing lime, but we believe the best all around remedy is the Bordeaux paste, made as follows: One pound bluestone dissolved in one gallon water in a wooden or earthen vessel by hanging it in the top of a sack; two pounds unslaked lime, slaked in about one-half gallon water. Stir together when cool, making a mixture about the consistency of whitewash. This may also be applied to healthy bark as a preventive against new infections. This is the treatment recommended by Prof. Fawcett some six or seven years ago and we believe it has not been superseded by anything considered better. The method of application is to thoroughly scrape or clean away all diseased bark, get down to healthy wood and apply this paste. Watch closely and as new diseased bark appears repeat the treatment.

Cutworms

What eats my sweet peas and what could I do to protect them? As soon as they come out of the ground they are eaten off. I have killed a number of snails near them. Could they be doing the damage, and what could I do to kill them?—Subscriber.

If this is the work of cutworms it will be comparatively easy to determine by making careful search under clods, stones or sticks which may be near to the plants. The cutworm is much smaller than the slug usually is, but "hand picking" will rid the place of this pest if followed persistently. Search for the pest early in the morning or in the evening. At night use small electric flashlight around the plants where they will usually be found. If an entire field is infested then about the only method of control is through poison bait. Mix according to this formula: Bran, 50 pounds; white arsenic or Paris green, 2½ pounds. Mix these together dry and then make a separate mixture of lemons (rind and all of a half dozen lemons chopped up fine), and cheap syrup or molasses, 4 quarts; water, 5 gallons. Thoroughly stir. These two mixtures may then be stirred together, or if one wants to use only a small portion, take the amount of bran and arsenic which will be used only within the next few hours and add enough of the water and lemon solution to make a wet mash. Do not, however, make it sloppy. Scatter in field under vines but be sure poultry and other domestic animals are not allowed to eat it. If damage is done by snails or slugs it can be prevented by scattering the ordinary slaked lime about the plants, even over them. The pests cannot move themselves across the lime. It must be renewed every few days, especially if damp weather or irrigation washes it into the ground.

Paying for Paper

Can I be compelled to pay for copies of a paper or magazine sent to me after my subscription has expired?

Technically, yes. The law is such that where a periodical is taken from the postoffice for a certain length of time the publisher of the paper may collect. On the other hand, the ruling of the postoffice department is that the publisher must not send the paper without payment for a period of over 12 months for a weekly, six months for a semi-weekly, three months for a monthly, so that the risk to the subscriber is comparatively nil. We will say, however, that this law is availed of by but very few publications and no reputable publication uses it simply as a lever to collect accounts unless there is real attempt to defraud.

Almonds Not Fruiting

We have two nice large healthy almond trees several years old that bloom quite full and set lots of little nuts, but they fall off when about as large as peas. Can anyone tell us the cause? Can anything be done to prevent this?

This looks very much like lack of pollination. We would suggest that subscriber read "Pollination of Almonds" in last week's paper on page 390. However, it is barely possible that weather conditions were a bit too cold during the time of setting fruit, but if other trees in the same section bear heavy crops then, presumably, as noted at first, there is need to interset other varieties which bloom at the same time.

Pollinating Satsumas

An inquirer recently asked as to best plum to plant with Satsumas, and Millard Sharpe of Vacaville suggests that either Climax or Wickson would be best for this purpose because they bloom at the same time. Of the two perhaps the Wickson is to be preferred.

Fertilizer for Potatoes

What kind of commercial fertilizer would be advisable to use when planting potatoes, how much per acre, and how should it be applied?—Subscriber, Walkers Point.

Any good complete commercial fertilizer, perhaps one rather rich in potash, say, at the rate of from 300 to 500 pounds per acre. Many of our best potato growers, however, are now putting soils in the best of condition by growing melilotus or other winter growing green manure crops. Others turn alfalfa under a short time before planting, and while some have felt that this made more scabby potatoes the crop has been sufficiently large that they have continued the practice.

Value of Coins

I have some coins dated 1864 and 1865. Can I get anything for them?—Subscriber, Puente.

Your nearest bank can probably give you the value of these coins. There is a publication known, we believe, as the "Numismatic Guide" and another known as "The Coin Book," which is a cyclopedia of rare American and foreign coins. This is published by the Royal Publishing Company of Philadelphia.

Cory Blackberries

A couple of weeks ago I saw an article in the Cultivator from a subscriber wanting information on the Cory Thornless blackberry. I have given the Cory a thorough trial and find it to be all that is claimed for it and more. It has all the advantages of the Mammoth excepting the shipping of the berries which I think when thor-

oughly ripe will not stand much handling. It is highly recommended as a berry for dehydration as there is a sort of core in the center which will not dry away as much as some of the other berries. As to production they are second to none and the fruit is really larger than the Mammoth. The flavor is delicious and somewhat like that of the Mammoth but not so sour. —Subscriber.

Avocado Importations

I am a grower of avocados in a small way and expected to do it on a larger scale, but I now note that this fruit is allowed to come in from the tropics, the Tahiti Islands, Colombia and other places. Are they also admitted from Mexico? If so, what chance have we here in California and Florida, with our high priced land, dear water and high priced fertilizers to compete in the production of this fruit? Was not there an embargo on this tropical stuff in order to keep out plant diseases, and why has this embargo been lifted?—Subscriber, San Diego.

These questions must be answered from a national as well as a Californian standpoint. Locally we get a few avocados from Hawaii and many from Florida, but the prices of imported fruits are higher than those of superior home grown avocados and we need not fear the Pacific Islands. No fruits from Colombia have reached California and it is hardly probable they would ship well to other parts. The last agricultural report of Porto Rico states that avocados cannot be shipped to the United States at present because of lack of refrigeration on freight vessels, and Porto Rico is close to us. Mexico cannot ship to California, Texas, Louisiana or Florida ports on account of federal quarantine No. 12, and certainly they could not be expected to land in New York in good condition. At the latter port hard shelled (Guatemalan type) avocados only are allowed entry and even these may be kept out through a ruling by the federal horticultural board. We see no reason for alarm at present.

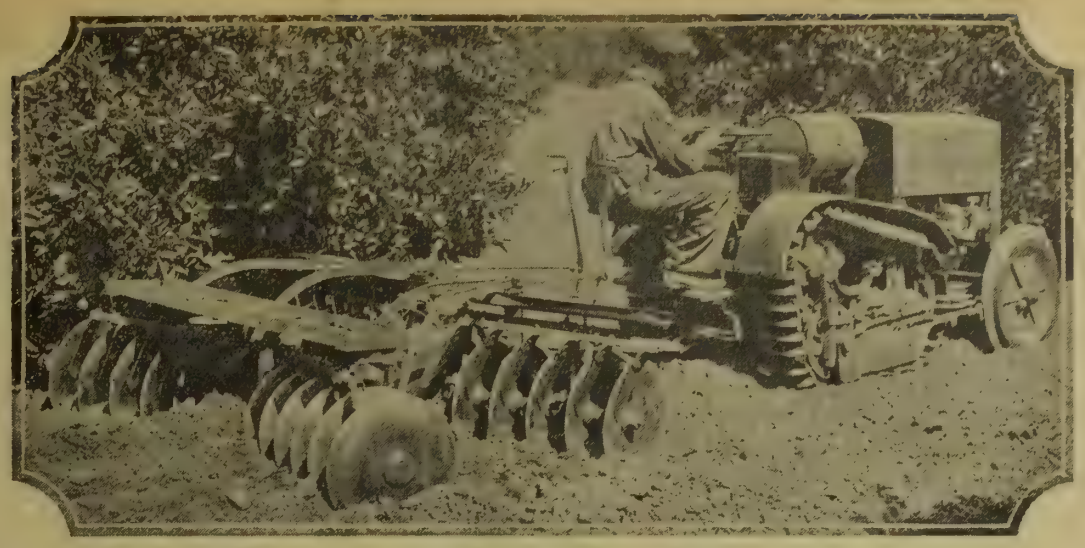
BAMBOO FOR USE IN AMERICA

Bamboo has been of great use in building and other operations in portions of China and Japan; in America it has been regarded simply as an ornamental. It certainly has great beauty as an ornamental plant, but now the department of agriculture suggests more economic use:

Possibilities of developing a bamboo growing industry in this country to meet the increasing demand for fancy fish poles, barrel hoops, canes, phonograph needles, furniture and many other uses are being worked out.

Bamboo shoots were brought to this country from China, Japan, India and other countries by the department ten or 12 years ago and cultivation was started at Chico, and Brooksville, Florida. A mite was later discovered on the sheaths, however, which sapped the vitality of the plants, and it was at first thought that the industry would have to be given up. But on study it was found that the mites could be destroyed with hot water without injury to the plants. Propagation of clean plants was then begun at Bell, Maryland, with a view to establishing large clean groves in the gardens at Savannah, Georgia.

Bamboo plants also suffer from a smut which is carried in the rhizomes or root sprouts from which the plants are propagated. Smut may be carried through the tissues of the plant and manifest itself in the new growth from which it is scattered by the wind, spreading the disease. Combating this disease is another of the obstacles which the department has overcome in developing what promises to be a profitable American industry.



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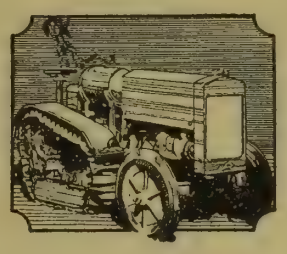

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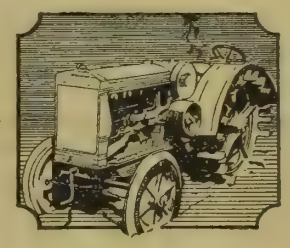

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I.X.L. & Jordan shrub	3-4 ft.	.70	6.50	50.00	.49	4.55	35.00
Apex Plumcot	5-6 ft.	.90	8.50	80.00	.63	6.00	56.00
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Arizona Ash	6 ft. 30 cents, 8 ft. 40 cents, 10 ft. 50 cents
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How to Learn Beekeeping

By Henry Perkins

THE proper answer to the above question is largely a matter of selecting the best available means at hand of learning the fundamentals. Of course the most practical way is to serve at least one complete season's apprenticeship with a practical beeman. This, with study of bee literature, should equip the beginner with a sufficiently reliable working knowledge to justify him in starting for himself on a moderate scale. Many state universities give very practical short term courses in beekeeping. The course given by the California University at Davis is very good.

However, less than half of our successful beekeepers have entered the game by either of these methods, for it is often impossible to lay aside other interests for an entire season and concentrate on bee culture. So the next best method is to buy a colony or two of bees, a veil smoker, a hive tool and a bee book and begin at home. Many of our most successful beekeepers received their first inspiration from a stray swarm which chanced to light on their premises. The home beginner should make it a point to acquire information in every available way. Cultivate the friendship of some practical beeman in your neighborhood and visit his yard from time to time as the season progresses. If there is a beekeepers club or association near you, join it. Subscribe for a bee journal. Get a bee supply catalog and study it to become familiar with equipment. The U. S. department of agriculture bulletins on beekeeping and bee diseases are especially good. Let your initial investment and efforts be primarily for the purpose of learning rather than for honey production. A working knowledge of the essentials is absolutely necessary. Luck will not get you by. Modern bee literature is indispensable, but it is of little value apart from the practical side of the study.

Bees and Equipment

Two or three colonies makes a nice start. If you lose one you will have some left from which to try your hand at increasing. Spring is the best time to buy bees. A minimum start may be made by buying a two or three frame nucleus with a queen and a hive which, if purchased in the spring, may be built up to a full sized colony by fall. Whatever you do be careful to get healthy stock. It requires experience to handle bee diseases. A beginner should provide his hives with comb honey supers for surplus. Extracting supers requires a considerable additional outlay for extracting equipment. In addition to bees and bee hives already mentioned you should buy a good bee smoker, a pair of bee gloves, a hive tool and bee brush. Do not be discouraged if you do not make a crop of honey the first year. If you fail to do so be satisfied if you have learned just why you failed.

Saving the Horse Bean Crop

Horse beans have been grown as an article of human food for a number of years in a few central coast counties and Sacramento County, but in recent years the beans have been so heavily infested with weevil that in 1915 the United States department of agriculture ruled that beans infested to any material extent "could not be shipped"; later in the same year this ruling was changed to "allow shipment of beans which did not contain more than 15 per cent of wormy or weevil infested beans." This stand of the federal government was endorsed by the state food and drug laboratory, so that beans could not be handled in interstate traffic or offered for sale as human food in this state without being liable to seizure. This placed a heavy handicap on the industry and large acreages formerly planted to this crop were abandoned. It is true that wormy beans could be sold as stock feed, for about the price of barley, which would be approximately a loss of 50 per cent of their value, a heavier discount than the crop could stand.

When beans are seized as exceeding the legal limit of infestation the grower has the privilege of hand picking and thus reducing the per cent of infestation, but the margin of profit is so small that this expense is seldom justified, and also the shipper is liable to fine for violating a food and drug act.

In the summer of 1918 four cars of the first seven which were offered for shipment were seized, as exceeding the legal limit, and the entire crop was so badly infested that it was with difficulty that a carload shipment of beans within the legal limit could be secured. An appeal to the University of California for assistance was made in August, 1918, and a campaign was begun in San Mateo County by E. R. de Ong cooperating with the state and county horticultural officials and federal and state pure food and drug departments. Suitable fumigation dosages were determined which were not dangerous to germination and were suitable for field use. Fumigation houses were established in Half Moon Bay and Pescadero, in charge of county officers.

The early horse bean crop produced this year at San Luis Obispo and Oceano districts was worse than in the past. At Gilroy production has almost ceased, while in the Sacramento district the crop was very small, apparently due to the heavy weevil infestation of the last two years.

CANARY ONION SEED

Consul F. A. Henry, Teneriffe, Canary Islands, reports January 15 as follows:

"The onion seed crop, 80 to 90 per cent of which always finds its market in the United States, furnishes the greater part of the exports from the Canary Islands to the United States and is therefore of more interest to American importers and growers than the leading crops of the islands.

"Production varies considerably from year to year, depending upon contracts placed the year previous by American seedsmen as well as upon natural conditions.

"Planting is done in October and November, and harvesting in June, July and August. Exportation to the United States usually begins early in July, and should be completed soon after the middle of August so that it reaches American onion growers in time for their fall planting.

"The three classes of seed grown for export are known as Yellow Bermuda, Crystal Wax and Red Bermuda. The bulk of the crop consists of the Yellow Bermuda. The Crystal Wax commands a higher price, but is especially sensitive and subject to damage during the growing season.

"Exports to the United States during the year (including a few small shipments to Porto Rico) amounted to 63,014 pounds valued at $103,360, the average value per pound being $1.63. The quantities and values of the different classes of seed were: Yellow Bermuda, 53,311 pounds at $82,359; Crystal Wax, 8,651 pounds at $19,598; Red Bermuda, 1,052 pounds at $1,403."

Household Department

MORE FIFTH READER

Some of the old McGuffey Reader selections already given in our columns are "Lord Ullin's Daughter," "The Tournament," "Last Sigh of the Moor," "Impeachment of Warren Hastings," "Faithless Nelly Gray," "South Carolina" and "Massachusetts." Since the time of these quotations a brand new original story written for Cultivator readers, together with a mass of information as to home made yeast, purifying lard, raised doughnuts, etc. has had possession. This week another quotation from a speech of Daniel Webster and "Ode to An Infant Son," by Tomas Hood.

ODE TO AN INFANT SON

Thou happy, happy elf!
(But, stop, first let me kiss away that tear,)
Thou tiny image of myself!
(My love, he's poking peas into his ear,)
Thou merry, laughing sprite,
With spirits, feather light,
Untouched by sorrow, and unsoiled by sin;
(My dear, the child is swallowing a pin!'

Thou little tricksy Puck!
With antic toys so funnily bestruck,
Light as the singing bird that wings the air,—
(The door! the door! he'll tumble down the stair!)
Thou darling of thy sire!
(Why, Jane, he'll set his pin-afore afire!)
Thou imp of mirth and joy!
In love's dear chain so bright a link,
Thou idol of thy parents;—(Hang the boy!
There goes my ink!)

Thou cherub, but of earth;
Fit play-fellow for fairies, by moonlight pale,
In harmless sport of mirth,—
(That dog will bite him, if he pulls his tail!)
Thou human humming-bee, extracting honey
From every blossom in the world that blows,
Singing in youth's Elysium ever sunny,—
(Another tumble! That's his precious nose!)
Thy father's pride and hope!
(He'll break the mirror with that skipping rope!)

With pure heart newly stampt from nature's mint,—
(Where did he learn that squint?)

Thou young domestic dove!
(He'll have that jug off with another shove,)
Dear nursling of the hymeneal nest!
(Are those torn clothes his best?)
Little epitome of man!
(He'll climb upon the table, that's his plan,)
Touched with the beauteous tints of dawning life,—
(He's got a knife!)

Thou enviable being!
No storms, no clouds, in thy blue sky foreseeing,
Play on, play on,
My elfin John
Toss the light ball bestride the stick,—
(I knew so many cakes would make him sick!)
With fancies buoyant as the thistle down,
Prompting the face grotesque, and antic brisk,
With many a lamb-like frisk!
(He's got the scissors, snipping at my gown!)

Thou pretty opening rose!
(Go to your mother, child, and wipe your nose!)
Balmy and breathing music like the south,
(He really brings my heart into my mouth!)
Bold as the hawk, yet gentle as the dove;
(I'll tell you what, my love,
I can not write, unless he's sent above.)
—Hood.

Speech on the Trial of a Murderer

AGAINST the prisoner at the bar, as an individual, I can not have the slightest prejudice. I would not do him the smallest injury or injustice. But I do not affect to be indifferent to the discovery and the punishment of this deep guilt. I cheerfully share in the opprobium, how much soever it may be, which is cast on those who feel and manifest an anxious concern, that all who had a part in planning, or a hand in executing this deed of midnight assassination, may be brought to answer for their enormous crime at the bar of public justice.

2. Gentlemen, it is a most extraordinary case. In some respects it has hardly a precedent any where; certainly none in our New England history. This bloody drama exhibited no suddenly excited, ungovernable rage. The actors in it were not surprised by any lion-like temptation upon their virtue, overcoming it before resistance could begin. Nor did they do the deed to glut savage vengeance, or satiate long-settled and deadly hate. It was a cool, calculating, money-making murder. It was all "hire and salary, and not revenge." It was the weighing money against life; the counting out of so many pieces of silver against so many ounces of blood.

3. An aged man, without an enemy in the world, in his own house, and in his own bed, is made the victim of butcherly murder for mere pay. Truly, here is a new lesson for painters and poets. Whoever shall hereafter draw the portrait of murder, if he will show it, as it has been exhibited in an example, where such example was least to have been looked for, in the very bosom of our New England society, let him not give it the grim visage of Moloch, the brow knitted by revenge, the face black with settled hate, and the blood-shot eye emitting livid fires of malice; let him draw, rather, a decorous, smooth-faced, bloodless demon; a picture in repose, rather than in action; not so much an example of human nature in its depravity and in its paroxysms of crime, as an infernal nature, a fiend in the ordinary display and development of his character.

4. The deed was executed with a degree of self-possession and steadiness equal to the wickedness with which it was planned. The circumstances now clearly in evidence, spread out the whole scene before us. Deep sleep had fallen on the destined victim, and on all beneath his roof. A healthful old man, to whom sleep was sweet; the first sound slumbers of the night held him in their soft but strong embrace. The assassin enters through the window, already prepared, into an unoccupied apartment. With noiseless foot he paces the lonely hall, half lighted by the moon; he winds up the ascent of the stairs, and reaches the door of the chamber. Of this, he moves the lock, by soft and continued pressure, till it turns on its hinges; and he enters, and beholds his victim before him. The room was uncommonly open to the admission of light. The face of the innocent sleeper was turned from the murderer, and the beams of the moon, resting on the gray locks of his aged temple, showed him where to strike. The fatal blow is given! and the victim passes without a struggle or a motion, from the repose of sleep to the repose of death!

5. It is the assassin's purpose to make sure work; and he yet plies the dagger, though it was obvious that life had been destroyed by the blow of the bludgeon. He even raises the aged arm, that he may not fail in his aim at the heart; and replaces it again over the wounds of the poinard! To finish the picture, he explores the wrist for the pulse! He feels it, and ascertains that it beats no longer! It is accomplished. The deed is done. He retreats, retraces his steps to the window, passes out through it as he came in, and escapes. He has done the murder; no eye has seen him, no ear has heard him. The secret is his own, and it is safe!

6. Ah! gentlemen, that was a dreadful mistake. Such a secret can be safe nowhere. The whole creation of God has neither nook nor corner, where the guilty can bestow it, and say it is safe. Not to speak of that eye which glances through all disguises, and beholds everything as in the splendor of noon; such secrets of guilt are never safe from detection, even by men. True, it is, generally speaking, that "murder will out." True it is, that Providence hath so ordained, and doth so govern things, that those who break the great law of heaven, by shedding men's blood, seldom succeed in avoiding discovery. Especially, in a case exciting so much attention as this, discovery must come, and will come, sooner or later. A thousand eyes turn at once to explore every man, every thing, every circumstance connected with the time and place; a thousand ears catch every whisper; a thousand excited

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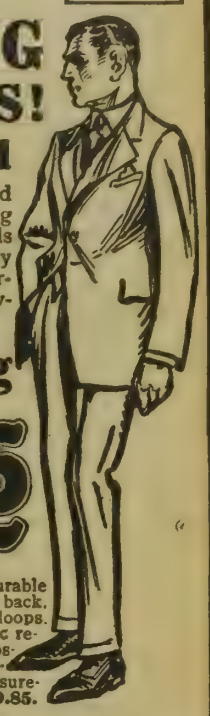

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Plain Calico, 13c. Fast colored calicos. Practical and durable. Ideal for comforters, linings, etc. Colors: Orange, Green, Turkey Red, Navy Blue or Black. Ask for 16DV3263. Ship.wt. per yd., 1½ oz. Price, 10 yds. $1.25

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One of our most popular garments. Low neck, no sleeves. Fine gauge cotton. Tubular band top. Cuff knee. *Regular sizes*, 34 inch, 36 inch, and 38 inch bust. 29-DV2673.

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Extra Sizes, 40, 42 and 44 inch bust, 29DV2675. Ship. wt. 6 oz.

Price.....50c

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$3.49 Popular Oxfords. Soft black or brown kid finished leather. Ideal for spring and summer wear. Ship. wt. 1½ lbs. Ask for 29-DV267, black. Or 24-DV264, Brown. Widths, D, E, or EE. Sizes, 2½ to 8.

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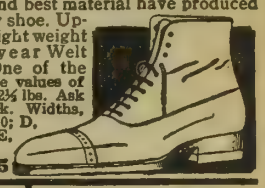
Dress Shoes for Men $6.35

Workmanship and best material have produced this high quality shoe. Upper of selected light weight leather. Goodyear Welt sewed soles. One of the greatest dress shoe values of season. Ship. wt. 2¼ lbs. Ask for 24DV1603, black. Widths, A, B, C, sizes 6 to 10; D, sizes 5 to 10; E or EE, sizes 6 to 11.



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79c Splendid silk and fibre hose. Combination of fine Japanese silk and American Fibre. Unusual wearing qualities. Has 18 to 19 inch boot. Mercerized flare top, with wide hem. High spliced heel. Double sole. Ask for 30DV1056—Black. 30DV-1057—White. Sizes 8½ to 10. Ship. wt. 4 oz. Pair . . 79c.

Girls' Stockings

21c Dependable grade cotton. Heavy doubled knees. Elastic medium ribbed legs. Plain knit foot. Reinforced heels and toes. A real bargain. Shipping weight 3 oz. Ask for 30DV1249—Black. Sizes 5, 5½, 6, 6½—21c. Sizes 7, 7½, and 8—25c. Sizes 8½, 9, 9½ 29c.

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50c Light weight seamless silk plaited. Body of hose composed entirely of silk on the outside, reinforced on inside with mercerized yarn. Wonderful value. Our price means a big saving to you on a dress half hose. Sizes 9½ to 11½. Ship. wt. 3 oz. Ask for 30DV-1640, black. Per pair . 50c.

Boys' Stockings

25c Medium weight. Two thread leg. Good quality cotton. Feet are flat knit with toes and heels reinforced. Ask for 30DV1248—Black. Sizes 5, 5½, 6, 6½.—25c. Sizes 7, 7½ and 8—29c. Sizes 8½, 9, 9½—Shipping weight, 8 oz. 33c.

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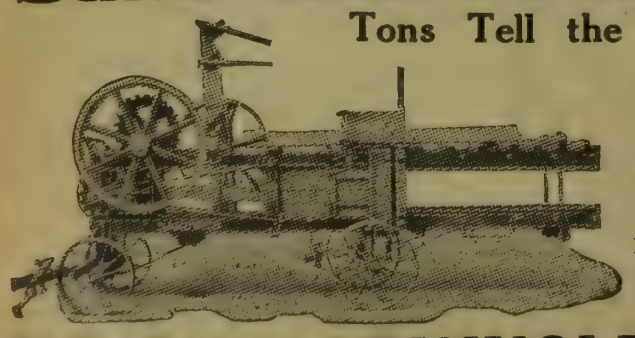

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minds intensely dwell on the scene, shedding all their light, and ready to kindle, at the slightest circumstance, into a blaze of discovery.

7. Meantime, the guilty soul can not keep its own secret. It is false to itself, or rather, it feels an irresistible impulse to be true to itself. It labors under its guilty possession, and knows not what to do with it. The human heart was not made for the residence of such an inhabitant. It finds itself preyed on by a torment, which it does not acknowledge to God nor man. A vulture is devouring it, and it can ask no sympathy nor assistance, either from heaven or earth. The secret which the murderer possesses, soon comes to possess him; and like the evil spirits of which we read, it overcomes him, and leads him whithersoever it will. He feels it beating at his heart, rising to his throat, and demanding disclosure. He thinks the whole world sees it in his face, reads it in his eyes, and almost hears its workings in the very silence of his thoughts. It has become his master. It betrays his discretion, it breaks down his courage, it conquers his prudence. When suspicions from without begin to embarrass him, and the net of circumstances to entangle him, the fatal secret struggles with still greater violence to burst forth. It must be confessed, it will be confessed; there is no refuge from confession but suicide, and suicide is confession.—Webster.

NEW USES FOR LEMONS

By Helen Chaffee Temple

AND now the problem of using more lemons comes along. We cannot eat very many lemons without danger to our dispositions, but I have found several uses for lemons in my household that otherwise I would have disregarded had the "lemon market stayed up."

I find that a cup of strained lemon juice added to a boiler of clothes on wash day bleaches and takes out stains as well as the commercial bleaches. It also softens the water. We, unfortunately, have extremely hard water and are compelled to use a great deal of lye and other softeners. I find that the juice of two lemons in my dish water makes unnecessary use of lye or other softeners. It is much better for the hands than commercial softeners.

I find that lemon juice combined with Bon Ami and water makes an excellent cleaner for white shoes. The lemon juice takes out the stains that otherwise would have to be covered up.

For discolored teeth lemons again come to the front. Cover the tooth brush with common baking soda, squeeze the juice of half a lemon over it and brush the teeth vigorously while the soda is bubbling. Repeat this two or three times and note the great improvement. The lemon juice also acts as a disinfectant. This treatment followed by the use of a pleasant tasting tooth paste or mouth wash leaves nothing to be desired.

A cup of lemon juice added to the mop water prevents the usual roughness of the hands caused by the mopping. It also helps remove the stains and spots from old linoleum floors.

Butter coloring is almost impossible to remove from oilcloth without spoiling the cloth. Accidentally I found that lemon juice removes this stain without injury to the oilcloth if used while the stain is fresh.

Lemon juice and salt will remove iron rust, while the pure lemon juice will remove ink stains and fruit stains from white goods.

We have known several persons troubled with occasional attacks of bilious headaches to prevent an attack by drinking a glass of strong unsweetened lemonade upon rising and omitting the largest portion of their breakfasts.

I find the easiest and one of the most delicious cake fillings and frostings is made of the juice of two lemons and powdered sugar. Strain the juice, adding enough of the powdered sugar to make an easily spread paste, then use immediately. The frosting will harden in a cool place within an hour.

Three or four lemons and enough orange juice to fill a quart jar, with about a half cup of sugar, brought to a boil, then sealed in a glass jar, will keep indefinitely. This juice, with a double amount of water, is one of our most delicious drinks. It has a flavor all its own. While lemons and oranges are so inexpensive we have made preparation for warm weather, namely, canning the juice. The culls of lemons and oranges can be purchased at the packing houses at prices ranging from 50 cents to $1 a box.

The rind of lemons was found to make an excellent dye for an old georgette crepe waist. Boil the lemon rinds until soft, strain the liquid through a cloth, then dip the waist. The waist must be thoroughly clean and damp.

There are many other uses for the lemon, such as lemon syrup for the itching cough, and lemon juice in a cup of black coffee for relief of a sick headache. Again, we find the lemon an aid to taking stains from the fingers during the fruit canning season. In fact, lemons are used in one way or another every day in households where the lemon habit is formed.

HOUSEHOLD QUERIES

Kumquat Marmalade

Please send recipe for kumquat marmalade published in Cultivator a year ago. I cut it out, then lost the clipping.—Mrs. E. Borchert, Anaheim.

One quart kumquats, two lemons, sugar, water. Quarter the kumquats and remove seeds. Slice lemons, rejecting seeds. Combine the fruits and let stand for 24 hours in twice their quantity of water. Place over a low heat in the same water and boil gently for one hour. Cool, add two cups of sugar to each pint of fruit and juice and boil gently till clear and thick. This amount will fill nine medium sized glasses.—Mrs. H. Fraser, Pasadena.

Wash and remove seeds. Slice very thin or put through the food chopper. (I do the latter, as it is quicker and just as good.) Weigh, and add same weight in water. Set away until next day. Then boil until tender in same water. Set away again. The following day boil thirty minutes. Weigh again and add same weight of sugar. Boil twenty minutes. Put in glass cans or jelly glasses.—Mrs. H. W. Hall, Grand Bay, Alabama.

India Relish

Answering further request of "Subscriber, St. Helena" for recipe for India relish: We have found in an old time cook book the following signed by "Admiral Schenck" who presumably has sailed the seas and brought back from the Indies the real thing:

One gallon best vinegar, 3 ounces salt, ½ pound flour of mustard, 2 ounces turmeric, 3 ounces white ginger, 1 ounce cloves, 1 ounce mace, 1 ounce each white and long peppers, 4 ounces chalots peeled, 2 ounces garlic peeled, 2 ounces cayenne pepper. Mustard and turmeric must be rubbed together with a little cold vinegar and stand until smooth. Add remainder of vinegar and put on stove. Stir in other ingredients just before it boils. As soon as it boils remove from fire. Let cool and it is ready for use.

Jelly Turns to Sugar

Can you tell me what makes my loquat and crabapple jelly turn to sugar a few weeks after it is made? The loquats I used were of the old seedling variety. I used the loquats before they were fully ripe and put in some lemon. Two cups of sugar to three cups of juice is the proportion I used. For the crabapple jelly I used three cups of sugar to four of juice. The jelly was nice and firm but turned to sugar. If you can help me will be much obliged.—A. B. Orange.

Note directions given by Mrs. Stainton in this department for making loquat jelly. There may be a hint there as to means of avoiding sugaring. The determining of exact amount of sugar required in making jelly from various fruits or the same fruits at different stages of ripeness or in different conditions requires also determination of relative pectin and acid content. We will give next week, if space permits, or as soon as possible, in this department simple means of determining this as given by Prof. W. V. Cruess in a leaflet issued by the

The Cultivator Patterns

BE SURE TO SEND SIZE

3536-3539. Ladies Costume.—Waist 3536 cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3539 cut in six sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. A medium size will require 8½ yards of 36 inch material for tunic, waist and skirt of one material, with ¾ yard of contrasting material for collar and cuffs. The skirt measures 1⅞ yard at its lower edge. TWO separate patterns, 10 cents FOR EACH pattern.

3532. Child's Play Suit. Cut in four sizes: 2, 4, 6, and 8 years. A 4 year size will require 2¼ yards of 36 inch material. Price 10 cents.

3115. Dress for Work or Leisure. Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 5¾ yards of 36 inch material. The width of the skirt at lower edge is 2 yards. Price 10 cents.

3533. Girl's Dress. Cut in four sizes: 6, 8, 10 and 12 years. A 10 year size will require 3¾ yards of 27 inch material. Price 10 cents.

3552. Misses' Dress. Cut in three sizes: 16, 18 and 20 years. An 18 year size will require 6 yards of 38 inch material. The width of the skirt at the foot with plaits extended is about 2½ yards. Price 10 cents.

3549. Boy's Play Suit. Cut in four sizes: 2, 3, 4 and 5 years. A 4 year size will require 2½ yards of 36 inch material for the Overalls and 1½ yard for the Blouse. Price 10 cents.

3054. An "Easy to Make" Apron. Cut in one size, medium. It will require 1½ yard of 27 inch material without tie strings. Price 10 cents.

3534. Girl's Dress. Cut in four sizes: 8, 10, 12 and 14 years. A 12 year size will require 4⅛ yards of 36 inch material. Price 10 cents.

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PATTERN DEPARTMENT
California Cultivator
Los Angeles

agricultural experiment station of the University of California, Berkeley, published August, 1917. This is an illustrated leaflet giivng clear and concise directions for making fruit juices and jellies, and one who is interested could do no better than write to the station for it. Copies will be sent free to any resident of the state if the supply is not exhausted.

Sugar Pie—Butterscotch Pie?

The California Cultivator has been such a help to so many that I too would like assistance. Can you give me a recipe for sugar pie and butterscotch pie? They would be much appreciated.—Mrs. L., Winters.

Butterscotch Pie.—Line pie tin with plain pastry and then place in saucepan 3 tablespoons butter, 1 cup brown sugar. Heat slowly and cook 3 minutes. Then place 1½ cups cold milk in bowl and add 4 level tablespoons cornstarch to milk. Stir to dissolve starch; add to cooked sugar and stir constantly to thoroughly blend. Bring to boil and cook 3 minutes. Cool and add 1 well beaten egg. Pour mixture into the prepared pie plate. Care must be taken not to let sugar caramel.

Who can give us a good recipe for sugar pie?

HINTS FROM HOUSEKEEPERS

Ink Stain on Gingham

Wet thoroughly in common coal oil, then put in water with some good soap powder or soap rubbed on stained spot and rub out at once.—Mrs. J. W. Payne, Florence, Arizona.

Easter Cakes for the Children

I saw some candy nests with eggs in them in a store window this morning which would make pretty Easter gifts for the children. Make small cakes from any favorite recipe and cover with frosting. Before the icing dries place three or four little candy eggs of different colors in the center and arrange shredded coconut around them to form nests.—Mrs. A. Stainton, San Francisco.

Loquat Jelly

Gather loquats when full sized but still hard and only partially turned in color. Wash and remove blossom ends. Cover with water and cook till soft. Strain through a cloth. Boil juice down till thick and cherry colored, when add heated sugar, pint for pint, gradually. When sugar is thoroughly dissolved, boil a few minutes and test by letting small quantity cool in small dish.—Mrs. A. Stainton, San Francisco.

Raised Doughnuts

I notice in the home department a housewife asks for the recipe for raised doughnuts "like those you buy." I enclose the following, which I find very satisfactory, even better than those you buy:

Two cups yeast, ¼ cup sugar, shortening the size of an egg, nutmeg (to suit taste), 3 eggs (or less). Let rise three times.

We are new subscribers and enjoy your paper, especially the home department.—Subscriber, Exeter.

Raised Doughnuts

In reading the Cultivator I see you are asking for a good raised doughnut recipe. This one is very good; it sounds rather complicated but it really isn't more trouble than any ordinary recipe.

One cup shortening, 2½ cups sugar, 2 cups mashed potato, 2 yeast cakes dissolved in one cup of warm water, 1 pint milk, 2 eggs. Cook potatoes, mash light, add the sugar while the potatoes are hot, beat until the sugar is dissolved. Bring the milk to the scalding point with the shortening in it; slowly stir milk and shortening into the sugar and potato, add the well beaten eggs. When cool enough add the yeast. Put in a warm place to rise. When light, add flour enough to make a dough as one would use in making bread. Let this mixture rise. When light, cut out in any desired way, round or square pieces, let rise again and fry in deep fat. Fleishman's yeast should be used. It takes several hours for the whole process, but if care is taken to allow them to get light each time, one will be paid for their trouble, for they are exceptionally good. This is a very old recipe and one that never fails.—A. B. C., Arroyo Grande.

Old Fashioned Yankee Doughnuts

I am sending a recipe for raised doughnuts, although they are not "like those you buy," but better. These are called the "Old Fashioned Yankee Doughnuts" and are very good. One pint of warm milk and one cup of yeast, enough flour to make a sponge. Let rise over night. In the morning add 1½ cups of sugar, ½ cup of shortening, 2 eggs, little salt, teaspoon soda (scant), flavor with nutmeg. Mix in enough flour to make a soft dough, roll out and cut with a small biscuit cutter. Let rise in warm place three or four hours, and fry in fat grease. I think the kind you buy are just plain bread dough.—Mrs. W. H. C., Baldwin Park.

Very Light Doughnuts

I have just read of the wish of your Vacaville subscriber for a recipe for "raised doughnuts like those you buy." I am sending a tested recipe and if followed carefully am sure it will give perfect satisfaction.

One cup lard, 1 cup sugar, 8 cups flour, 2 cups milk, 1 cup warm water with 1 cake compressed yeast dissolved in it, 2 eggs, 1 saltspoon salt, nutmeg to taste. Put lard in milk and warm. Add yeast dissolved. Add all other ingredients and beat a long time. Raise over night. Mould down and cut out. Let get very light so they will not sink when put in deep hot lard.—M. M. S., Lankershim.

Raised Doughnuts

Notice in your columns Subscriber, Vacaville, wants recipe for raised doughnuts, "the kind you buy," so am sending mine, which I think is better than the kind you buy:

One cake Fleischman's yeast, 1¼ cups milk scalded and cooled, 1 tablespoon sugar, 4½ cups sifted flour, ½ cup sugar, 3 tablespoons butter, ¼ teaspoon mace, 1 egg, ¼ teaspoon salt.

Dissolve yeast and sugar in lukewarm liquid, add 1½ cups flour and beat well. Cover and let rise in warm place till bubbles burst on top. Add butter and sugar creamed, mace, egg well beaten, remainder of flour to make moderately soft dough, and salt. Knead lightly. Place in well greased bowl. Cover and allow to rise again in warm place about 1½ hours. When light, turn on floured board, roll to about one-third inch thickness. Cut with small doughnut cutter, cover and let rise again on floured board or paper in warm place until light—about 45 minutes. Drop in deep fat with side uppermost which has been next to board. Excellent.—Mrs. F. A. Paugh, Glendale.

Raised Doughnuts

In reply to inquiry from "Vacaville Subscriber" about making raised doughnuts, I am sending the following which I have used and found satisfactory:

Two cups milk, 1 cup sugar, ½ cup butter, ½ cup lard, 1 cup sponge yeast and 2 eggs. Add enough flour to make a pretty stiff dough, which must rise. When the doughnuts have been cut out let them remain on the baking board until they rise again and then cook in your favorite shortening. Dip while still hot in powdered sugar.—Mrs. Carl Froberg, El Cajon.

How to Boil Ham

Am writing you about article in your issue of March 5 about boiling a ham. I have had considerable experience in cooking and catering to different fraternal societies and everybody praised my sandwiches.

Take a five gallon oil can for boiling and put something in bottom to keep ham from burning. Cut open joint and place ham in, put in one tablespoon of good soda and cover with water. After it comes to boiling, boil for an hour, take out and wash off all impurities the soda has brought out, put in clean water again and boil for one and one-half hour, take out and remove the skin, cover with same and let drain and cool. Cut off all surplus fat and render for cooking. The meat will retain its natural color and is good. Try it and be convinced. —C. A. Howard, Reno, Nevada.

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

April 6-7, Fred W. Kiesel, Sacramento.
April 14, R. F. Guerin, Tulare.
April 21-22, Santa Anita Rancho.
April 21 and 22—Santa Anita Rancho, Los Altos.
April 20-21, Toyon Farm Association, Los Altos.
April 26, Santa Anita Rancho, Santa Anita.
May 11, Victory Herd, Carruthers.

The Bridgford Holstein Company of Patterson has recently sold the young bull, Chief Abbekerk Paul, to Shuster Bros. of Wisconsin. This calf was sired by King Abbekerk Johanna Segis, a son of Adirondiac Wietske Dairy Maid, and his dam is the 39 pound four year old, Fairmont Pauline De Kol 2d. It will be remembered that Adirondac Wietske Dairy Maid holds the Pacific Coast record with 41.02 pounds of butter in seven days and that she finished a 365 day test with 1,296.5 pounds of butter to her credit.

A. W. Nolan of Forestville has purchased a young Jersey bull sired by a son of Poppy's St. Mawes, whose dam, St. Mawes Poppy, has record of 952.88 pounds fat from 15,782.4 pounds milk. The dam of the Nolan bull is St. Mawes Susy with 873.6 pounds fat to her credit.

John Troup, manager of the Rancho St. Julian herd of Shorthorns, Santa Barbara, reports strong demand for bulls. This herd has recently furnished bulls to the following buyers: four to the Rowland Cattle Company, Walnut; a like number to the Bishop Company, Los Alamos; five to Chas. James, Cerissa Plains.

The late sale of Shorthorns held at Klamath Falls averaged $211.

John E. Dugan, formerly in charge of the Allana Holstein herd, is now with the Palo Alto Stock Farm and reports several very excellent records.

The animal husbandry division of the college of agriculture has sold a Jersey bull calf to Sinsheimer Brothers, San Luis Obispo. The dam of the calf has a record of 624 pounds fat.

Fifty-four Holstein cows in the herd of Fred W. Kiesel, Sacramento, averaged 42.84 pounds of butterfat for the month of February and had the honor of holding the first ten places in the Sacramento-Yolo Cow Testing Association for that month.

Sheepmen of Northern California have organized a corporation for the warehousing of this year's wool crop. The following officers and directors have been elected: President, F. A. Ellenwood; vice-president, J. W. Howell; secretary, E. L. Hart, all of Red Bluff; directors, F. A. Ellenwood, J. W. Howell, E. L. Hart, G. B. Wilcox and A. N. Montgomery, all of Red Bluff; Ray Houghton of Corning, Charles Hanson of Butte City and R. H. Bronell of Orland.

Fred Hartsook of Lankershim, whose activities in Holstein affairs in this state during the past year have been of such notable character, has announced that he has been successful in purchasing the heifer, Miss Aralia De Kol Mead, for what is understood to be one of the highest prices ever paid for a heifer of her age in the history of the breed. Miss Aralia De Kol Mead was bred by A. W. Morris & Sons of Woodland and sold in the St. Paul sale to Brentwood Farm, Philadelphia. She is sired by Sir Aaggie De Kol Mead and is out of Aralia De Kol Mead 2d with 851.01 pounds butter from 18,785.6 pounds milk as a junior two year old. Her seven nearest dams average over 1,000 pounds of butter and she, together with Miss Aralia De Kol Aaggie, her 100 per cent sister, are the only two heifers of like relation in the world whose seven nearest dams average over 1,000 pounds of butter. It will be recalled that Mr. Hartsook recently purchased Miss Aralia De Kol Aaggie from W. J. Higdon of Tulare at a record price. The ownership of these two famous sisters places their owner in a very strong position and will undoubtedly result in bringing additional fame to California Holsteins.

G. A. Moore of Ripon writes: "I wish to report the loss of Empress Lass, the Jersey cow which won first and grand champion at Oregon, Washington and California state fairs. Some consolation, however, in having two promising daughters from her. The loss was due to bloat, getting out in the night and filling up on green alfalfa."

Wins Cultivator Prize Again

Five grade cows owned by Earl Graham of Compton had the highest average production of butter fat for grades in the state dairy competition during the month of February, and the California Cultivator prize for this month was therefore awarded to him.

The production of the individual grades for the month was as follows:

	Yr.	Mo.	Days in Milk	Lbs. Milk	Pct.	Butterfat Lbs.	Credit
Brownie, gr. H.	3	4	30	2,050	3.9	79.95	94.42
Montana, gr. H.	aged		37	1,817	3.3	59.96	59.96
Alice, gr. H.	2	6	37	1,646	3.5	57.61	71.46
Smithy, gr. H.	4	6	11	1,834	3.1	56.95	59.80
Niger Heifer, gr. J.	3	5	5	1,688	3.3	55.70	69.83
Average			24	1,807		62.03	71.09

This is the third group of five grades in Mr. Graham's herd that has won this prize. Five grade Guernseys, owned by Adohr Stock Farm of Van Nuys, had a higher production, 69.45 pounds butterfat, but being all aged cows they receive credit for this production only. Other groups of five grades eligible to compete for the California Cultivator prize produced on the average as follows: F. F. Pellissier, Whittier, 61.76 pounds; R. H. Walrath, El Centro, 59.50 pounds; Napa State Hospital, Imola, 56.53 pounds; Los Angeles County Farm, Hondo, 55.90 pounds; C. E. Fisher, Hughson, 45.05 pounds; J. M. Christen, Pacheco, 40.79 pounds; S. G. Gambonini, Petaluma, 38.83 pounds; University Dairy, Berkeley, 38.51 pounds. While the production of the grades in the last two herds is greatly below that of the prize winning and several of the other competing groups of grades, it represents at least twice the average production of the dairy herds in the state and exceeds that of most good dairy herds by at least 25 per cent.

Entries in the state dairy cow competition close on the 31st inst. Cows due to freshen during the next month or two may, however, be entered prior to April 1 and their records may commence on the fifth day from freshening. Entry blanks and further information concerning the competition will be furnished upon request. Address Prof. F. W. Woll, Superintendent of Dairy Tests, University Farm, Davis, California.

HOW LONG SHALL A COW REST?

This question is of much importance to every dairyman. A rest from milk secretion is of course for the benefit of the cow, her prospective offspring and of the milk yield after the production of the calf, for it is certainly not in accordance with the arrangements of nature for a female to be always producing milk, and continual secretion is a terrific strain on her system where no opportunity is allowed for recruiting, says a writer in the Indiana Farmers Guide.

In the case of the poor milk producer which in these days of high pressure no one should keep as a dairy animal, there is no difficulty about fixing the period during which she should be dry—she simply goes dry herself and generally much too soon for her owner. Some will take as much as three or four months rest or yield in response to generous feeding a quantity of milk that does not pay expenses. The shortest and best way with animals of this class is to weed them out, for they are quite out of place in a modern dairy.

A cow in poor condition may be allowed two months in which to recruit her strength with advantage to herself and her prospective calf, but this is to some extent a matter of keep, for the poor cow generally belongs to the poor feeder. If the feeding is generous, the animal in a healthy condition and the milk produced pays expenses, there is no reason why the period of rest should not be further reduced. In the case of the average cow the milking can be continued until within a month of calving. If a

cow is in poor flesh condition it is better, in my opinion, to resort to higher feeding than to dry her off. I have known cows treated thus for years being milked to within a month of calving that have carried as good an appearance and produced equally good calves as those which run dry three times as long. Six weeks may be considered the average period during which a cow should be dry.

It is, however, the extraordinary milker that occasions the greatest difficulty to the dairyman fortunate enough to possess her, both as to the policy of her drying at all, and in the way in which the secretion is to be stopped without incurring great risk of injury to the udder and possible loss of secretive function in parts of the gland structure. I would prefer to continue milking such cows right up to the time of freshening. So far as immediate consequences are concerned animals of this class appear none the worse by continuing the milking nor is the milk yield after calving materially affected.

In the case of heifers they should never be permitted to go dry early or the habit of ceasing the milk supply early may be perpetuated. They should be kept giving milk even when the yield falls below a profitable quantity, for it is by persistent asking for more that the qualities of prolonged lactation have been developed in the cow.

SCRUBS TEACH HIM A LESSON

There was a man who heard about "better sires better stock" years ago, before the present movement was started. He was so impressed that he thought he would get a purebred bull and have a good herd. The bull he got was a good one, but the next year the herd was no better than before, and he became discouraged. He kept his purebred bull for one more year, then sold it and bought a scrub.

Time went on, and the heifer calves from cows served during those two years when the pure bred bull was used grew up and came into milk. To his surprise he found that after all he did have a better herd. But alas, in two years more he found that his herd was growing poor again. The cheap bull was getting in his work. The scrub then died, but his influence remained, just as the good bull's influence remained after he was gone.

At last this farmer saw the point. Again he bought a purebred bull, one whose dam and granddam had high records, and before two years had passed he joined a bull association, so that when he had to quit using his own purebred bull he was able to change off to another bull as good. When the daughters of this bull grew up he found his herd again improving in quality, and this time it kept on improving. Year after year his heifers grew up to be high class cows, and the owner profited.

Charter Members Humboldt County Guernsey Breeders Association

The Guernsey breed has been making rapid advances in Humboldt County the past few years and for that reason the dairymen of that section decided it would be a good place to organize a breed association. Its charter members are shown in the above photograph. Top row left to right: Iver Iverson, Arcata; J. W. Nelson, Assistant State Leader County Agents. James H. McCloskey, Arcata. W. A. Beer, Arcata. Second row: W. W. Turner, Arcata; W. Vinal Hunt, director, Arcata; Wm. Danphiny, Ferndale; Chas. Ford, director, Arcata; Dr. J. W. Logan, farm advisor Humboldt County. Seated left to right: C. S. Rasmussen, president, Loleta; S. B. Morrison, vice president, Ferndale; E. L. Westover, Western representative American Guernsey Cattle Club; L. D. Smith, secretary-treasurer, Hydesville.

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Tuesday, March 29th at 9 A.M.

125 High Grade Dairy Cows and Heifers 125

At the Stinson Bros. Dairy 2 miles north of

Orange, Orange County

Including 104 head of exceptionally fine grade dairy cows that are real producers and 21 head of well marked Holstein heifers.

Stinson Bros., Owners **Rhoades & Rhoades, Auctioneers**

Wednesday, March 30th,

at 10 A.M.

at the Rhoades & Rhoades Sale Pavilion

at HYNES, Los Angeles County

75 Holstein Cows and Heifers 75

"THE QUALITY KIND"

This sale offers you an opportunity to purchase cows from one of the heaviest producing herds in California. The milking herd is producing an average of TWELVE THOUSAND POUNDS of milk a year per cow. The cows are all young; they are great big, fine individuals, full of quality and a square uddered lot throughout. Every cow is a heavy and persistent milker. You couldn't ask anything better as to color markings. Your particular attention is called to the

HOLSTEIN HEIFERS TO BE SOLD

as they are a splendid lot, the making of a wonderful dairy herd. All sired by registered sires and selected from dams who are tremendous producers. Heifers of this quality are scarce. The ages are yearlings and two year olds.

E. W. Badger, Owner **Rhoades & Rhoades, Auctioneers**

Saturday, April 2nd at 9 A.M. Sharp

at the Dal Corso dairy on the San Pedro Blvd. 2 miles south of GARDENA, Los Angeles County

155 Holstein Cows and Heifers 155

Including 68 well bred grade Holstein cows and 87 head of choice Holstein heifers. This is one of the best herds in the south and the offering in heifers is one of merit.

A. Dal Corso, Owner **Rhoades & Rhoades, Auctioneers**

DISPERSAL SALE

Tarzana Championship Hampshire Herd

At the Tarzana Ranch on the Ventura Blvd. at Reseda Ave., 11 miles west of

UNIVERSAL CITY

Los Angeles County

Thursday, March 31st

at 10 A.M.

It is seldom that an opportunity such as this is offered to buyers looking for the best in pure bred Hampshire hogs. The herd name of Tarzana Championship Herd is well earned. At the Los Angeles, Riverside, Ventura and Owensmouth shows last fall this wonderful herd won

EIGHTY FOUR RIBBONS

divided as follows:

FOUR GRAND CHAMPIONS

SEVEN CHAMPIONS

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31 Firsts—19 Seconds—17 Thirds—2 Fourths—3 Fifths

Not only are these Hampshires prize winners but a study of their pedigrees shows that they are backed up by prize winners. This sale offers the new beginner or the established breeder an opportunity to secure Hampshires of quality second to none.

All cholera immunized, double treatment.

Make your arrangements to attend the complete dispersal sale of the

Tarzana Championship Hampshire Herd

Edgar Rice Burroughs, Owner

Rhoades & Rhoades, Auctioneers

Buyers Attention

If you are contemplating the purchase of dairy cattle or heifers, arrange to attend these large sales. There are other smaller sales also during the week. Arrange to attend them all. Buyers wishing to ship out can assemble their cattle at the Rhoades & Rhoades Stock Yards at Hynes. Every possible assistance will be given the buyer to get what he is looking for.

If you are contemplating holding a public sale of dairy cattle it will pay you to get in touch with us as we are prepared to render you sales service second to none. Write or wire us for dates and terms.

Rhoades & Rhoades, Auctioneers

SANTA ANITA RANCHO
First Individual Public Sale

60 REGISTERED HOLSTEINS

Santa Anita Rancho, Santa Anita, Cal.

Tuesday, April 26, 1921

INCLUDING:

SUNDRIE SUNBEAM GIRL, the famous dam of triplets, that made over 1000 lbs. butter last year after dropping triplets.

THE HIGHEST RECORD COWS in the herd, including a 35 lb. cow, a 34 lb. cow, and daughters of 1000 lb. and 1100 lb. cows.

MANY FEMALES BRED TO THE $41,000.00 KING KORNDYKE PONTIAC ACME, the earliest and best opportunity to select highly bred females in calf to this outstanding young sire.

TWO HERD SIRES TO BE SOLD

MERCI LAD KORNDYKE BURKE, son of De Kol Hengerveld Burke and the first cow to make over 1200 lbs. butter in one year in California. He was Grand Champion at 1920 California State Fair, and now has a 30 lb. 4 year old daughter.

PRINCE WALKER CORNUCOPIA, son of Prince Gelsche Walker and the 36 lb. cow Alba Sadie Cornucopia Creetia, who also made 866 lbs. butter in one year at a previous freshening. He is a high class individual and would not be sold except that in the reduction of the herd the service can be handled by King Korndyke Pontiac Acme.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Calif.

DISPERSAL SALE
R. F. Guerin Herd

60 REGISTERED HOLSTEINS 60

Visalia, Cal., April 14, 1921

This is a herd of young cattle, and contains a large group of daughters of Sir Veeman Korndyke Pontiac, 30 lb. son of Sir Veeman Hengerveld.

SIR VEEMAN KORNDYKE PONTIAC has a nice list of A. R. O. daughters, including one that made over 21,000 lbs. milk in one year as a 2 year old, and she has just made over 33 lbs. butter in 7 days as a 3 year old in the herd of Earl Graham, Compton. Two other daughters, both 2 year olds, and both in this sale, are now finishing excellent yearly records at Burr Farm, Los Angeles.

The younger females in the herd are largely daughters of KING SADIE VALE IDYL SEGIS, a son of King Korndyke Sadie Vale 27th, and a 35 lb. 3 year old daughter of King of the Pontiacs.

Besides these two large groups there are daughters of KING MORCO ALCARTRA, KING SEGIS PONTIAC JANNEK, KING SEGIS ALCARTRA PRILLY, and other popular sires.

KING TOLA KORNDYKE PONTIAC is an outstanding young bull in this sale. He is sired by the $12,000.00 King Korndyke Pontiac 20th, and is out of K. P. Tola, 36.16 lb. daughter of King of the Pontiacs, now making a yearly record at Burr Farm that promises to go over 1000 lbs. butter. He is a first class individual and ought to head a good herd.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and individual certificates furnished buyers.

Write for catalog now.

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California Breeders Sales and Pedigree Co.

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Nothing left to chance when you buy one of our Holstein bull calves. Every one guaranteed free of tuberculosis. Every one guaranteed to be a breeder. Every one from an official tested dam, A. R. O.-A. R. S. O., yearly semi-official and cow testing association records. (All made under normal dairy conditions in string with 100 others.) Sires from the most popular high producing strains in California. Offered at Bargain Prices. Phone, Downey 42

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Feeding for Advanced Registry Records

By Professor F. W. Woll

VARIOUS inquiries have been received of late as to the best method of feeding cows for advanced registry records. As the subject is of interest to all owners of pure bred stock as well as to owners of grade cows who are planning to start these on test for the grade registry of production which is now kept by the college of agriculture, a brief discussion is given below along this line. It is hoped that this will be of interest and value both to the dairy farmers referred to and to dairymen who have entered cows in the state dairy cow competition, or contemplate doing so.

The kind of record a cow will make will depend to a large extent upon her condition at freshening; if she comes through calving in thin, emaciated condition her flow of milk will be smaller than if she is in good flesh at this time, and, what is equally important, the fat content of her milk will be low, sometimes as much as one per cent or more below normal. To secure a large production of milk and butter fat, either soon after freshening or during the entire period of lactation, the cow must be in good flesh at calving time. This may be brought about by feeding a liberal grain ration during the dry period. Many breeders aim to get their cows "hog fat" at this time, and experience has shown that dairy cows in this condition will as a rule milk off this surplus fat during the first few weeks after freshening, and the milk will test considerably higher than later in the lactation period. The danger of milk fever in cows in a high condition of flesh is now largely removed since the air treatment became generally known, and high feeding of cows that are especially fitted for advanced registry tests is now a common practice among dairy breeders.

Fitting rations may include a variety of concentrates, like barley, mill feed, coconut meal, Indian corn or milo, with some linseed meal to keep the bowels in good condition. The amount of grain feed given at this time may vary from a couple of pounds per head daily to eight to ten pounds in case of large cows that need a good deal of nourishment to reach a fat condition.

After freshening dry feed is withheld for a day and only bran mash given to insure loose bowels. Hay is next placed before the cow and a small allowance of grain feeds is fed which is gradually increased as the flow of milk increases. Some cows will reach a full flow in a week or two, others take twice this time or more to reach a maximum yield, and the system of feeding must be governed accordingly. Experienced breeders are careful not to force a large production very soon after freshening unless a seven day record only is wanted. In this case, a maximum production of butter fat may often be secured during the first couple of weeks through an exceptionally high fat content rather than a large mess of milk. But for cows on long time tests it will generally prove a mistake to try to reach a heavy production soon after calving by means of forced feeding.

The character of the ration to be fed is important, but in feeding for high records the cost is only a secondary consideration. Most dairymen feed their test cows the best that the market affords without much regard to cost. It is advantageous to feed a variety of different feeding stuffs as this will insure a good healthy appetite and keep the digestion in good order. It is also important in its effect on the general health and vigor of the cow and of her offspring. A mixture of common standard feeding stuffs is all that is needed in feeding test cows as for good dairy cows in general. In addition, a good quality of hay and some succulent feed, either green feed, silage, or roots, are valuable components of rations for test cows. Green feed or silage are ideal milk producing feeds, but if not obtainable, roots are equally good, either half-sugar mangel or sugar beets, although as a general rule they are more expensive crops on account of the smaller yields of food materials they furnish per unit of land and the greater cost of production, at least outside of the north coastal region. Roots have a special value in feeding test cows. They are mildly laxative and are believed to have a cooling effect on the system and enable cows to eat large amounts of grain feeds without any deleterious effects. Eastern breeders often feed large quantities of fodder beets to cows on test, sometimes as much as 100 pounds per day. Fifty to 60 pounds, however, is an average amount. There is no safer or more wholesome feed for heavy producing milk cows than roots. The dairyman who can provide a good supply for his test cows has a marked advantage over those who have no roots or other available succulent feeds.

A good dairy cow is a hard working animal, and in order to reach and maintain a large production she must receive an abundance of palatable, easily digestible and highly nutritious feed. The grain ration to be fed will vary greatly with local conditions. The following mixture may be considered an ideal one for test cows in this state, viz., barley, wheat bran (mill run or middlings), coconut meal, and beet pulp, equal parts by weight or two parts of barley to one of each of the other components. An addition of one-half to one pound of linseed meal will still further improve the palatability and efficiency of this ration. The proportions of the different feeds may be changed to suit different market conditions, and the number of different components may also be reduced without seriously affecting the efficiency of the

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ration. If a good quality of alfalfa hay is available the protein supply of the grain ration need give no special concern, but if grain hay or some other roughage of medium or low protein content is fed it is advisable to increase the proportion of protein feeds in the mixture, like coconut meal, cottonseed meal or linseed meal, so as to furnish an ample supply of protein which is an essential in the feeding of high producing cows. The casein of milk is a protein substance which can only be produced from protein in the feed; the higher production a cow makes the more protein will she require in her feed, relatively as well as absolutely. Where alfalfa hay is fed an ample supply of protein is secured in the ration even with only a medium allowance of protein concentrates.

The amount of grain feed to be fed will depend on the capacity and the production of the cows and can only be determined satisfactorily by watching carefully each indiivdual cow and noting how she takes her feed. If she eats up everything placed before her right away and looks around for more, the grain ration may be safely increased, for the more feed a good dairy cow will eat the more milk she will produce. When her appetite seems sluggish and she begins to leave feed in her manger, it is time to look out and reduce the amount of feed before she gets off feed. If a cow loses her appetite the game is up for the time being, and it will take time and watchful waiting to bring her back to where she was, both in feed consumption and production.

In ordinary dairy practice good cows are generally fed a pound of grain feed for every four or five pounds of milk they yield, but test cows may be fed at least a pound to every three pounds of milk, especially if the cow gives milk of a high fat content. Since this varies more than 100 per cent, the better method to gauge the amount of grain to be fed is to feed according to the production of butter fat, say seven pounds or more per pound of fat. Many Holstein breeders think nothing of feeding their cows large amounts of grain, say 20 to 24 pounds per head daily, but most test cows are not fed over 15 to 18 pounds of grain daily unless they are exceptional producers, yielding some three to four pounds of butter fat daily—"30 or 40 pound cows" in Holstein parlance.

The circular on feeding dairy cows, issued by the college of agriculture, contains suggestions for different grain mixtures and gives a general discussion of the subject that should prove helpful, at least to inexperienced dairymen. Both this circular (No. 215) and Bulletin No. 323 on "Heavy Versus Light Grain Feeding for Dairy Cows," recently issued, may be obtained on application to the Director of the Experiment Station, Berkeley.

Where a cow has not been on test before, daily weighings of the milk with at least occasional testing of it and weighing or measuring of the grain feed will furnish valuable information as to the way she responds to her feed and will give a definite guide as to changes in the method of feeding that may be desirable. The all important point to keep in mind, however, is to supply all the feed the cow can take care of and to guard against overfeeding. The successful feeder is one who has the intuition and the patience to stay by the cows and watch them early and late to see that they get all the feed they can eat without going off feed, and no more. It is this that brings about a maximum record breaking production which is the fond hope and aim of most dairy breeders.

Favorable feed conditions are a most important factor in feeding test cows, but there are others, like giving access to fresh drinking water and salt, occasional currying and brushing, keeping the cows comfortably stabled, preferably in separate box stalls connected with a small dry, protected runway where they may get fresh air and a little exercise. These are all things that help, but, fortunately for the many breeders who cannot provide every convenience, they are not essential. A liberal and intelligent system of feeding and careful handling of the cows are, however, essential for the making of high records. It does not necessarily require a big bank account to provide these, but the man behind the cow must know his cows and his business to accomplish anything remarkable in the way of record making.

WEAVING THEIR OWN WOOL

Starting with the object of providing Vice President Coolidge with wearing apparel of native wool, a Massachusetts farm bureau now plans to have the entire clip of wool owned by the association manufactured into cloth and sold locally.

After the national election the farm bureau in Berkshire County, which had pooled its wool clip and stored it with a cooperative association, arranged with a local woolen manufacturer to have some of the selected wool woven into cloth. A tailor in the county made an overcoat for the vice president from it.

The Franklin County farm bureau, not to be outdone in a matter of this sort, arranged to have made from selected wool a piece of cloth which was afterwards made into a suit of clothes and presented to Mr. Coolidge. This bit of enterprise on the part of the Franklin County people suggested the idea of manufacturing all of the wool in their pool into cloth and selling it locally to farmers or others who might be interested, which would result in all wool growers getting a fair price for their wool and the local people having the satisfaction of wearing clothing made from virgin wool from their own sheep. Farm bureau officials regard this as a possible solution of handling at least a part of the wool clip held in the various county and state pools, especially in New England where the grower is so accessible to the woolen factories.

FREEDOM

Like autumn leaves
My buttons fall away,
My shirts and socks
All haste to swift decay.

Bacon and toast
Each morn I carbonize;
They burst in flame
If once I turn my eyes.

The faucets drip—
They drip and never cease.
Each plate and dish
Is filmed with horrid grease.

The bread-knife's cut
My finger to the bone—
My wife's away,
I'm keeping house alone.
—John F. Haylock.

Gombault's Caustic Balsam

A VOLUNTARY RECOMMENDATION AFTER YEARS OF EXPERIENCE FROM A MAN OF HIGH BUSINESS STANDING WHO KNOWS RESULTS CAN BE OBTAINED WITH THIS GREAT EXTERNAL REMEDY.

Urbandale, Iowa, January 12, 1921.

My letter to your company of December 30th, last, was written purely as a motive to spur you on in advertising "Caustic Balsam" for treatment of the diseases named in that letter. I might say that at the very time I was writing, my son seventeen years old was laid up with pneumonia, being his third attack. I was at that time banking on Caustic Balsam to save him, as it had done twice before with him and once with Mrs. Rice, and he is now fast recovering and able to sit up, and this adds another victory for this, the greatest of all remedies.

After twenty-one years of actual experience with this liniment I have used probably one hundred or more bottles and under all conditions, with never a failure. I used the wool felt pads, one on the back and one on the chest, using a half bottle on each pad at a time, keeping them soaked; they raise a blister, but simply leave them alone and they will disappear. There is no burning nor inconvenience noticeable to the patient.

There is no use half-way doing it, as there is absolutely no danger of leaving sores. In four to five days after ceasing to use it, the pads become dry, and the skin is as soft and free from blotches as on any other part of the body. It can be plainly detected in the urine, which is evidence of its penetration.

I know what Caustic Balsam will do, from actual experience in our family and am only too glad to let you use this letter or any portion of it as you see fit and in any manner you deem advisable, and furthermore will answer any letters from any sufferer as to more definite directions that I have found will produce the best results in the shortest length of time.

My son also had a bad bed-sore before the nurse said anything to me about it, but we covered it at once with gauze, four ply, held in place with tape, and kept soaked with Caustic Balsam and when removed last Saturday it was entirely healed. Bear in mind he has laid flat on his back since December 11th.

Sincerely yours, THOS. J. RICE.
MAYOR OF URBANDALE, IOWA

$1.75 Per bottle at druggists or sent by parcel post on receipt of price. Write us for any information desired. A standard remedy in this country for over forty years.

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Kill Squirrels

AND OTHER RODENTS

USE CARBON BISULPHIDE

Wheeler, Reynolds & Stauffer

624 California Street, San Francisco, Cal.
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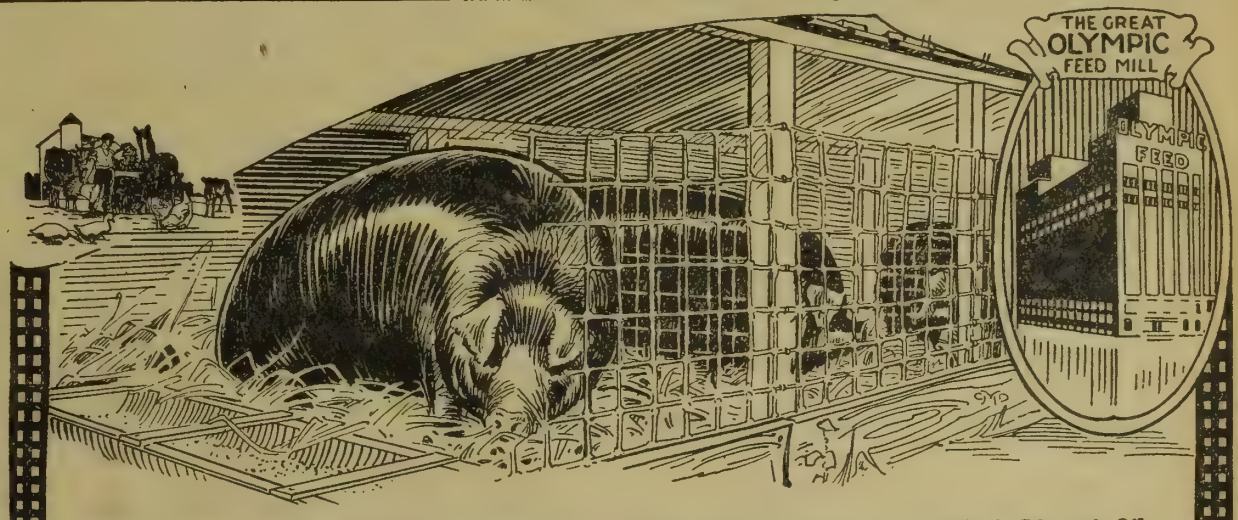


The Pig is Half the Hog

INCREASED hog profits depend upon getting bigger litters of husky, fast-growing shoats. And that, Mr. Farmer, begins with getting your brood sows in the best condition to farrow.

OLYMPIC Hog Feed with *Dried Buttermilk* rapidly builds up hogs, and does it in a natural and healthy manner.

Give your pigs the right start through their mother. Feed your sows OLYMPIC Hog Feed with *Dried Buttermilk* from breeding time until the sows farrow and the pigs are weaned.

Sow's milk tests half again richer than cow's milk. Secreting such concentrated food is a drain on the sow's vitality, which can be replaced by feeding OLYMPIC Hog Feed with *Dried Buttermilk*.

Rich in milk-making and energy-building nutrition, OLYMPIC Hog Feed contains *Dried Buttermilk*, Flour Middlings, Corn Feed Meal, Linseed Oil Meal, Soybean Meal, Ground Barley and Digester Tankage.

Dried Buttermilk, an important ingredient, provides many of the properties of whole milk—plus lactic acid. This valuable acid sweetens the entire digestive tract, removes irritants and compels the assimilation of other feed.

By increasing and enriching the sow's milk, OLYMPIC Hog Feed with *Dried Buttermilk* makes healthier and faster growing pigs. It's the key to profitable pork production.

Get feeding instructions and descriptive literature from your feed dealer or write

The Portland Flouring Mills Co.,
Merchants Exchange Building,
San Francisco, California.
C. B. Sharp, Agent.

OLYMPIC
HOG FEED
WITH DRIED BUTTERMILK
GUARANTEED ANALYSIS
Made from Dried Buttermilk Flour Middlings Corn Feed Meal Linseed Oil Meal Soybean Meal Ground Barley Digester Tankage and not over 1% Salt
The Portland Flouring Mills Co.
Portland, Oregon
U. S. A.

Holsteins Average $845 in Spring Classic

No more convincing proof of the stability of the Holstein breeding business in California could be expected than was furnished by the annual guaranty sale held at Sacramento, Thursday, March 17, when 44 head sold for a total of $37,175, an average of $845. Aside from distributing a highly desirable lot of cattle the sale served to demonstrate anew several facts that should be constantly kept in mind in considering the present status and probable future of our livestock development. First of all, there exist no grounds for assuming that in this state values for pure bred Holsteins have been inflated. Second, that it is possible to assemble from California herds a class of cattle equal to the best in other states. Third, that there exists in California a legitimate demand for cattle of quality and that the better sorts are always in demand at satisfactory prices. Again, the sale furnished evidence that quality will be sought out from small breeders as certainly as it will from herds of wide reputation. In the sale just held were consignments from several of the most prominent herds in America, and selling along with these and in some cases overtopping them were consignments from men making their first contributions to a public sale.

The committee of selection had done its work well and the offering presented was one of the most uniform ever sent through a sale ring in this state. Thirteen herds, 12 from this state and one from Washington, were represented in the sale. Twenty-one buyers, most of them new breeders, made up the sale list.

Two cows tied for the honor of topping the sale at $2,000. Mona Fobes, the great 30 pound cow from the Holmes consignment, was purchased by the J. S. Gibson Company, Williams, and Korndyke Model Hartog 3d from the Toyon herd and purchased by Fred Hartsook of Lankershim, were the two tops. Lady Creamcup, a two year old heifer from the Morris herd, was selected by W. J. Higdon of Tulare for $1,900 and looked well worth the money. Karlray Ormsby Alcartra, the heifer that holds the junior two year old world record for combined milk and butter production, was sold by the Bridgford Company to R. Stevens of Stockton for $1,850. Korndyke Model Hartog 2d and Ava Hartog Pietertje, both from the Toyon herd, were taken by the Sunshine Company, Los Angeles, for $1,325 each. The last named firm was one of the heaviest buyers of the better sorts. One of the sensations of the sale was the great 24 pound two year old, Pearl Na Dean De Kol, sold by Dean Beeman of Woodland to the Sunshine Company for $1,125. This was Beeman's first consignment to a public sale. The consignment from the Carnation Stock Farm furnished many of the real bargains of the sale. Eldorado Melba, a two year old from the Whaley herd, went to Chas. Anderson for $1,050.

The market for bulls was not as strong as had been expected. The top bull came from the Toyon herd and was Sir Toyon Fleta Johanna Mercedes, a June 1920 son of Sir Pietje Ormsby Mercedes 43d, and Cascade Fleta Johanna, with a milk production of 30,000.12 pounds. He was purchased by Frank Hatch and A. P. Miely of Modesto for $1,550. Sir Aaggie Mead De Kol 2d, a May 1920 son of Sir Aaggie De Kol Mead and out of Miss Dutch 2d, went to J. L. Sebastian of Wasco for $1,150, a real bargain. King Pontiac Tola Ormsby, a son of It and K. P. Tola, was sold to settle a partnership and was bought by Agee Brothers, who owned a third interest.

The Los Angeles County farm, represented by Manager Harriman, made a number of very excellent selections. As usual Fred Hartsook of Lankershim was a contender on nearly all of the better things. M. Azavedo of Patterson was also a good buyer.

The sale, which was managed by C. L. Hughes of the California Breeders' Sales and Pedigree Company, was another tribute to Mr. Hughes' ability. Col. Ben A. Rhoades of Los Angeles occupied his customary place on the box and was assisted by Cols. Bell and Davis.

A detailed list of the sales follow:

Consigned by Bridgford Holstein Co., Patterson

1, Karlray Ormsby Alcartra, 916 lbs. jr. 2 year old, Oct., 1917; R. Stevens, Stockton, $1,850.
2, Canary Alcartra Abbekerk, 23.16 lbs., Nov., 1917; Sunshine Co., Los Angeles, $1,075.
3, Miss Raphella Pontiac Prilly, March, 1919; C. L. Morse, Modesto, $1,175.

Consigned by Robt. Clapp, Nuevo

5, K. S. P. Lady Lillian Beets, Oct., 1919; H. Michel, Santa Monica, $550.

Consigned by A. W. Morris & Sons, Woodland

6, Lady Creamcup, Nov., 1918; W. J. Higdon, Tulare, $1,900.
7, Lady Alcartra Riverside Walker, May, 1918; M. Azavedo, Patterson, $550.
8, Sir Aaggie De Kol Mead 2d, bull, May, 1920; J. L. Sebastian, Wasco, $1,150.
Extra, heifer calf out of No. 7; Fred Hartsook, Lankershim, $375.

Consigned by Carnation Stock Farm, Seattle, Washington.

10, Carnation Gelsche Segis, May, 1917, 701.85 lbs.; Los Angeles County Farm, Hondo, $650.
11, Princess Plebe Jewel, Oct., 1914, 922.30 lbs.; Los Angeles County Farm, $725.
13, Abbekerk Segis Pauline, Mar., 1917, 20.87 lbs.; Sunshine Co., $825.
14, Lacconner Nertherland Pontiac Girl, Feb., 1918; Wm. F. Wattson, El Cerrito, $500.
15, Hollywood Lilith Palmyra Abbekerk, Dec., 1916, 22.89 lbs.; Los Angeles County Farm, $700.
Extra. Bull calf out of No. 10, Robt. T. Curtis, Woodlake, $175.

Consigned by Toyon Farms Association, Los Altos

16, Korndyke Model Hartog 3d, Jan., 1917, 23.76 lbs.; Fred Hartsook, $2,000.
17, Korndyke Model Harteg 2d, Feb., 1916, 27.45 lbs.; Sunshine Co., $1,325.
18, Ava Hartog Pietertje, Jan., 1917, 17.72 lbs.; Sunshine Co., $1,325.
19, Hengerveld Spring Pontiac Ava., May, 1918; Sunshine Co., $1,100.
21, Pauline Ophelia, Nov., 1912, 1,036.3 lbs.; Fred Hartsook, $800.
22, Edenwold Elizabeth Colantha, Aug., 1912, 1,069 lbs. Fred Hartsook, $700.
23, Sir Toyon Fleta Johanna Mercedes, June, 1920; Frank Hatch and A. P. Meily, Modesto, $1,550.

Consigned by R. L. Holmes, Modesto

24, Mona Fobes, Nov., 1913, 30.12 lbs.; J. S. Gibson Co., Willows, $2,000.

Consigned by Alex Whaley, Tulare

25, Eldorado Melba, Jan., 1919; C. W. Anderson, Burbank, $1,050.
26, Eldorado Mary Alcartra, Dec., 1918; Robt. T. Curtis, $300.
27, Lady Zenobia Homestead Canary, Mar., 1914, 24.16 lbs.; M. Azavedo, $550.

Consigned by Burr Farm, Los Angeles

28, Laconner Pontiac Evangeline, April, 1917, 16.61 lbs.; Los Angeles County Farm, $475.
29, Baroness Pontiac De Kol Belle, July, 1916, 19.86; Sunshine Co., $925.
Extra, bull calf out of No. 29; Robt. T. Curtis, $150.
30, Kappa Korndyke, Dec., 1918; Los Angeles County Farm, $475.
31, Yama Princess Alcartra, Jan., 1914, 27 lbs.; M. Azavedo, $800.

Consigned by Dean Beeman, Woodland

32, Pearl Na Dean De Kol, Jan., 1919; 24.02 lbs. Sunshine Co., $1,125.
33, Dean Tule Segis, bull, Dec., 1919; Marty Bros., Sacramento, $350.

Consigned by Agee Bros., Rivera

35, Paragon Whittier Pontiac, Dec., 1918; Los Angeles County Farm, $475.
36, Mercedes Nachefe Segis, Dec., 1912, 25.22 lbs.; M. Azavedo, $500.
37, West View Aggie Colantha, Dec., 1913, 28.56 lbs., Fred Hartsook, $525.
38, King Pontiac Tola Ormsby, bull, May, 1919; Agee Bros, $950.

Consigned by Fred W. Kiesel, Sacramento

39, Rest Easy Pontiac Veeman, May, 1915, 29.21 lbs.; Fred Hartsook, $700.
40, Sterling Colantha Duchess, May, 1917, 27.94 lbs.; Sunshine Co., $575.
41, Jane Garden Hydrangea, April, 1917, 25 lbs.; A. E. Green, Hood, $525.

Consigned by Santa Anita Rancho, Santa Anita

42, Anoakia Cedarside Burke 2d, Jan., 1919; A. W. Morris & Sons, Woodland, $575.

Buy Them at Your Own Price!

180 REGISTERED HOLSTEIN COWS AND HEIFERS **180**

3 REGISTERED HOLSTEIN HERD BULLS

Absolute Dispersal

JANE GARDEN FARM

Owned by Fred. W. Kiesel

Sacramento, Cal.

WEDNESDAY AND THURSDAY

April 6-7, 1921

40 DAUGHTERS OF SIR AAGGIE DE KOL ACME, son of Aaggie Acme of Riverside 2nd, whose production of 1,331.78 lbs. butter in one year is the world's strictly official record, and she is the dam of Miss Aaggie Acme Burke, 1,034.44 lbs. butter in one year from 24,338.6 lbs. milk as a first calf junior 2 year old, a world's record when made, and she in turn the dam of the $41,000.00 bull King Korndyke Pontiac Acme.

30 DAUGHTERS OF KING KORNDYKE PONTIAC, son of King of the Pontiacs, and sire of the $12,000.00 bull King Korndyke Pontiac 20th, who in turn sired the $41,000.00 bull King Korndyke Pontiac Acme. He has A. R. O. daughters with records up to over 31 lbs. butter in 7 days.

30 DAUGHTERS OF PRINCE GELSCHE WALKER KORNDYKE, son of Prince Gelsche Walker, and out of the same dam as King Korndyke Pontiac. He already has a list of A. R. O. daughters with records up to over 31 lbs. butter in 7 days.

HERE IS AN OPPORTUNITY TO BUY ENTIRE FOUNDATION HERDS, MADE UP OF HEIFERS OF THE MOST POPULAR BREEDING IN CALIFORNIA TODAY!

MORE THAN 25 FEMALES BRED TO SIR AAGGIE DE KOL ACME are in the offering, including high record cows and daughters of high record cows.

MORE THAN 30 FEMALES BRED TO KING KORNDYKE PONTIAC are in the sale, including some of the choicest in the herd.

EXCEPT FOR THIS DISPERSAL you would not have the opportunity to buy daughters of these great bulls in numbers, and probably never again will so many of them be available at one time. THIS BLOOD IS BUILDING FORTUNES FOR MANY BREEDERS IN CALIFORNIA. WILL YOU TURN THIS SALE TO YOUR OWN ADVANTAGE?

THIS ENTIRE HERD as a whole is strong in type, and the cattle are well grown, and now in excellent condition. In other words they are in prime condition to go right ahead making profit for their new owners.

AS DAIRY CATTLE this herd is leading the entire Sacramento-Yolo Cow Testing Association, amply justifying the rich breeding that would stamp them as producers on pedigree alone.

A Small Sample of the Females to be Sold:

A 34 POUND 3 YEAR OLD sired by Adventure Lad, a 31 lb. son of Spring Farm King Pontiac 6th.
A 27.99 POUND 3 YEAR OLD daughter of Adventure Lad, out of a 27 lb. double granddaughter of Johanna McKinley Segis.
A 22 POUND 3 YEAR OLD daughter of Adventure Lad out of a 28 lb. granddaughter of Johanna De Colantha Champion.
A 27.95 POUND 3 YEAR OLD granddaughter of King Korndyke Sadie Vale, and her daughter by Sir Aaggie De Kol Acme.
A 28.89 POUND COW, a beautiful individual, and her two daughters by King Korndyke Pontiac.
A 22 POUND JUNIOR 2 YEAR OLD DAUGHTER OF KING KORNDYKE PONTIAC, bred to Sir Aaggie De Kol Acme.
A 20.36 POUND JUNIOR 2 YEAR OLD daughter of King Korndyke Pontiac.
A 23 POUND SENIOR 2 YEAR OLD daughter of King Korndyke Pontiac.
A 21 POUND JUNIOR 2 YEAR OLD daughter of King Korndyke Pontiac, bred to Sir Aaggie De Kol Acme.
TWO DAUGHTERS OF KING KORNDYKE PONTIAC out of a 26 lb. granddaughter of Johanna McKinley Segis.
A DAUGHTER OF KING KORNDYKE PONTIAC out of a 25 lb. daughter of Sir Skylark Ormsby Hengerveld.
A 16 POUND JUNIOR 2 YEAR OLD daughter of King Korndyke Pontiac and her full sister out of the same dam as a 34 lb. 3 year old.
A 25 POUND granddaughter of King of the Pontiacs, bred to Sir Aaggie De Kol Acme.
A 23 POUND DAUGHTER OF KING KORNDYKE SADIE VALE. Her 7 nearest dams average 33.86 lbs. butter in 7 days.
A 24.84 POUND 4 YEAR OLD daughter of King Korndyke Pontiac out of a granddaughter of King Segis Pontiac.
A 25 POUND JUNIOR 3 YEAR OLD daughter of Sir Aaggie De Kol Acme, out of a 23 lb. daughter of Dutchland Sir Korndyke Colantha.
A 24 POUND 3 YEAR OLD daughter of Star Youth Korndyke Wayne, bred to King Korndyke Pontiac.
A 21 POUND granddaughter of King of the Pontiacs, and her daughter by Sir Aaggie De Kol Acme.
A 25 POUND 4 YEAR OLD granddaughter of King Korndyke Sadie Vale.
A 24 POUND 4 YEAR OLD daughter of Cornucopia Korndyke Pontiac.

Look at These Ages!

About 25 heifer calves born in 1921; 69 heifers born in 1919 and 1920; 45 heifers born in 1917 and 1918; 18 born in 1916; 12 born in 1915; 6 born in 1914; and only 8 born in 1913 or earlier. Only 1 female in entire herd born in 1911 or earlier.

WRITE FOR A CATALOG. They will be ready March 26. This is the opportunity you have dreamed about to buy young females of Prince Gelsche Walker—Aaggie Acme—King of the Pontiacs breeding.

Every animal positively guaranteed to be a breeder; no tuberculin test certificates.

The owner is prepared to extend most liberal terms to those who make arrangements for credit with him prior to sale. Applications may now be made either in person or by letter to FRED W. KIESEL, California National Bank, Sacramento, Calif.

Auctioneers:
Col. Ben. A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

43, Anoakia Korndyke, Nov., 1916, 30.73 lbs.; Bridgford Holstein Company, Patterson, $800.
44, Anoakia Cedarside Burke, Dec., 1916, 19.87 lbs.; Fred Hartsook, $550.
45, Anoakia Burke Cornucopia, Dec., 1918; Burr Farm, $900.
46, Prince Walker Cornucopia 15th., Nov., 1919; Albert Meister, Sacramento, $500.

Consigned by R. C. Sturgeon, Tulare

47, Miss Beryl Abbekerk, Mar., 1919; A. W. Morris & Sons, $350.
48, Helen Burke Abbekerk, Mar., 1919; Los Angeles County Farm, $400.
49, Clothilde Pontiac Segis Abbekerk, Mar., 1919; A. E. Green, $375.

SAVE THE HARNESS AND SAVE MONEY

IF there ever was a time when a farmer could afford to neglect proper care of harness, that time is long since passed and nowadays with leather "sky high" (and hides almost unsalable) the thrifty farmer will do well to spend a few of the rainy days in going over his horse gear. Some very practical suggestions as to the care of harness are offered in a recent government bulletin, from which we quote:

Harness made of good leather and heavy enough for the work required of it will last for many years if cared for properly. It is more economical to buy harness that is too heavy than to buy that which is too light for the work. With good care, harness of the proper weight and quality will last at least 15 years, and in many cases harness used on the farm has been in service for 25 years or longer. On the other hand, the department of agriculture has received many reports, especially from the Southern states, showing that harness lasts only from two to five years. This should not be so. It means that the harness used is too light, of poor quality, or is not properly cared for.

Select harness with care. See that it is well made. Make sure especially that the reins, breeching, holdback straps, tugs or traces, belly bands and yoke straps are sufficiently heavy and strong for the work required. A runaway team cannot be controlled with weak reins, nor will weak tugs and straps stand heavy work.

No portion of the harness should show cracks on the grain side when the leather is sharply bent. New leather that does this is worthless for harness or belts, and old harness or belts showing cracks are deteriorating and will soon fail if subjected to heavy loads. Since strong acids prove injurious to harness leather in time, it is to the purchaser's best interest to buy harness which does not contain such materials. Grease in moderate quantities, up to 20 per cent, protects, preserves and strengthens harness leathers. More than 25 per cent is not necessary.

Neglect of harness results in injury that greatly lessens its durability. The sewing, which should have been done with strong waxed linen thread, must be kept in good condition. All buckles should remain solidly in place. It is advisable to wash and oil harness frequently.

For washing, use tepid water, a neutral soap, such as castile or white toilet soap, and a sponge or fairly stiff brush. Hardened grease is very conveniently removed by scraping with a dull knife. Rinse in clean, tepid water and allow the harness to hang in a warm place until it is no longer wet, but still damp. Then oil it and leave it in a warm place for 24 hours before being used. Harness should be oiled or greased while still damp, otherwise it may take up so much grease that it will pull out of shape or take up sand and grit, which will injure it as well as spoil its appearance. Harness should never look or feel greasy.

Neatsfoot or castor oil or a mixture of these with wool grease is good for driving harness. For heavy harness use a mixture of tallow and cod oil, or neatsfoot oil and tallow, or a mixture of any or all of these with wool grease to make a paste having about the consistency of butter. Apply the grease lightly to driving harness and liberally to work harness. Rub the oil or grease, warm to the hand, thoroughly into the leather while it is still damp from the washing. After the harness has hung in a warm room over night, remove with a clean, dry cloth the excess of oil which the leather is unable to take up.

In case the oils and greases mentioned are too expensive or too difficult to obtain, they may be mixed with not more than an equal quantity of heavy mineral oil, petrolatum or paraffin, or a mixture of these substances. In no case, however, should any grease or other preparation containing mineral acids or oxalic acid be used on harness or belts. No matter how highly such preparations may be recommended, avoid them. Their use will hasten the rotting of the leather.

WHERE HORSES COME FROM

Ninety per cent of the 25,000,000 horses and mules in the United tSates are on farms, and only about ten per cent are in cities, towns, villages and other non-agricultural work, according to advance figures of the 1920 census.

It is natural that the ten central states of the great corn belt, Ohio, Indiana, Illinois, Iowa, Missouri, Kansas, Oklahoma, Nebraska and the two Dakotas, where coarse grains are raised in plenty, should be the great reservoir of horse and mule production, rearing approximately three-fifths of all the horses and mules in the country.

The farmers of this section producing horses and mules supply their own needs, furnish work stock for adjoining farms where horses and mules are not reared, also the heavy drafters, wagon horses and expressers wanted in cities, towns and villages, and the farm chunks for eastern states where horse and mule production is not so common.

Pennsylvania and the states east and north do not produce one-fourth of the work animals they use and are constantly drawing on the central west for their work stock. Many of these are farm chunks sold directly to eastern farms, while others are horses produced and worked on the farms of the Mississippi valley until five or six years old, then passed to eastern cities, where, after six or eight years of service, they are re-sold as sore-footed, city worn horses to dealers who sell them at a very nominal figure to farming sections of New England to work the balance of their days. Such horses represent a complete cycle from farms to cities and back to farms again. It is more true now than in the past that the good horse or mule pays a profit to the producer, the dealer and ultimate user, while the poor one loses money to all concerned.

KNOW YOUR COW

If it were possible to limit the number of requisites of success in dairydom to one, that one would be "Know your cows," says Thomas M. Olson, instructor in dairy husbandry at South Dakota state college. Heavy feeding, or feeding a balanced ration does not assure success, although it will increase somewhat the production of the dairy herd. Pure bred dairy cows do not guarantee success, not even pure bred cows from high producing ancestry. Expensive dairy barns and equipment will probably make dairying more interesting, and increase somewhat the total production, but it is not a requisite for success. Many great dairy cows have been developed and have produced wonderful records in barns that would not measure up to the standard so far as up-to-date dairy barns go.

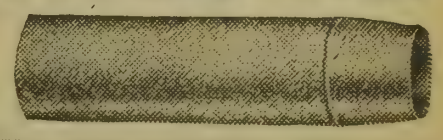
No dairy cow has ever produced her maximum unless her feeder knew her. Knowing her means more than simply calling her by name and reciting the names of her ancestors. It means understanding her every need, desire, and condition. For after all, the dairy cow is an individual, and as such possesses individuality.

It seems well nigh unbelievable that dairymen will continue groping in the dark on this all-important matter, when by means of a pair of scales, a Babcock testing outfit and a little work, every dairyman could know what each cow in his herd produced, and thus have a sound basis on which to feed and judge the individual merits of each cow in his herd.

Thomas L. Matkins of Salt Lake City and Ross B. Matkins of Madera have established a new herd of Herefords in Madera County with 160 head of registered cattle from the Matkins herd of Idaho.

SURFACE IRRIGATION PIPE

PROMPT DELIVERY
Write for Catalog and Prices
Manufactured by



Woolwine Metal Products Co.
Eighth St. & Santa Fe Ave., Los Angeles, Cal.

Look About You

and note how many successful Holstein breeders and dairymen have at the head of their herds sons of King Mead of Riverside, Prince Gelsche Walker, and Segis Pontiac De Kol Burke, or bulls out of daughters of these sires.

Every one of these bulls has had one or more world record daughters, but it is not alone because of a few spectacular individual records that their blood has gained so high a place in the records of the breed.

PRINCE RIVERSIDE WALKER

A sire that carries the nick of breeding that has produced an outstanding group of individuals and producers.
His sire, PRINCE GELSCHE WALKER, has a list of daughters and sons almost too well known in California to require description here. His best known daughter is the great Miss Valley Mead De Kol Walker, around which is being built a large and important breeding group in a number of high class herds.
His dam, AAGGIE ACME OF RIVERSIDE, may well be regarded as one of the great producers and reproducers of the breed. With a production of 1054 lbs. butter in one year at 11 years of age, and a former record of 808 lbs. in year, she ranks as one of the foremost cows for two year production. She is the dam of Aaggie Acme of Riverside 2nd, whose production of 1331.78 lbs. butter in one year is the world's strictly official record. She also produced over 2000 lbs. butter in two years, and is in turn the dam of Miss Aaggie Acme Burke, the heifer that made 1034.66 lbs. butter from 24338.9 lbs. milk in one year as a first calf junior 2 year old, and this year as a junior 4 year old made 35.78 lbs. butter from 726.4 lbs. milk in 7 days. She in turn is the dam of the $41,000.00 bull King Korndyke Pontiac Acme.
The transmitting quality of the blood behind PRINCE RIVERSIDE WALKER is abundantly proven on both sides and his sons and daughters may be expected to continue to hand down production.
The first daughter of PRINCE RIVERSIDE WALKER to finish a yearly record, Blanche Nudine Clothilde Walker, has made 865.4 lbs. butter from 21,786.3 lbs. milk in 365 days as a junior 2 year old, the highest butter record for age in California excepting one, the record of Miss Aaggie Acme Burke.
PRINCE RIVERSIDE WALKER has a beautiful group of daughters and is owned by

W. J. HIGDON
TULARE, CAL.

The past, present, and ever increasing popularity of these families and the blending of their blood is based more largely upon the consistent way in which large numbers of their family groups have made large records not only for one year but for two or more years, until their worth as producers and reproducers has a standard value.

This breeding has been the foundation of success with many breeders in California already, and other breeders are now building firmly and soundly upon the same foundation.

Perhaps your own herd can be strengthened by an infusion of this blood through a bull of this breeding at its head, and the popularity of these blood lines has a definite dollars and cents value that is well worth considering.

We are having an unusually heavy demand for bulls, and whether you want a high class sire to head a registered herd, or a bull of known quality to improve your herd of grade dairy cows, it would be well to get in touch with us promptly. Your letter will receive prompt attention, and your visit to our herd is invited.

A. W. Morris & Sons Corporation
Woodland, California

55 Registered Guernseys 55

AT PUBLIC AUCTION

Hollow Hill Farm, Colton, Cal.

Thursday, April 28, 1921

Mr. G. W. Wilder, President of Butterick Publishing Company, New York, has instructed us to make a complete dispersal of the top notch herd of registered Guernseys on his Hollow Hill Farm, Colton, Calif., as he finds himself unable to spend as much time in California as he contemplated at the time Hollow Hill Farm was developed and the herd established.

The production records of this herd stand high in the records of the breed, and the blood lines represent some of the most famous and popular families.

The wonderful show ring record of the herd amply illustrates the high degree of type that is present throughout the herd.

The female offering includes imported and American bred cows, bred heifers, and a very choice lot of open heifers, some nearly ready to breed.

The bull list is unusually attractive, including a number of young bulls, some of service age, that are of real herd heading caliber, rated on pedigree and individuality both.

This herd has been operated under the requirements of a certified dairy and is entirely clean, only one reactor to the tuberculin test having been found during the five years the herd has been tested by a deputy state veterinarian.

Every animal over six months old is tuberculin tested and sold subject to retest by the buyer; every animal guaranteed to be a breeder.

Catalog free on request. Write for one now.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Cal.

DISPERSAL SALE

135 Federal Tested Registered Holsteins

Toyon Farm Association

LOS ALTOS, CAL.

April 20-21, 1921

This offering consists of 115 young females and 20 bulls.

There is a wonderful quality of breeding present, including many daughters of Sir Pietertje Ormsby Mercedes 43d, Sir Pietertje Ormsby Canary, Sir Aaggie Mead, Sir Korndyke Ormsby Piebe, Sir Bessie Fobes Tritomia, Mutual Fobes Longfield De Kol, Sir Ormsby Burke Segis, and others of corresponding worth. THE BRED FEMALES are mostly in calf to Sir Pietertje Ormsby Mercedes 43rd, Sir Pietertje Ormsby Canary, and Sir Aaggie Mead.

SIR AAGGIE MEAD is in the sale. He is one of the greatest young sires ever led into a sale ring in the West. Sired by Sir Aaggie De Kol Acme, and out of Aralia De Kol Mead who made a strictly official record of 1215 lbs. butter in one year, he combines blood lines of the highest worth and popularity. He is a high class individual and his first calves are very satisfactory.

DAIRYMEN, by all means attend this sale if you are in need of a young bull. There are 20 to select from and they are good ones.

BREEDERS, besides Sir Aaggie Mead there are a number of young bulls in this offering that are the sort to head purebred herds, representing lines of breeding not available in the west except in this sale.

Everything over six months old tuberculin tested by Federal Veterinarian and individual certificates furnished; every animal guaranteed to be a breeder.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Calif.

Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

BURR FARM

Box 220, Route 2. East 26th and Downey Road, Los Angeles

Cost of Milk Production Formula

The dairy section of the Michigan experiment station has made an extensive study of the cost of milk production covering a period of nine years. Investigations have been carried on on 225 farms, representing 3,730 cows. The milk produced on these farms was either for city trade or condensing purposes.

A summary of these investigations is presented in the following formula, which gives the number of pounds of feed and the number of hours of labor as well as the percentage of overhead costs in terms of feed and labor cost required to produce 100 pounds of milk.

A FEED AND LABOR FORMULA FOR FIGURING THE AVERAGE YEARLY COST OF PRODUCING 100 POUNDS OF MILK

FEED	Amount	Price	Cost
Home grown grains	11.0 lb.	@ $	$
Commercial feeds	15.6 lb.		
Hay	31.1 lb.		
Other dry roughage	15.9 lb.		
Silage (corn)	114.5 lb.		
Other succulent feed	7.0 lb.		
Bedding	12.8 lb.		
Pasture	.3 wk.		
LABOR			
			$
Manual labor	2.23 hr.		$
Horse labor	.10 hr.		
Transportation: Hauling milk			
			$
OTHER COSTS			
1. Taxes, interest, insurance and depreciation on buildings, cattle and equipment			
2. Losses due to death	24.77% of feed		
3. Veterinary service and drugs	and labor costs.		
4. Bull costs			
5. Miscellaneous costs			
6. For management and risks			
			$
Net cost of producing 100 pounds of milk			$

In figuring the above such credits as manure and calves have been deducted from the overhead percentage factors.

To determine the cost of milk production for each month multiply the average yearly cost by the percentage of deviation factors given in the following: January, 112.7; February, 108.6; March, 97.6; April, 100.8; May, 75.8; June, 61.5; July, 85.2; August, 108.3; September, 115.8; October, 115.8; November, 121.9; December, 120.8.

To apply this formula the farmer should use the average price of feed and labor prevailing in his community for a period of time as the amounts of feed and labor represent the amounts required for average yearly production. All prices of home grown feeds should be determined at what the feeds are worth in the farmer's barn, including the cost of any necessary grinding of the grains, while purchased feeds are valued at their actual cost.

Average yearly farm labor prices should be the basis for figuring the cost of man labor. The price of horse labor is based on the cost of maintaining a horse throughout the year; this will range from 15 to 20 cents per hour's work on most farms. The transportation charge may be figured to the shipping station or the receiving plant. All the other costs are based on the percentage of feed and labor costs. In order to determine the cost of 100 pounds of milk, first determine the feed and labor costs, then multiply the results by .2477, which will give the overhead cost. The sum of feed, labor and overhead costs is the cost of production.

To determine the monthly costs multiply the yearly cost by the percentage of deviation factor for the particular month desired.

Why Keep the Other Eight Head?

By Frank D. Tomson

Some months ago the well known auctioneer, H. S. Duncan, was approached by a western Iowa farmer with the query, "What can you get me several registered Shorthorn cows for, just ordinary cows, no fancy breeding, but fair individuals?" He stated that he operated a small farm and was then keeping 12 head of grade cows, but thought of putting in a few full bloods and working the grades off finally.

Col. Duncan asked what price he had been receiving for his calves from the 12 grade cows and at what ages he had been turning them. The farmer indicated $50 as about the price he had been able to get at around 12 to 15 months of age. "They are good stuff and now that the prices are running pretty strong, I can figure on that much," was the rather confident assertion of the farmer. Then he asked again what the registered cows would cost. "You understand I can grade cows and probably a little get around a hundred dollars for these more," he added.

Col. Duncan replied that such cows as he had indicated would cost around $300 per head at the plane of prices at that time. "Well, what would the calves bring then Maybe I had better keep my grades," was the farmer's comment.

"The calves at the ages you sell your grade calves, and this is about the best age to market them, would bring $150 per head."

The farmer did a little mental figuring and then said, "Why, according to that, I would be getting as much for the four calves from the full blood cows as I get for all of the 12 from the grades."

"Yes, that's what you could do."

"But, let's see now, you say these cows will cost $300 apiece. That would be $1,200 for four. My 12 grade cows would sell for $1,200, so I would be paying as much for the four registered cows as all of my grades would bring."

"That is correct," was the response, "and you just stated that the four registered calves would bring as much, using my figures as a basis, and they are conservative, as your 12 grade calves."

"By George, I had almost overlooked that," said the farmer, "and now I'm wondering what I've been keeping these other eight head for, with the cost of feed where it is."

This is about the nub of the whole business. It is a matter of money going out and money coming in. The proportions referred to in this conversation will apply generally. If the prices go up they hold good. If they go down, the ratio still stands.

The food consumption per head will run practically the same with the grades as with the pure breds. The space required per head will be the same in either case. When the totals are all footed up, the advantage is all with the pure breds. It is a farmer's

problem, one that is easy of solution. The business of growing pure bred Shorthorns is quite as simple as that of growing grades. There is the charge of $1.25 for recording each individual, and the keeping of the pedigree. That's all, both small items. Any farmer who can fix the pump or drive a team can look after these items. There is nothing complicated about it.

This matter of the cost of keeping a cow has been causing a good deal of study for a dozen years past. Just now it is the real issue on any stock farm. It has only one solution and that is, the kind that will pay for their keep and make a profit besides.

"Why keep the other eight head?" is the question to be answered.

DAUGHTERS OF PURE BREDS GAIN OVER DAMS

To acquaint livestock owners with the benefits resulting from the use of pure bred sires the bureau of animal industry, United States department of agriculture, has prepared a collection of specific facts and figures. The following incidents have just been made public:

An inferior dairy bull, Brown Bessie's Register, not only failed to increase the milk and butterfat production of his daughters but actually lowered them.

The first five of his daughters to freshen produced in a year 2,140 pounds less of milk and 87 pounds less of butterfat than their dams.

Compared to this record is the report on three daughters of Sultana's Virginia Lad, a good pure bred bull. When these heifers freshened they gave the following average yearly production as two year olds: Milk, pounds, 9,676, butterfat, pounds, 519, while their dams averaged 4,992 pounds milk and 269 pounds butterfat.

Attention is directed to the fact that a bull's influence is equal to that of a herd of 20 cows. In a year's time the cow influences but one offspring, her own calf, whereas the average bull, siring a score of calves, influences each calf.

Calves sired by good pure bred bulls are worth at least one-fourth more than calves of the same age sired by average grade bulls. The increased value of the calves sired by the pure bred bull in one season will nearly balance the difference in purchase price of a good pure bred bull over a grade.

The value of pure bred beef bulls over the common stock is being conclusively shown by a 30 year demonstration at the Sni-a-Bar Farms.

In 1913 the best of the steers sired by common bulls brought $2.25 per hundredweight, or a total of $24.91 under the top price. Two year old steers of the first cross from these cows sired by good pure bred bulls brought the highest price ever paid at that time of the year in Kansas City. They sold for 40 cents per hundredweight, or a total of $5.22 per head above the top price of bulk shipment.

Recent sheep management cost accounting on Missouri farms brought out the fact that where good pure bred rams were used the net profits averaged 50 per cent more than the net profits from flocks where ordinary grade rams were used.

WOOL MARKET NOTES

A cargo consisting of about 5,000,000 pounds of South American wool was unloaded in Boston, January 20. On the same date two other cargoes totaling approximately 14,000,000 pounds were reported en route to the same port due to arrive within a few days.

The market has shown some improvement during the past week. Some sales have been reported, principally of fine, French combing and clothing grades.

A further indication of the improved tone in the wool market is a marked increase in the number of requests from manufacturers received by the United States bureau of markets asking for names and addresses of wool pools and the amounts of wool held by each.

Colorado.—A large percentage of the 1920 wool clip of the state remains in the hands of producers.

Several associations and wool pools have shipped their holdings to commission firms in Kansas City, Chicago, and eastern points. The wools which remain in the hands of local organizations are being offered for sale at prices ranging up to 50 cents on a flat basis.

California.—Wool growers have organized associations in various sections of the state and plan to market the clip cooperatively.

Louisiana.—A considerable amount of the wool produced in Louisiana remains in the hands of producers. Holdings of certain pools are being offered for sale at 35 cents on a flat basis.

New Mexico.—Much of the wool produced in this state has been consigned to commission houses.

Pennsylvania.—It is reported from Western Pennsylvania that dealers are offering 33½ cents per pound for Delaine wools but no sales have been consummated.

Virginia.—Much of the 1920 wool clip remains in the hands of producers. Farm bureaus and associations of growers are acting as selling agencies for the producers in various sections of the state. The holdings of several pools have been graded in accordance with the United States bureau of markets tentative wool grades.

Why So Widely Used?

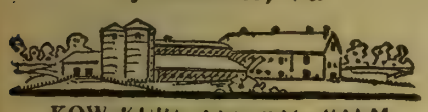
There is only one reason why Kow-Kare (formerly called Kow-Kure) is so generally used by dairymen all over the country.

Merit, proven time after time, in treating the ills of milking cows is the one answer.

By assisting the digestive and genital organs to function normally Kow-Kare throws off diseases and is a reliable treatment for Barrenness, Abortion, Retained Afterbirth, Scouring, Lost Appetite, Bunches.

Buy Kow-Kare in 70c and $1.40 packages from feed dealers, general stores or druggists.

DAIRY ASSOCIATION CO.
Lyndonville, Vt.



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JERSEYS

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Offers some excellent young bulls ready for service. Sired by Japs Perfection Owl. Out of cows with Register of Merit records. Also a few heifer calves.

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Young Jersey Bulls
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One at the head of your herd will pay big dividends on his cost. Write to

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For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

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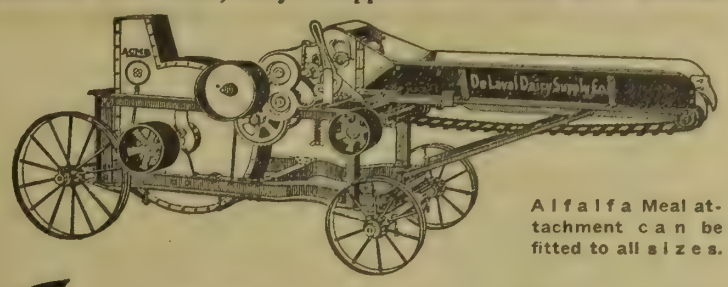
The ACME Cutter
Combined Silo Filler, Hay Chopper and Alfalfa Meal Machine



Alfalfa Meal attachment can be fitted to all sizes.

Save 10% to 30% of Your Feed

The saving of feed by cutting it up with an Acme Cutter has been demonstrated by many Pacific Coast Dairymen to be more than enough to pay for the cutter in one season.

It is the habit of stock, whenever given an abundance of feed, to pick out and eat only the finer and more palatable portions; nosing out and wasting weeds, and foxtail and the stemmy part.

This loss ranges from 10% to 30%, the amount depending upon the quality of the hay and the method of feeding.

Chopped Hay, with careful handling, will keep five cows, while the same weight of loose or bulk hay will only keep four. Waste is eliminated by chopping your hay.

Men who dairy on a business basis find that chopped feed is the surest way to utilize to the fullest extent the feed value of the entire hay crop.

The durable steel framed Acme will earn its cost every season chopping hay and at the same time provide you with a Silo Filler of superior cutting ability and an Alfalfa Meal Machine.

A FEW SPECIAL FEATURES OF ACME CONSTRUCTION

All steel triple frame construction.

Center hung blower fitted with six arm blower fan that will not clog.

Big range of pulley sizes permits change in speed of cutter head and blower to suit length of cut and heighth of silo. All gears are well guarded.

Soft steel shear pins through fly wheel and pulley prevent accidents to machine or operator. Reverse lever with gears enclosed in housing. No ratchet to stick at critical moment.

Immediate deliveries.

Don't Buy a Cutter Until You Know All About The Acme

CATALOG FREE UPON REQUEST

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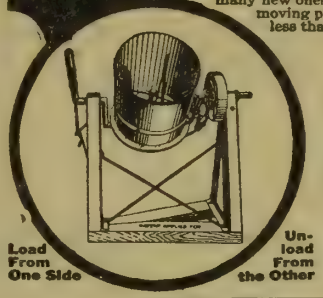
Load on one side, unload on the other with this New and Superior one man mixer. A great labor saver and money maker. Perfect mix. Does work of $500 mixers. Has all conveniences of any mixer and many new ones. Simplest in construction. Easiest to move. Lightest. No exposed moving parts. Shaft revolves in bath of oil. Mixes over 3½ cu. ft. batch in less than a minute.



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Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

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A good Young Boar (Registered) Sire, Winsor's Giant Orion 154117A, Dam Models Lassie 703224.
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S. C. White Leghorn Baby Chicks from heaviest laying (Hoganized) stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June $5.00 per 25, $9.00 per 50, $14.00 per 100. Special prices 500 and 1000 lots. Largest electric hatchery in the World. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh Street, Petaluma, California.

Hillview Buff Plymouth Rocks — An American bird for Americans. Splendid layers, fine broilers and fryers, beautiful in color, the ideal for the farm, city lot or show room. Blue ribbon winners 1920 in Oakland, Riverside and San Diego shows. **Eggs for hatching from our best matings** $5.00 per setting of 15, commercial eggs $3.00 per setting. Hillview Poultry Ranch, Chatsworth, California.

Sly's Old Mission Strain Rhode Island Reds. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. SLY, 1642 (D) Middleton Place, Los Angeles, California.

Baby Chix—S. C. White Leghorns from open range standard bred parent stock of utmost utility. Protect yourself in having your order booked early. Prices, etc., on application. I. X. L. Hatchery, 519 Upham Street, Petaluma, Sonoma County, California.

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Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks — Barred Plymouth Rocks and Rhode Island Reds in 25, 50 and 100 lots 20c each. Hatching eggs $2 per 15. We ship by Parcel Post, pay all charges. Write for circular. Hargett & Son, Route 2, Compton, California.

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. Eggs from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

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White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, California.

For Sale — Hoganized White Favorolle with laying records 230-240. Setting of 15 eggs $5 and $10. White Favorolle Poultry Farm, Andres Stammerjohann, Ontario, California.

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Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Single Comb Black Leghorns—Combine beauty and utility. Why? Write for circular. Hatching eggs, etc. Fred Turnbull, Box 108, Alameda, California.

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Hoganized Rhode Island Red Eggs for hatching, $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Baby Chicks—Can book a few more orders S. C. White Leghorns, McFarland strain. Mrs. F. C. Reineking, Inglewood, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jesch, Fallon, Nevada.

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25 to 5,000
PARCEL POST or EXPRESS
FULL COUNT—SAFE DELIVERY
GUARANTEED Selected heavy laying HOGANIZED
Mcfarlane, Tom Barron, WHITE LEGHORNS, Anconas, Barred Rocks, Rhode Islands, Minorcas, Buff, Brown Leghorns, ORDER EARLY. Write for prices.
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White Leghorn Hatching Eggs now hatching 75%. Bred for over ten years for vigor and heavy egg production. During high priced season we shipped more eggs to market than any other ranch near. We have more hatching eggs than necessary to fill contract with big hatchery which has taken our eggs for several seasons, which we will sell during March and April in 100 and 1000 lots at $6.00 per 100. No baby chicks. Verity Egg Ranch, 511 West Broadway, Glendale, California.

Trapnested and Line Bred to Lay for seven generations. This is why our pen of S. C. WHITE LEGHORN pullets made such a remarkable record in the state laying contest at Santa Cruz last year. Scientific breeding for increased egg production has been our exclusive business for seven years and we have something to show for it. Correspondence solicited regarding pedigreed breeding stock, chicks or hatching eggs. ENTERPRISE POULTRY RANCH, H. W. Boone, Chino, Calif.

For Sale—10,000 W. L. Baby Chicks every week from California's heaviest layers. Each year some customer reports 200 eggs average in large flocks from our pullets. Lay large eggs from the start. $14.00 per 100, $130.00 per 1000. Rocks and Reds $17.50, Pekin Ducklings 30 cts. We ship everywhere. Free circular. P. Cook Chick Ranch, Alhambra. P. O. Los Angeles. Rt. 3 Box 45.

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Get Chicks Now and have layers for next winter when eggs are high. Hatches every week. Prompt reliable service. Safe arrival of vigorous chicks from good layers guaranteed. Hatched by electricity. White and Brown Leghorn, R. I. Red, Barred Rock. Reasonable prices. Stubbe Poultry Ranch and Hatchery, Box 67-D, Palo Alto.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

White Leghorns—hatching eggs our specialty, produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the West. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R. 1 Box 29, Gardena, California.

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White Leghorn Baby Chix from heavy-laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Price for April, May and June, $14.00 per 100. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

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Baby Chicks — Can book a few more orders for early S. C. White Leghorn and S. C. Rhode Island Red chicks. Tupman Poultry Farm, Box 7C, Ceres, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

Partridge Wyandottes, some superfluous cockerels, well matured birds. Mrs. J. L. Dunn, Valley Home, California.

For Sale—White Wyandotte eggs, $2.50 per 15, $9.00 per 100. Mrs. Flora Cox, Anaheim, California.

Thoroughbred White Wyandotte Eggs, $1.50 per 15. Mrs. Chas. Dougherty, Norwalk, California.

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For Sale—Incubators (540 egg), Jubilee, Charters and Pioneer, equipped Charters Regulator, large oil tank, fire extinguishers; April delivery. Guaranteed perfect working order, priced reasonable. Three Hunter (American Petaluma) oil burning brooder stoves, 500 to 1500 capacity, nearly new and best condition, at bargain. Geo. Ellison, Campbell, California.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

Booking Orders For Eggs from our wonderful utility and prize stock of Bronze turkeys, geese, Pekin ducks, Muscovy ducks, White King pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, guineas. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

White, Light Brown and Dark Brown Leghorn Hatching Eggs from highest class exhibition stock, competitive with any flocks in the United States. Splendid layers. Eggs $3.00 per 15, $15.00 per 100. From best pens, $5.00 per 15. Mahajo Farm, P. O. Box 597, Sacramento, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Baby Chicks—White Leghorns, 10s, 100s, 1000s hatched right in $60,000 brick and concrete hatchery from Hoganized, Trapnested heavy layers. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Eggs from Hens that lay and pay. R. I. Reds and Brown Leghorns. Fertility guaranteed. Price low. Eva Conklin, 1445 Portola Avenue, Los Angeles, California. Phone 351283.

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

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ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

Grape Wild Farm—Berkshires, Guernseys, Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

POLAND-CHINAS

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

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Two Young Hampshire Boars—Ready for service. Perfectly Belted. H. R. Tomlinson, R. No. 4, E. Bakersfield, California.

Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

CHESTER WHITE

One Fine Chester White Boar for sale. Write Mrs. L. E. Zimmerman, Gardena, California.

RABBITS

Pedigreed Fleming Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California

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Mammoth White Pekin Duck Eggs for hatching. $1.00 per dozen. A. Surtman, Petaluma, California.

LIVESTOCK

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

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A MONEY SAVING OPPORTUNITY FOR THE RANCHER SEEKING THE BEST EQUIPMENT AT THE LOWEST POSSIBLE PRICES.

This machinery is all in good condition and may be inspected at our plant in Los Angeles. Come in AT ONCE and save half the money you would have to spend for new equipment.

HERE'S WHAT WE HAVE FOR YOU:

No. 51 Enterprise Meat Grinder. Belt driven. Has been used very little. In first class condition.
Two Wooden Tanks, 12,410 gal. capacity each, 140-in. diameter by 146-in. high. Two-inch material. Straight side with ⅝-in. round hoops. One tank of Douglas Fir, the other of Redwood. About three years old and in excellent condition.
One Ross Automatic Feed Cutter No. 16. Belt driven. No blower. Absolutely first class condition.
We have outgrown this equipment and are now offering them at prices which will get quick action. We leave Mr. Average Man judge the real dollar value he will get.

LOS ANGELES ICE AND COLD STORAGE COMPANY,
East 7th St. and Santa Fe R. R.
Los Angeles, California.

Beach Home and Chicken Ranch—Extra large lot 70x160 feet. Modern six room house having front and back halls, storage room, pantry and bath, with conveniences of gas, electricity and telephone. Brooder house for 600 chicks modernly equipped; garage; barn 10x20 for cow; artesian well with water piped into house under artesian pressure; strawberry bed, shrubs, lawn, garden.
Have five year lease on adjoining acre on which there is a new house with pens to accommodate 350 chickens and growing green feed. 115 hens now laying six dozen eggs daily and 135 pullets just starting.
This place on paved highway four miles from Oxnard, sixty miles from Los Angeles. Has good school, library and community church. Price $4,500.00. Address J. H. Pattison, Hueneme, Ventura County, California.

For Sale—Best Ranch Buy In State. A real money making fruit land investment, located in most desirable part of the famous Pajaro Valley. 340 acres, 75 per cent ideal fruit land; 40 acres in apples, cherries and apricots; 25 acres in grapes; annual fruit value $15,000; 2 sets buildings; delightful climate, no frosts; no irrigation; springs, well and brook. Settling estate, sacrifice price now $140 an acre. Get full details and photos. FARM & FOREST CO., 467 Main St., Watsonville, California.

For Sale By Owner—21 acre ranch of young Bartlett pear trees. River bottom soil. No alkali. Abundance of water. Small family orchard in bearing. Good improvements. Price $16,000. Terms: $6,000 down, $1,000 at end of 2 years, rest at 6%. Address: R. F. D. No. 1, Box 36, Escondido, California.

For Sale—Two hundred acre ranch. Good soil. Private mountain stream. Ninety acres alfalfa. Complete equipment, buildings, livestock and machinery. Address P. O. Box 103, Laws, California.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192, Indio, California.

For Sale—Beautiful residence lot, clear of incumbrance. Sightly location on High Street, Oakland, California. Address 1342 Sherman Street, San Jose, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

For Sale—11 Acre Olive and Orange Grove. For price and description write to owner. M. G. Davis, Oroville, Calif.

WANTED

Wanted—A few more members to join my colony sailing for Eastern Peru early the coming summer. Sail directly to land from New Orleans via Amazon River. Healthy climate; rich land; good market; suitable for white settlement. Send for booklet. Highest references. J. B. Shoenfelt, Box 631, Okmulgee, Okla.

Women and Men—Build up a profitable business for yourself selling Brown's Coffee. Quick seller, satisfaction guaranteed and repeats. You get commission on every sale. Write for full particulars and free trial offer. Dept. H, 3342 Fulton Street, San Francisco.

Wanted—Walnut grafting wood. Franquette, Mayette, Parisienne. Also guaranteed genuine Texas Umbrella seed. Monthan Bros., Box 686, Tucson, Arizona.

Wanted—Experienced Sorghum man with money. Interest in established plant. Best location for retail trade. Box 675, San Bernardino, California.

Want to Hear from party having farm for sale. Give particulars and lowest price. John J. Black, 116th St., Chippewa Falls, Wisconsin.

Wanted: A few more contracts for the growing of citrus nursery stock. Address R. F. D. 215, Upland, California.

Wanted to Buy—Combined side hill harvester—16 to 20 foot cut complete with motor. Box 5, Cultivator.

SCHOOLS AND COLLEGES

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Thorough, Complete and Practical courses in Civil, Electrical and Mechanical Engineering, Automobile Engineering and Machine Shop. One of the best equipped schools in the United States. No time wasted in non-essentials. Students do actual engineering work. Address Polytechnic College of Engineering. Oakland, California.

FOR EXCHANGE

For Exchange — 500 Acres, stock ranch. Owner, Box 25, Valley Springs, California.

SEEDS AND PLANTS

For Sale — Best rooted grape vines of Thompson, Malaga, Emperor, Sultana, Muscat and Fig Trees of Calimyrna, Black Mission, Adriatic and red wonderful Pomegranate Trees at cheap price. This stock is growing at Madera, Delano and Cutler. P. O. Box 605, Dinuba, California—S. K. Hahn and Company.

Rhodes Grass—The time is at hand for planting Rhodes Grass—The greatest land reclaimer — will grow fine on the worst alkali and hard ground and will soften it up and will crowd out Bermuda Grass. Imperial Valley Seed House, El Centro.

For Sale—Sweet potato plants; Jersey Yellows $4 per 1,000; White Southern Queens, Georgia yams or Pumpkin yams, $1 per 100. No personal checks. Ready now. B. F. Crutchfield, R. F. D. No. 3 Box 6, Santa Ana, California.

For Sale—500 Burbank Thornless Blackberry plants 20 cents, six for $1.00. 5,000 Arizona Everbearing and Brandywine crossed with wild strawberry plants (none better). I pay parcel post. B. E. Wilhite, Aguanga, California.

Tomato Seed—Improved Stone, San Jose Canner. 25 cents oz., $3 pound, postpaid. Stamps or Money Order. Thomas Murray, 3209 West Washington St., Los Angeles, California.

Tomato Plants — Chalk's .Early .Jewel grown from choice seed for my own use, more than I need, 15c per dozen. $1 per 100 postpaid. Wm. T. Mantz, San Luis Obispo, California.

R*O*S*E*S $1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue C. KAVAN NURSERIES, San Bernardino, California.

Brandywine Strawberry Plants from stock which produced $3,000 worth of berries from acre this season. Price reasonable. Lon King, 1158 West Fourth, Riverside, California.

Peas—"Blue Bantam" earliest and sweetest of all table peas. Heavy yielder, 15c per lb. SEVIN-VINCENT CO., Seedgrowers. Established 1860. 512 Washington Street, San Francisco, California.

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Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch —767 S. Central Avenue, Los Angeles, Cal.

Napier Grass—A wonder for the South. Sprouted Joints, 40, $1.00; Divided Crowns, 25, $1.00. Postpaid and parcel insured if prepaid this week. Satisfaction guaranteed if instructions followed. Tinel Grass Ranch, Yucaipa, California.

Certified Strawberry Plants, New Oregon, Magoons $5 thousand, guaranteed or money refunded. J. Christiansen, Canby, Oregon.

50,000 Vines, rootings, Thompsons, Emperors, Sultana, Muscats, $30.00 a 1000. Fruit trees, berry plants, farm and garden seeds. Box 501, Fowler, California.

For Sale—Millions of tomato, egg plant, celery, pepper, rhubarb and other plants. L. C. Johnson, 795 W. 7th Street, Pomona.

For Sale—Dwarf Red Milo Seed. Selected stock. Heavy producer. Eight cents per lb. delivered C. O. D. or check. C. E. Newman, Chowchilla, California.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination. 25c per lb. Aurora Seed Mill, Stockton, California.

For Sale—Limited supply of mountain grown Strawberry plants. Write for particulars. B. Bryan, Camp Baldy, Cal.

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Durango Cotton Seed—See display ad of Boston Land Company in this issue.

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For Sale 50 rebuilt windmills, 50 new and used tanks, 50 brass cylinders, rods, plunger pumps 1-in. to 30-in. capacity.
Why pay more? When you can save so much these times. Send for bargain sheet. Demmitt Co.'s. Office 120 North Main, Los Angeles. 15191.

For Sale—Lisle Powers improved motor driven Well Boring and Drilling Machine up to 24 inch hole, 500 feet. Everything complete. Sacrifice. Sickness. Mrs. I. W. Geer, Woodland, California.

For Sale—Complete plowing outfit, two International 8-16 tractors, plows, double disk; 20 ft. harrow, wagons and tools. Price very reasonable. G. F. Crowell, Box 623, Newman, California.

For Sale—One No. 6 centrifugal pump—35 ft. 8 in. suction discharge and check valve complete. A bargain. Jas. Hughan, Downey, California.

For Sale—16 H. P. and 3 H. P. Stover Gas Engines. First class condition. Reasonable. G. H. Lillard, Norwalk.

TRACTORS

Merry Garden Tractors — Circulars and demonstration free. Dwight E. Smith, Southern California Distributor. 1645 North Normandie Avenue, Los Angeles.

For Sale — Waterloo Boy Tractor, Good Condition. Phone 724-R-1, Alhambra Exchange, San Marino Ranch, San Gabriel, California.

For Sale: Lambert Tractor best of condition—terms if desired. Baker Ranch, Piru, Cal., or 2903 S. Normandie, Los Angeles.

For Sale—International tractor, good condition, $550. Stored at Hemet Garage. Ellen Stout, Hemet.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents

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Our fine dormant trees. Our clean-up sale is now on and you can well afford to plant at prices we are making on French, Sugar, Silver and Robe de Sargent prunes, Bartlett pears, plums, Jap. persimmons and other trees, grapes and berries. Write today list of your wants. Don't send any money, we ship on approval. J. F. MILLER & SONS, Healdsburg, California.

For Sale—All kinds of citrus nursery stock, one and two year buds, fine roots. Y. Yamaguchi, Upland, 10th Street and Cucamonga Avenue. Phone 386-W.

Home Grown Budded Eureka, Placentia and Chase Walnut Trees, 50 cents and up. None better. Choice lemon trees $1.00 each. Balled. Bartlett Pear, etc., 50c each. Trees of all kinds for sale. We deliver. Tel. 122-J, Burbank, California. Opposite High School (West), Burbank, California. Snyder Nurseries.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

Walnut Trees of dependable varieties and quality grafted on Northern California Black Walnut, carefully selected scions from best bearing trees. Good condition for planting now. Placentia, Perfection and Eureka at Reduced Prices. Los Nietos Valley Nursery, Phone 692, Downey, California.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

Cling Peaches, Apricots, Almonds — All varieties and sizes. Concord. Mayette. Franquette Walnuts, Cory Thornless Blackberry; large stock. State your wants and let us quote. Ekstein Nurseries, Modesto, California.

Walnut Trees—Closing out balance Placentia and Eureka grafted on black root; choice trees; reduced prices. Terms to responsible parties. Nurseries Ventura and Los Angeles Counties. R. E. PIERCE & A. G. SNOW, Oxnard, California.

Budded Avocado Trees. Leading varieties. Order early to secure best selection. Dr. Stonebrook's Avocado Nursery, 15 N. Raymond Ave., Pasadena. Phone Colorado 208.

5,000 Valencias; 2,000 Eureka lemons; 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

We Have Deciduous and Citrus Trees, berry plants, tomato plants and garden seeds. California Wonder Corn and Elephant Grass are big producers. Send for Catalog. Bishop's Nursery, Highland.

For Sale — 10,000 Florida Sour Orange Seedlings, very fine. Two year old Valencia Orange and Eureka Lemon Trees. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Florida Sour Seed-Bed Trees, six to twelve inches high. Straight roots. Stocky trees. Highest quality. L. A. Tuttle Nurseries, Route 1, Pasadena.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

For Sale—Three thousand Phillips cling peaches; also a few Tuscans. Special prices to clean up. Burke's Nursery, Lodi, California.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles. Telephone Boyle 1800.

TURKEYS

Turkeys — "Goldbank Boy." Champion Giant Bronze young tom. First Prize Cockerel at the New York, Madison Square Garden Show, the premier show of America, with 4311 poultry exhibits, held January 18th to 22nd, 1921, has just been imported by us, arriving at our mountain ranch February 26th. His sire, "Goldbank VIII," was grand champion at the same show, winning first in Cock class. We have mated this young champion bird to a limited number of twenty and twenty-one pound fancy, highly colored, eastern bred hens, also just imported. No eggs of this strain for sale this season at present.
A thirty-six pound yearling son of "Copper King V," the famous thirty-eight pound yearling giant bronze grand champion of the 1919 Madison Square Garden Show, will head our other flock—having mated him to our choice twenty pound hens. Egg prices reasonable. Two young toms of this last strain on hand for immediate delivery. For further particulars address: Bronze King Mountain Farm, Box 308, Calistoga, Napa County, California.

Several Varieties — Mammoth Bronze, Bourbon Red, White Holland turkey eggs, $6.00 dozen; choice prize stock. White Guinea eggs $2.50 setting. Houdan $2.00 setting. Chicks to order 20c. White Muscovy (quackless) duck eggs $1.50 dozen. Grand turkey gobblers for service $2.00 per hen. One mating fertilizes one whole clutch of eggs. Parcel post 25c. B. Hocking, 541 E. 33rd, Los Angeles, California.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St., Pomona, California.

TURKEYS

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

"Goldbank" Strain — Giant Bronze turkey toms. Partridge Plymouth Rock chickens. Chicken and turkey eggs in season. M. M. Reiman, Planada, California.

Turkey Eggs—Mammoth Bronze — Write for folder. Guarantee stock built up by 5 years of untiring effort. Andrews & Andrews, "Bo-K-Haunt" Hemet, Calif.

For Sale—White Hollands, Quality, Size and Vigor. Tom $15, eggs 50c each. Blue ribbon flock header. L. A. Robinson, Hemet, California.

Mammoth Bronze Turkey Toms — Have two good cockerels to sell. Mrs. C. W. Keys, El Monte, California.

CATTLE

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17 GUERNSEY BULLS

of all ages out of imported and high record dams will be sold in our big dispersal sale on

April 28

HOLLOW-HILL FARM—Colton
Management
California Breeders Sales & Pedigree Co.
C. L. Hughes, Sales Manager,
Sacramento, California.

Ayrshire Bull—Finlayston Sunset 24861—Age one year. Superior breeding with excellent Ayrshire dairy type. Write for price, pedigree, etc., or call. J. F. BUTTERFIELD CO., Breeders of Registered Ayrshires since 1869, 277 Brockton Ave., Riverside, California.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

For Sale—Jersey bull 6 months old out of imported bull Helen's Oxford Son. Price $75.00. J. R. Carhart, Fullerton, Calif.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Ayrshires—A few well marked and well put up bull calves from high producing stock. Wyndham Dairy, Redding, Cal.

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Easily and Quickly put on. A BOY CAN DO IT.

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Distributors to appoint agents and sell Powerene at wholesale. Agents make $30 a day. Special terms to distributors. Equals gasoline at 5c. The equivalent of 20 gallons, express prepaid, $1.00. P. Barnes, H424, Santa Rosa, California.

Mesquite Honey—Can 60 pounds $6.50. Five case lots $10.00 per case, 120 pounds. F. O. B. Parker, Arizona. G. E. Striplin.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

Kentucky Tobacco, Natural Leaf; smoking, 10 lbs. $2.50, 20 lbs. $4; chewing, 10 lbs. $3; 20 lbs. $5. R. F. Veal, Sedalia, Ky., Agent.

For Sale — Vegetable plants, all kinds. Ancona hatching eggs, 7c each, chicks 20c. Ancona Farm, Ontario, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

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The largest roofing dealers in the West
GUARD ROOFING COMPLETE
1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35
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Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

FARM LEASE CONTRACT

One of the most perplexing things is the arrangement of the terms and the writing of a contract for lease of farm. Every individual farm calls for study of its conditions and perhaps different percentage of crop or rental consideration. Study has been given to these subjects by L. C. Gray and Howard A. Turner of the department of agriculture and they have given this information in Farmers Bulletin 1164. They summarize their findings in the following:

Was its full meaning understood before it was signed?

Is it so written that its meaning will be clear at any later time?

Is it fair to both parties?

Does it give the tenant a reasonable opportunity to make a comfortable living and to get ahead?

Does it require proper and conservative care of the premises leased?

Are all desired reservations to the lease made?

Are the things stated which each party is to do and to contribute?

Does it make clear the rights and privileges of each party?

Does it define the relationship between landlord and tenant and provide for the settlement of differences of opinion?

Does it contain a statement of the procedure to be followed when the relationship of landlord and tenant is to be terminated?

Does it contain the following essentials to a legally complete lease?

1. The date it was made.
2. The names and the final signatures of the contracting parties.
3. The period for which the lease is to run.
4. A description of the property leased.
5. An agreement in respect to the amount of rent to be paid and the time when and the place where it is to be paid.

SOILS AND AGRICULTURE OF SOUTHERN STATES

"The Soils and Agriculture of the Southern States," by Hugh H. Bennett of the bureau of soils of the United States department of agriculture, published by Macmillan Co., New York.

This book is true to name in that it touches soil conditions in the southern states or section we often refer to as "The South." The soils of the Southwest do not come in for discussion. However, the preface announces: "The writer trusts this volume will be looked upon as Volume I of a series of books which it is hoped will be written to cover the soils of all sections of the United States and their relation to agriculture. At the present time much attention is being directed toward the Southern States on account of extensive areas of unused potential agricultural lands to be found there, and for this and for other reasons, particularly because of the need for more definite knowledge of the soils of the country, it is considered appropriate to present this volume at this time." Where one wishes to keep thoroughly in touch with soil conditions the country over this book will make excellent foundation for the fuller information which will come later. It is thoroughly up-to-date and has a most complete index covering nearly 30 double column pages of fine type. There are 400 pages, illustrated and with many charts showing soil conditions in various portions of the country.

A Real Tractor Scraper

Most complete success was not had at first with tractors because of lack of adapted tools and implements. This situation is gradually changing, however, and today a special article for nearly every kind of work is provided. One of the latest of these is a tractor scraper manufactured by the Miskin Scraper Works, Ucon, Idaho. It is so arranged that the wheels carry the greatest portion of the load whether loaded or empty. It is provided with lever at the side of the tractor driver's seat which makes it easy to dump and spread with a rope. No stopping or backing up is required. We believe the same concern also puts out a fine line of horse drawn scrapers.

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"We'll finish today, John. I tell you this Hercules Farm Dynamite is great stuff for speeding up tree planting. And say—how these trees do grow. They show that they like holes blasted with

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FARM DYNAMITE

"Let me give you a tip. Send for the Hercules Powder Co.'s 68-page book 'Progressive Cultivation'. You need this book for it tells you all about the use of explosives on the ranch and in the orchard—how to plant trees, cultivate bearing orchards, dig ditches, clear land and do many things with the help of Hercules Farm Dynamite."

Send in the attached coupon *today*—and this book will be mailed to you free of charge.

Hercules Dynamite is for sale by leading Hardware and Implement Dealers

HERCULES POWDER CO. 30 Chronicle Bldg., San Francisco, Cal.

Gentlemen: Please send me a copy of "Progressive Cultivation."

I am interested in dynamite for _____

Name _____

Address _____

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For Summer Cover Crop

Prevent June Drop

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We Now Have a Supply on Hand and Can Make Immediate Delivery

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Combining to Fight the Grasshopper

THERE is nothing so good as poisoned bran for taking the hop out of a grasshopper, and there is no better way of buying and distributing the bran than through a community organization. In the areas where the grasshoppers come down on the farm crops like all the plagues of Egypt there should be grasshopper fighting organizations, just as there are fire fighting units in every city. Fighting a grasshopper invasion without the help of one's neighbors is like trying to put out a fire in a powder factory with one bucket of water.

In the Pacific states the vast uncultivated areas of mountains, foothills and grass lands afford ideal breeding grounds for at least eight common species of grasshoppers. There seems little hope of destroying the grasshoppers in these isolated breeding areas, and for that reason specialists of the bureau of entomology maintain that it will be many years before the grasshopper menace disappears from the West. But while they cannot be exterminated at their source, they can be met with a systematic, well directed barrage of poisoned bait, fire and other weapons for control when they attempt to invade the cultivated fields.

All preparations should be made early in the spring before the insects have left their breeding grounds. The organization should be directed and controlled by efficient and energetic leaders, and it ought to have the cooperation and support of every farmer in the community as well as the landowners who hold title to the remote areas from which the plague spreads.

An equitable method of raising funds for the work can be arranged if every landholder is taxed on the basis of the acreage he holds or operates. The funds should be collected and placed at the disposal of a good business man who will know how and where to go about buying poisons and other supplies when they are needed, without the necessity of untangling red tape. Sometimes it is advantageous to fight the grasshopper army with fire, and it is often necessary to spread poisoned bait upon the property of nonresident landowners. Here are two points where legal advice is desirable, and the leaders should know their exact rights and limits in these matters before the time comes for them to act to save the crops of the community.

If the district is divided into defense areas and each area put under the supervision of a man who knows grasshopper habits and how to use the weapons which the organization has put in his hands there will be no waste of materials or effort when the foothills disgorge their hungry hordes. Lastly, the wider the cooperation the better the results will be. It does no good to drive the hoppers from one district if they are allowed to settle and feed upon another—passing the pest along to the other fellow does not afford permanent relief, and it puts an extra hardship upon one's neighbor. The assault should be simultaneous throughout the whole infested area.

Comb Honey Production

By G. W. Bercaw

It takes an expert to produce fine comb honey. Southern California produces only a very limited amount. Variable temperatures, elevations, etc., are the prime influencing factors. The night season is generally too cold, and, observation has led me to believe that a large part of the work of bees, storing, evaporating, curing, sealing, or capping, is done at night. It is a difficult matter to use a single story hive through the winter season and tier up with comb honey supers in the spring. While this method will work to a certain degree it will not produce enough to warrant its following on an extensive scale. First of all, there must be a hive full of bees, in fact overflowing, and as little swarming as possible. Now to get these conditions, what must be done?

First, follow the procedure outlined for producing extracted. When the season's flow is over and bees are presumed to be put into winter quarters (in California), use two-story hives, arranging them all without queen excluders between stories, allowing them to remain this way until late the following spring, with queens in both stories. At the opportune time in early spring go through each colony, getting rid of all drone comb that you can, the idea being to put each two-story colony into one, at a time when the most bees can be utilized. If you desire to use all the bees and brood in second story, put an excluder between the stories for about 21 days, shaking all bees in at entrance. Be sure the queen is below. Then when this 21 day period has expired there will be no brood upstairs, but there will be honey and bees. Remove the second full winter story and substitute comb honey super or supers, shaking all bees at entrance, using combs elsewhere. If you have an extracting yard, use them there.

The exact time of such procedure will have to be decided by the apiarist in charge, as sometimes our seasons are early, and again late. At all events get the bees in the comb honey supers when the flow is on. Single tier supers are generally used in this state, although full depth, wide frames, with section boxes therein could be used, we think, though we have never experimented with the wide frames in California. Tiering up the supers will have to be decided on the judgment of the one in charge and will depend mostly upon the strength of colony and the honey flow in the fields, giving sufficient room at all times. The use of honey boards, with bee escapes therein, is almost a necessity for the rapid manipulation of comb honey, in the evening, putting them under such as are to be taken away, and by morning it will generally be clear of bees above the board.

Our equipment in comb honey yards has always been the standard eight-frame hive, full depth Langstroth or Hoffman frames. To conserve the heat and retain good temperatures we have always used 10-ounce canvas mats directly on the comb honey supers. The bees will seal it down, usually airtight. Size of section boxes used is the standard 4¼ by 4¼ by 1⅞ also 1½ wide; one-half depth supers, with followers and springs, not wedges, these of eight-frame size to fit hive bodies properly. The use of comb foundation as starters in section boxes is absolutely necessary, amount, shape, weight, etc., being a matter of choice largely. Our experience indicates that foundation cut in a triangular shape, with the point about the center of the section box, answers in full all the requirements.

Our general averages run during good season about four full supers per colony in yard of 100 stands. Reduce the swarming fever as much as possible is the best rule.

PHOSPHATE ROCK IN 1920

The notable feature of the phosphate rock industry in 1920, according to the United States geological survey, was the increase in production in the Western states. The shipments from mines in Idaho ran from 2,000 to 3,500 tons a month in the early part of the year, but were more than 8,000 tons in a single month after midsummer. About 20,000 tons was shipped before July, more than in any previous entire year. The total output of the Western states in 1920 is estimated at 65,000 tons, in comparison with 17,000 tons in 1919.

Early in the year reports were published that a contract had been made for large shipments of Idaho phosphate rock to Japan. Several hundred tons were shipped from the Idaho field to Yokohama in March, May and June, but regular shipments were not continued. A large part of the Idaho output was sent to points on San Francisco Bay, and a few shipments were

sent to Anaconda, Montana, for conversion into acid phosphate at the new fertilizer plant of the Anaconda Copper Mining Company, built in connection with its smelter.

Shortage in the supply of freight cars hampered the industry in Tennessee, but the production of the old and some of the new companies was probably considerably greater than in 1919.

Operations on Florida phosphate were pushed throughout the year and the push made up in part for the loss caused by the long strike in 1919. The shipments from the pebble field were probably more than 2,000,000 tons, and it is estimated that the total shipments from the state were as great as those in the peak year, 1913, and may even have surpassed them. The demand for phosphate for exportation was good, and many shipments were made to northern Europe.

Total production of phosphate rock in the United States in 1920 was about 3,265,000 long tons, as compared with 2,249,000 tons in 1919.

Phosphate lands in the Western states that have been withdrawn from entry for several years are now open for leases and permits, which will be issued by the general land office. The minimum royalty is two per cent of the gross value of the output, and a rental of 25 cents an acre will be charged for the first year, 50 cents an acre for each year from the second through the fifth year, and $1 an acre annually thereafter. No lease will be given for more than 2,560 acres.

VALUE OF SORGHUMS

"Grain Sorghums and How to Grow Them" is the title of Bulletin 1137. Its title gives a good idea of its contents, which, however, is summed up in the following short paragraphs:

The grain sorghum crop increased from approximately 2,000,000 acres in 1903 to 5,000,000 acres in 1919. The average acre yield varies from about 12 bushels in poor seasons to more than twice that quantity in favorable seasons.

The more important grain sorghums are included in two groups of varieties, the kafir group and the milo-durra group. Dwarf and early varieties in both groups are best for the higher and dryer districts. The use of good seed of adapted varieties, a well prepared seed bed, clean cultivation, and the right method of handling after harvest will increase the yield and quality of the grain.

The milos and feterita ripen in 90 to 110 days, which adapts them to short seasons, high elevations and low rainfall. The kafirs are not so early and require more moisture. They do best when the rainfall is about 25 inches and the elevation ranges up to about 2,000 or 2,500 feet.

Pure seed is important. Select the seed heads from the standing stalks before the crop is harvested, so the best plants may be found.

These crops will grow on moist soil types. It pays to delay sowing until the soil is warm. Cold soil injures germination and delays growth.

From two to three pounds of good, clean seed are required to sow an acre. On the average, ten to 12 inches of row space to the plant in rows 3½ feet apart is best for the milos and feterita and 14 to 16 inches for the kafirs.

Clean cultivation is essential for best results. Kill the weeds and keep the surface soil loose. Harvest the crop when it is ripe. Dry or cure the heads properly before thrashing and adjust the thrasher so that the grain will not be cracked. The grain should be clean and dry before it is stored in bulk; otherwise it will get out of condition quickly. While in storage it should be watched for signs of heating.

CRANBERRIES FROM FINLAND

Having noted in a United States commerce report that Finland exported to this country during eight months of last year more than 500,000 pounds of "lingon" berries the Cultivator wrote Leslie A Davis, American consul at Helsingfors, Finland, and received the following reply:

"The botanical name of the plant is Vaccinium vito idaea. 'Lingon' is the Swedish name for it and the English equivalent of this is given in the dictionaries as 'cowberry.' 'mountain cranberry' and 'red whortleberry.' The lingon berry grows wild almost everywhere in Finland but has never been cultivated. It resembles the cranberry but is only about half as large and is not so sour. The plant grows only a few inches high. The berry is considered almost indispensable in Finnish housekeeping and especially good for the sick. It is used for soups, porridge, jams, flavoring, juices, marmalades, wines, etc."

MOUNTAIN LILACS

Just at present the ceanothus are in bloom, known to many by the name of mountain lilac. While they come in but two colors, blue and white, there are many shades of these. It seems odd to speak of shades of white, but the color of the large floral organs in some species so modifies the white of the petals that the general effect is varying shades of gray. In the blues the shades run from a slight tinting of white petals down to a pure deep blue. The foliage and habit also vary much so that in the group of a dozen species one may get ample relief from monotony in massing the many together. Nearly all the better species may be obtained from plant dealers, one firm listing eight species.

Great Fertilizer DISCOVERY

LIGNAITE SOLUTION——a highly concentrated fertilizer, discovered by an English scientist—ELECTRIFIES, RADIUMIZES, REJUVENATES the soil. ENERGIZES any soil, no matter how poor.

INCREASES CROPS 50 TO 200%

Send trial order—see what wonders it performs. Mailed FREE in U.S.
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Los Angeles Markets

Los Angeles, March 23, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price, 40 cents.

Mar.	16	17	18	19	21	22
'21 ...	42	42	40	40	40	40

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 30 per dozen. Case Count Produce Exchange closing price 28 per dozen; pullets, produce Exchange closing price 28 per dozen.

Dairy Exchange price last week on extras:

Mar.	16	17	18	19	21	22
'21 ...	33	31	30	30	30	30

Manager Stanley of the Poultry Producers of Central California reports:

New York reports receipts of 57,734 cases of eggs, largest for season, which is earlier than for years, and lowest quotations this season ranging for whites from 30 to 40 cents. It is hoped bottom is reached. Los Angeles is now shipping none to Eastern market but is storing.

POULTRY

Price to producers: Hens, lt., 35; heavy 35; colored, 38; broiler, 40@48; roasters, 40; old roosters, 15; fryers, 55; ducks, old 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 14@19; old, 9.

LIVESTOCK

Los Angeles, March 22. — Weighed and delivered off cars without food or water:

Hogs, (hard grain). 125 to 175 lbs., 11.50; 175 to 225 lbs., 12.00.

Cattle (on foot, gross weight): Steers, good, 9.50@10.00; medium, 9.00@9.50. Cows, good, 9.00; medium, 7.00@7.50. Calves, 1.25 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 6.00; lambs, 12.00@12.50.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe Avenue. Receipts from the interior for 24 hours ended at 10 a. m. Tuesday were: 91 hides, 50 pelts, 437 lbs. tallow, 563 lbs. wool.

Green and green salted hides—No. 1 heavy hides, 50 lbs. and up 4½ per lb.; No. 1 light hides, 25 to 50 lbs., 4 per lb.; No. 1 kips, 15 to 25 lbs., 6 per lb.; No. 1 calf skins, under 15 lbs., 9 per lb.; No. 1 skunks, 15@30 each; No. 1 bull hides 3½ per lb.; No. 1 horse hides, over 50 lbs., 2.00 each; No. 1 do., 40 to 50 lbs., 1.50 each; No. 1 do., 30 to 40 lbs., 1.00 each; ponies and glues, half price; No. 1 grubby hides and skins, 1½ less; No. 2 hides and skins, 2 less, glue hides and skins, half price.

Dry flint hides—No. 1 hides, 16 lbs. and up, 9 per lb.; No. 1 kips, 7 to 15 lbs., 10 per lb.; No. 1 calf skins, under 7 lbs., 11 per lb.; No. 2 hides and skins, 2 less; glue hides and skins, half price.

Pelts—Large, long wool, 45@75 each; medium, 25@45 each; short wool and shearlings, 10@25 each.

Goat skins — No. 1 common, 10@30 each; No. 2, 5@10 each; badly damanged and small kids, worthless.

Tallow—No. 1 white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool—According to qquality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock March 22, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market firm. Stocktons: Burbanks, quality poor, 1.75 @1.85; few best 2.00@2.25. Idaho: Russets, mostly 2.00@2.25. Sweet potatoes: Supplies moderate, market steady. Best mostly 2.00@2.25 lug. Arkansas and Texas, 7@7½ lb.

Onions: Supplies heavy, market dull. Stocktons: White Globes, cold storage stock, 1.00@1.25; Browns, mostly 50@75 per cwt. sacked.

Garlic: Local best mostly 12@15 lb.; poorer 8@10.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock March 22, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 75@1.50; mostly 1.00@1.25.

Asparagus: Supplies increasing, market weak. Imperial Valley, 15@20 lb.; local 25@30; Northern quality poor, 12½ @15 lb.

Beets: Doz., 30@40; sk., 1.75@2.00.

Cabbage: Field cr. best mostly 75@ 85; poorer 50; best 1.00.

Carrots: Doz., 30@35; sk., 1.00@1.25.

Cauliflower: Supply moderate, field cr., best, 1.75@2.25; poorer, low as 1.00; few best high as 2.50@3.00.

Celery: Field cr., 3.25@3.75; poorer, 2.50@3.00.

Cucumber: Hothouse, best, 2.00@2.50 dozen.

Lettuce: Local field cr. mostly 75@1.25; best mostly 1.40@1.50.

Peas: Supplies liberal, market firm. Imperial Valley, quality good, 10@11 per lb.; poorer, 6. Local, best 8@10 lb.; jobbing, 9@10.

Radishes: 15@17½ doz.

Rhubarb: Crimson Winter, best bx., 1.25@1.50.

Spinach: Doz., 15@20.

Squash: Summer, 2.25 cr.; Italian bx., 2.65@2.75.

Tomatoes: Mexican, per lug, original 3.00; repacked lug, 3.50@3.75. Much poor stock at wide range in prices.

Turnips: Per doz., 25@30; sk., 90@1.10.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 2.00@2.25; special packed brands, 2.75@3.25; Imperial box, 4.75@5.25; small sizes, 4.25@4.50.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.50 @2.25, few high as 2.75; loose, bx., 75@ 1.00; lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack large size 2.75@ 3.25; small low as 1.75; special brands small sizes 2.75@3.25 large 4.00@4.25; packing house culls, 25@85 box; few large size 1.00. Tangerines, best, 6@7 lb., small, 4.

HONEY

Shipping Point Information, U. S. Bureau of Markets. Southern California: (First part of March). Practically no wire inquiry. Supplies heavy. Demand and movement slow, market weak. Few sales being made in 60-lb. cans. Carloads f. o. b. usual terms: White Orange and White Sage 12@13½; White Alfalfa, 8@9; Light Amber Alfalfa, 6@6¾. Hawaiian, White 7½; Light Amber 6. Due to unsettled market conditions, a large proportion of shipments are consigned to Eastern markets to be sold by packers in less than carlots. Bulk honey is moving a little more freely. Practically no export demand is reported. The heavy recent rains are said to insure a large crop this season. Many producers are still holding last year's crop for higher prices than the present market will pay. Monterey County reports most of the old crop sold, with good prospects of the coming year. San Diego County has some 35 cars still in warehouses. A very high per centage of California honey is now disposed of through cooperative associations. It is reported that contracts of the new crop are being offered for June and July shipment at very low prices. Sacked beeswax of light color is being sold in less than carlots at 33@35 per lb., dark stock being quoted as low as 26.

WALNUTS

California Walnut Growers Association's prices: Soft Shell, No. 1, 22½: Soft Shell, No. 2. 15½; Budded, fancy, 26½; Budded, standard, 22½.

GRAIN AND FEEDS

Grain Exch. price bid March 22:
Milo: Eastern No. 2 bulk, 1.50.
Corn: No. 2 Yellow bulk 1.60.
Barley: Carlots, 1.31¼.

HAY

Alfalfa Growers of California report under date of March 22:

Receipts of alfalfa during the past week lighter. The worst of the present general situation is the feeling of hopelessness created all around by the endless decline in the principal farm products, which just now makes it appear as if there were no bottom to prices. However, the experience is that when such a stage of general despair is reached, prices too have usually almost reached bottom and the change for the better is not very far off. Then, when a steadier market has restored confidence to the point that a further material decline is hardly to be feared after the most severe decline on record, the worst will be over and gradually the tide will turn in favor of producers. The very critical situation of the farming industries of the country, and the resulting demoralizing effect on manufacturing and business is finally being realized by the government to the extent that after last week the secretary of agriculture had issued a statement showing the extreme seriousness of the situation and appealing to every good citizen to do his part in helping the farmer, President Harding this week promised help through legislative measures and Secretary of Commerce Hoover urged action in the way of export credits as the most necessary measure. While we farmers appreciate these good intentions, they so far only give us the moral support of the government, which is of course all right as far as it goes, but what the farmers of the country need is a more substantial tonic, one which will strengthen their bank account and maintain their credit, and they are so exhausted that they need this tonic quickly in order to enable them to recover. We therefore are more impressed with Secretary Hoover's measures, as giving quick temporary relief, than with the legislative measures promised by President Harding, which are all right when they come, but which may come too late.

There were 280 tons received on the Los Angeles tracks the week ending March 19, with 80 tons held over, as against 560 tons received the week before.

Rabbit Alfalfa	36.00
No. 1 Dairy	24.00
Standard	21.00
Stock	16.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@30.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@16.00
Straw	11.00@14.00

San Francisco Markets

San Francisco, March 22, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 40

Dairy Exchange prices extras this week and year ago:

Mar.	15	16	17	18	19	21
'21 ...	41½	40½	40	39	39½	40
'20 ...	63	..	63	63	63	..

Rcts. week ending Mar. 21 3,201 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Ore. Y. A.	35
Ore. Trip	36
Cal. Y. A.	27
Cal. Flats	24½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	29½
Extra Pullets	28½
Undersized	27

Mar.	15	16	17	18	19	21
'21 ...	35	34	32	31	32	29½
'20 ...	45	..	44	46½	47½	..

Rcts. wk. ending Mar. 21, 545,299 dozen.

POULTRY

Wholesale prices are:
Hens: Colored, 37@39; White Leghorn, 38@41; strictly young roosters, 42@45; old roosters, 22@25; fryers, 55@60; broilers, 48@68.
Ducks: 30@35.
Squabs: 70@75 per lb.
Turkeys: Dressed, fancy, 50@54; poor quality 42@45 per lb.; live, nominal.
Geese: 32@35 per lb.
Pigeons: Old, 3.00@3.50.
Belgian Hares: Live, 25@28.
Jackrabbits: 2.50@3.00 per doz.

LIVESTOCK

Western Meat Co. prices:
Cattle: Steers, No. 1 8@8½; do, second quality, 7@7½; do, thin, 4@5½.
Cows and Heifers: No. 1, 6@7; do, second quality, 5@6; do, thin, 3@4.
Calves: Light weight, 8½@9½; medium, 8@9; heavy, 7@8.
Lambs: Yearlings, 8@8½.
Sheep: Wethers, 6@7; ewes, 3½@4.
Hogs: Hard, fat, grain-fed, weighing 100 to 225 pounds 11½; 225 to 300 pounds, 11; 300 to 400 pounds, 10.

California Farm Bureau Marketing Association reports:

No. Hogs	Ave. Wt.	Dock	Price
Turlock, March 15			
70	181	...	$10.75
21	218	...	10.25
15	254	...	9.75
5	338	...	9.25
3	343	60	8.25
Total 1½ cars, 25 consignors, $2,445.50.			
Madera, March 17			
86	273	...	6.00
86	188	...	10.50
15	246	...	9.50
Total 1½ cars, 5 consignors, $2,369.91.			
Fresno, March 18			
47	219	...	10.50
33	197	...	10.50
4	190	...	10.00
5	260	...	9.00
13	136	...	9.50
34	282	...	6.50
Total 1½ cars, 23 consignors, $2,495.50.			
Total for the week, 4½ cars, 53 consignors, $7,310.91.			

HIDES AND PELTS

The market on hides and skins continues weak and prices unsettled. Tanneries throughout the United States are shut down or running part time, causing light demand for raw stock.

Damaged and extra grubby hides in winter condition will scarcely bring enough to pay freight on them.

The list below will show our estimate of today's values:

No. 1 heavy hides, 60 lbs. up, 3; do, medium, 45 to 60 lbs., 3; do, light, 30 to 45 lbs., 5; do, native bulls, 2; No. 1 center

—the biggest sensation in the vegetable kingdom. This wonderful variety out-yields any yellow dent corn ever grown. Averages two 10 to 15 inch ears to stalk — attains gigantic growth and is thickly covered with broad, succulent leaves. Thrives in any soil.

Learn more about "Big Jim" from Germain's free 1921 catalog. There's a $300 cash prize for the 10 largest ears. Address Dept. B.

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Auto and Truck Covers, only $13.95

These covers are made of heavy 10-oz. Government O. D. Duck, double weave and double fill, water-tight, size 12x15. You will find many ways to use them.

Army Pants, O. D. Wool	$5.75
O. D. Wool Breeches	$5.95
Khaki Breeches	$3.75
Army Tents, 16x16, slightly used	$34.75
O. D. Wool Blankets	$3.95
Gray Navy Blankets	$5.95
Heavy O. D. Blankets, $15 value	$8.95

All mail orders except tents sent postpaid. Money refunded if not fully satisfied.

UNITED STATES SALES COMPANY

120 West First Street Los Angeles

branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 5; No. 2 wet salt kip, 15 to 30 lbs., 3; No. 1 wet salt calf, trimmed, 7½; No. 2 calf, 2 per lb. less.

Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Dry Horse Hides: No. 1, large, skinned to hoof, 1.00; do, medium, 75; do, small, 50; No. 1 colt, 25@50. All cut, scarred or badly cured hides are culls, and worth proportionately less.

Wet Salted Horse Hides: No. 1, large, skinned to hoof, 2.00; No. 1, medium, skinned to hoof, 1.50; No. 1, small, skinned to hoof, 50@1.00; No. 1, colt, skinned to hoof, 25@50.

Dry Horse Hides: No. 1, large, skinned to hoof, $1.50; No. 1, medium, skinned to hoof, 1.00; No. 1, small, skinned to hoof, 50@75; No. 1, colt, skinned to hoof, 25@50. All cut, scarred or badly cured hides are culls and worth proportionately less.

Goat Skins: No. 1 large, not matted, Angora, 30 up; No. 1, medium, not matted, 15@20; No. 2, 5@10. Damaged skins and very small kids, worthless.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good, 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20;

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, $1.75@2.25 for No. 1; do, Oregon Burbanks, 2.00@2.25; Salinas, 2.85@3.00; Idaho Gems, 2.25@2.40; sweet potatoes, nominal; Nancy Hall, 5.00@6.50 per 100 lbs. kansas, 6.00@6.50. New, lb., 12½.

Onions: Australian brown, 50 per bx.

Garlic: New, 7@10 lb.

VEGETABLES

Wholesale selling price:

Asparagus: Lb., 6@10.
Artichokes: Doz., 30@90.
Beets: $1.50@2.00 sk.
Carrots: 1.00@1.25 sk.
Cauliflower: Doz., 40@60.
Cucumbers: Hothouse, small, 4.00@4.50 box of 2½ dozen; large, 2.00@2.50 per dozen; English, 2.50@2.75 per dozen.
Cabbage: Lb., 1.
Celery: Cr., 1.50@3.00.
Eggplant: Floridas, 30@40.
Endive: 10@20 per lb.
Lettuce: L. A. cr., 1.75@2.00; Imp., 2.00@2.50.
Onions; Green, per lug, 1.25@1.50.
Peas: Large, 10@12½ lb.; small, 6@8; Bay, 15@17.
Parsnips: Sk., 2.00@2.25.
Peppers: Bells, Southern, 7@25 lb. for green; Florida, 20@30.
Rhubarb: Alameda, extra choice, 2.00@2.50.
Spinach: Cr., 1.00@1.50; lb., 5@6; San Joaquin, 1.50@2.25.
Tomatoes: Hothouse, 35@40 per lb.; Mexican, repacked, 2.00@2.50 per crate, 2.50@3.00 per L. A. lug.
Turnips: Sk., 50.

FRESH FRUITS

Avocados: California, doz., 4.00@7.50.
Bananas: Lb., 9@10.
Pineapples: 4.50@5.50.

CITRUS

Navel oranges, 2.00@4.75; lemons, 2.00@3.50 per box; lemonettes, 1.50@2.00; grapefruit, new crop, 2.00@3.50; tangerines, 2.00@3.50 per half orange box; 1.50@2.50 L. A. lug.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 18 lb.; Sunmaid, seeded, 36 15-oz. pkgs. 22 lb.; seedless Sultanas, 25-lb. bxs. 19 lb.; Thompson Seedless, 25-lb. bxs. 21 lb.; do, 48 15-oz. bxs. 22 lb.; 3-cr. L. M., 25-lb. bxs. 19 lb.; 2-cr., do, 18 lb.; 1-lb. clusters, 20-lb. bxs. 5.40 box.

Apricots: Fancy 25 lb. boxes, 25 lb.; extra choice, do, 20 lb.; choice, do, 18 lb.; standard, do, 15 lb.

Peaches: Blue Ribbon brand, 48 11-oz. to cs., $10 cs.; Blue Ribbon brand, 24 2-lb. bxs. to cs. 11.00; fancy, 25-lb. bxs., 17½; extra choice, 25-lb. bxs., 13½; choice, 25-lb. boxes 12½.

Pears: Fancy, 25 lb. bxs., 18; extra choice, 25 lb. bxs., 14; choice, 25 lb. bxs., 11.

Figs: Fancy black, 25 lb., boxes, 12 lb.; extra choice, do., 9 lb.; choice do, 8 lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4 layer, 10 lb., 2.00 box; choice 4 layer, 10 lb. boxes, 1.75 box.

Prunes: 30-40s, 25 lb. boxes, 14; 40-50s, do, 11 lb.; 50-60s, do, 9½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8 lb.; choice, do, 7 lb.

NUTS

Peanuts: Japanese, 8.
Pecans, 25.
Almonds: California Almond Growers Exchange quote:

Nonpareil	26
L. X. L.	26
Neplus	25
Drake	18
Languedoc	17
Hard Shell	12

BEANS

Below California Bean Growers Association shippers prices choice recleaned, March 14:

Pinks	5.85
Large Whites	3.75
Small Whites	3.50
Mexican Reds	6.75
Blackeyes	6.30
Red Kidneys	7.50
H. B. Limas	5.35
Bayos	8.75
Cranberries	6.75

HOPS

Cal. 1920, lb., 33@35.

RICE

Pacific Rice Growers Association prices: Fancy Cal. Japan, 4.50; choice, do, 4.25.

GRAIN

Sales grain exchange, March 22:

Wheat: Milling, 2.55@2.65; feed, 2.40@2.50.
Corn: Cal. Yellow, 1.70@1.80; White Egyptian, 2.60@2.70.
Oats: Red feed, new crop, 1.45@1.55. seed, 1.65@1.75.
Barley: New feed, 1.25@1.35; off grades lower: shipping, 1.50@1.60.
Bran: 33.00@37.00.
Shorts: 32.00@42.00 ton.
Mill Run: 32.00@38.00 ton.
Middlings: 42.00@46.00 ton.
Milo: Cal. Red, 1.95@2.00; Eastern Red, 1.60@1.75.
Kafir: Eastern, 1.60@1.70.

HAY

Alfalfa Growers of California report under date of March 21:

There were 1,031 tons received in San Francisco.

No. 1 Dairy	19.00
Standard Dairy	17.00

Under date of March 18, A. W. Scott Co. says:

Receipts past week 1,031 tons. Trade has been extremely slow and the market lifeless with stocks and receipts in excess of all requirements. Reports from the interior are everywhere of unusual abundance of grass and most favorable conditions and progress in growing crops. Both of these conditions have a tendency to cause holders to feel like selling before the active spring work commences. Dairy demand both for alfalfa hay and all kinds of dairy feeds has greatly diminished. Reduced prices of butter and the quantity and richness of the pasture has practically caused dairymen to stop feeding for the moment and created a corresponding dullness and lack of demand in the selling markets. It may be some weeks before this trade picks up again as all indications point to an early and open spring. Export and shipping generally has been unusually dull and appears to be influenced by the general market condition.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00

Citrus Markets

Los Angeles, March 23, 1921.

Valencias are already going forward, although not in sufficient quantity so that any have appeared in auctions. The whole orange market is in much better condition than formerly and demand has been created for small sizes which are a big factor in this year's production. Present f. o. b. quotations are around 3.75 for 126's, while 250's and 288's are holding close to 1.75@1.90. Something over 7,000 cars Navels remain for shipping during April.

Lemons are slightly better but there are more than twice as many cars in storage as last year this date. About 45 cars will go out by the way of Panama Canal this week.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 11,794 cars; lemons, 2,588; total, 14,382. To same date last season: Oranges, 11,708; lemons, 2,273; total, 13,981. From Central California to date, this season: Oranges, 4,314; lemons, 115; total, 4,429. To same date last season: Oranges, 3,528; lemons, 272; total, 3,800. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

AT THE AUCTION

March 16

New York: 24 or., 4 mixed, 1 Tange., 3 lem. Nav. 3.25-4.60, Tange. halves 1.85-4.00, Val. 3.75-4.50, Sweets 3.30, lem. 2.95-3.55.

Philadelphia: 8 or., 2 lem. Nav. 2.75-3.85, Tange. halves 1.90-2.20, lem. 2.15-2.80.

St. Louis: 8 or., 2 lem. Nav. 2.15-3.60, lem. 3.15-3.80.

Boston: 12 or., 2 lem. Nav. 3.45-4.30, Tange. halves 3.35, Ruby halves 2.30-2.40, lem. 3.25-4.00.

Cleveland: 9 or., 1 lem. Nav. 3.40-4.20, lem. 1.30-3.70.

Pittsburg: 6 or., 1 lem. Nav. 2.90-4.50, Tange. halves 1.95, lem. 2.50-3.05.

Cincinnati: 2 or., 1 lem. Nav. 3.70-3.85, lem. 3.25.

March 17

New York: 17 or., 1 Tange., 2 mixed, 3 lem. Nav. 2.95-4.40, Tange. 3.50-4.05, halves 2.10-2.60, Bloods 3.60, Ruby halves 3.60, Malta halves 2.00, lem. 3.25-4.30.

Boston: 11 or., 2 lem. Nav. 3.55-4.45, Tange. halves 3.75, lem. 3.15-3.85.

Pittsburg: 6 or., 1 lem. Nav. 3.35-3.90, Navelencias 3.70, lem. 3.10.

Philadelphia: 8 or., 2 lem. Nav. 2.85-3.95, Ruby 3.45-3.75, halves 1.85-2.40, Tange. halves 1.70-2.15, lem. 2.20-3.75.

March 18

New York: 11 Nav., 3 mixed, 2 lem. Nav. 3.35-4.70, Tange. 2.25-3.40, Tange. halves 1.75-3.70, Malta halves 1.60-1.85, lem. 2.75-3.50.

Pittsburg: 5 Nav. 3.05-4.05.

Cleveland: 7 or., 1 lem. Nav. 3.15-4.15, Bloods 1.20, lem. 2.50-3.70.

Baltimore: 2 or., 1 lem. Nav. 3.10-3.40, lem. 3.35.

St. Louis: 7 or., 1 lem. Nav. 2.88-3.85, Tange. halves 2.05, lem. 2.85-3.50.

Cincinnati: 1 or., 1 lem. Nav. 4.00, lem. 3.25-3.80.

Boston: 8 or., 1 lem. Nav. 3.90-4.30, Ruby halves 3.05-3.10, lem. 2.75.

March 21

New York: 23 or., 5 lem. Nav. 2.65-4.80, Bloods 2.95-3.30, Tange. halves 1.90-3.80, Ruby halves 1.95-2.30, Seeds. halves 1.55, Navelencias 3.90-4.75, lem. 2.65-3.70.

Boston: 14 or., 3 lem. Nav. 3.65-4.40, Tange. halves 2.10-2.30, Bloods. halves 2.85, lem. 2.80-4.00.

Cleveland: 8 or., 1 lem. Nav. 3.30-4.30, lem. 2.45-2.95.

March 22

New York: 27 or., 3 lem. Nav. 3.70-5.00, Tange. halves 1.70-4.25, Ruby halves 1.75-2.30, lem. 1.80-3.90.

Boston: 13 or., 3 lem. Nav. 3.75-4.30, Tange. halves 2.00, Ruby halves 2.00-2.55, lem. 1.50-3.55.

OREGON PRUNE MARKET

R. C. Paulus, sales manager of the Oregon Growers Cooperative Association, sizes up the present prune market as follows:

"Sales of prunes, carload lots f. o. b. the coast, have been light the past two or three weeks, in spite of the general movement of all dried fruits to almost all markets fron the wholesaler to the retailer.

"Due to the fact that many wholesale dealers have lost money this past season on shipments of prunes from the coast, they do not feel like buying new stocks. This loss was caused by the decline in the price of prunes between the time of purchase on the coast to delivery in the East three or four weeks later.

"Continual reports from the coast have lead eastern buyers to believe there is a tremendous surplus of prunes on the coast. And continual cutting of prices has caused great uncertainty with the trade. Hence its unwillingness to buy ahead.

"In the meantime, prune stocks are being gradually consumed, all of which is a healthy condition."

NICOTINE SULPHATE IN DUST CARRIER

Roy E. Campbell, scientific assistant in truck crop investigations, is author of U. S. D. A. Circular 154. Mr. Campbell's headquarters has been near Los Angeles for several years, where he has been making investigations in truck crop insect control. The successful use of nicotine sulphate in dust form on aphis of walnut trees calls attention to its possible beneficial effect on truck crops. He finds that the advantages of the dust spray include ease of application, killing efficiency, lower cost of application than spraying, with less weight in transportation and haulage, and refilling or renewing of supply in field more quickly accomplished, and the dust application makes easier the use of arsenate, sulphur or other insecticide or fungicide. On the other hand, he finds disadvantages in the volatility of the nicotine sulphate causing it to lose strength unless kept in air-tight cans, the disagreeable effect on the operator, and the impossibility of combining with wet Bordeaux. Mr. Campbell's summary is:

Summary

Ground tobacco gave good though varied results in controlling the walnut aphis in California. The substitution of a certain amount of 40 per cent nicotine sulphate in a carrier of kaolin and lime eliminated this variation in results.

Dusting requires much less material and may be done in a much shorter time, with a less expensive machine, and at about half the cost of spraying.

The action of the dust is similar to that of nicotine sulphate spray, but much more rapid.

Nicotine sulphate dust has proved superior to spraying for the melon and cabbage aphids, onion thrips, cucumber beetles and some other insects, giving usually a better killing at a smaller cost and with a greater speed and ease of application.

Nicotine sulphate dust can be combined with arsenate of lead or sulphur for different types of insects, or for insects and fungous diseases.

BAG FOR GRAIN SAMPLES

A satisfactory bag for grain samples has been developed by the United States department of agriculture. These bags are made of a good grade of duck, treated by the manufacturer with a water and mildew proof preparation. After treatment the cloth is practically as pliable as that used formerly in making grain sample bags. One bag, taken at random from a shipment, was filled with water and allowed to hang until it showed signs of leaking. It was about half an hour before water began to drip from a few places along the seam, but no signs of moisture were evident on the cloth.

In selecting the cloth to be used the department specialists collected and tested a number of waterproof materials from various manufacturing concerns.

The controversy between the California Prune and Apricot Growers Association and the Dried Fruit Association of California over rates for shipping prunes to the Atlantic seaboard has been referred to the shipping board at Washington for settlement.

WEATHER REPORT

San Francisco, Cal., March 19, 1921.

Stations	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	.95	41.44	36.01	64	42
Red Bluff	.28	24.28	19.94	70	42
Sacramento	.52	14.99	15.88	72	42
San Francisco	.15	20.81	18.54	67	48
San Jose	.16	13.63	13.69	70	42
Fresno	.22	6.85	7.63	74	42
San Luis Obispo	1.00	17.09	16.49	78	42
Los Angeles	1.74	9.78	12.97	82	50
San Diego	.49	4.46	8.29	72	52

Auto Owners WANTED!

To introduce the best automobile tires in the world. Made under our new and exclusive Internal Hydraulic Expansion Process that eliminates Blow-Out—Stone-Bruise—Rim Cut and enables us to sell our tires under a

10,000 MILE GUARANTEE

We want an agent in every community to use and introduce these wonderful tires at our astonishingly low prices to all motor car owners.

FREE TIRES for YOUR OWN CAR

to a representative in each community. Write for booklet fully describing this new process and explaining our amazing introductory offer to owner agents.

Hydro-United Tire Co.
DEPT. 105 PHILADELPHIA, PA.

Pre-War-Prices

Here it is:

The BEEMAN tractor at a price as low as it has ever been priced. We have a great number of these little tractors working and giving satisfaction and will give satisfaction for the work for which they are built.

THE LEWIS COMPANY
Lewis Building San Jose

Orange Seed Bed Stock
250,000 TREES
Special Bargain Price. Any Quantity
PLANT NOW
K. NITAKE
P.O. Box 14 Baldwin Park, Cal.

Dairy Farm at Auction

On Tuesday, April 12, 1921, at ten o'clock in forenoon, I will sell my ranch of about 30 acres located at

Escondido, San Diego Co., California

Black alluvial soil; private pumping plant of never failing water; cheap electric power; underground cement irrigation system; sixteen acres, more or less, in good stand alfalfa; cuts seven crops; milking stable for 17 cows; hay barn; stable for 5 horses with hay barn attached; good house, eight rooms plastered, toilet and bath, and cistern, windmill, tank, etc.; largest pepper trees in California; adjoins city limits of a good business town; close to good schools; 13 churches; new modern creamery ½ mile from barn; good roads, good neighbors, good markets. Escondido is reached by stage and truck lines from all points, also railroads. Best climate in U. S. Dairy consisting of 27 Jerseys and Guernseys, including 3 choice registered Guernsey bulls, will be sold at auction one week later.

Terms of Sale

One-fourth of purchase price in cash on day of sale; also one-fourth of purchase price in cash in 30 days after date of sale; other one-half on time to suit purchaser at seven per cent per annum. Title is perfect; no incumbrance. This ranch is not listed for sale with any agent. Has been occupied eight years by present owner.

G. W. PICKERING, Owner
E. J. Christopherson, Auctioneer.

You Can Prevent Most Chick Losses

The too-frequent heavy death rate among chicks during the critical brooding period is one of the heaviest drains on poultry profits. Baby chicks are expensive—every one that dies is a real loss that can't be made up. It's better to raise the chicks *you have* than to replace them with others.

There is no reason why you should not grow to maturity practically every good chick you hatch or buy. The secret lies in feeding from the first meal the original "baby food for baby chicks"—

Pratts Buttermilk Baby Chick Food

It completely nourishes the chicks, resulting in quick, even, healthy growth and development; carries them safely over the dangerous first few weeks.

Chicks eat so little during the first six weeks that the slight extra cost of the perfect chick food—*the original "Pratts"*—is next to nothing. It is made up many times by the value of the *extra chicks saved*, and the *extra value* of every chick raised.

Let your chicks prove the truth of these statements. Feed them Pratts Buttermilk Baby Chick Food. If it doesn't please *you*—your money back.

Pratts Poultry Regulator

is needed by laying and breeding hens now, when they are laying heavily. Its tonic and invigorating effects help to overcome the strain of continuous laying and they lay eggs that are fertile and hatch husky chicks.

The genuine Pratts Poultry Regulator has been a big aid to successful poultry keepers for nearly fifty years. Why not test it? You are sure to benefit—you can't lose.

"Your Money Back If YOU Are Not Satisfied."

Refuse substitutes—get the genuine Pratts. There's a Pratt dealer near you.

PRATT FOOD CO.

Philadelphia Chicago Toronto

Makers of Pratts Animal Regulator, Cow Tonic, Hog Tonic, Dip and Disinfectant, Stock and Poultry Remedies.

BP-53

Pratts Reg. U.S. Pat. Off.

Harvest 20 to 45 Bushel to Acre Wheat in WESTERN CANADA

Think what that means to you in good hard dollars with the great demand for wheat at high prices. Many farmers in Western Canada have paid for their land from a single crop. The same success may still be yours, for you can buy on easy terms,

Farm Land at $15 to $30 an Acre

located near thriving towns, good markets, railways—land of a kind which grows **20 to 45 bushels of wheat to the acre.** Good grazing lands at low prices convenient to your grain farm enable you to reap the **profits from stock raising and dairying.**

Learn the Facts About Western Canada

—low taxation (none on improvements), healthful climate, good schools, churches, pleasant social relationships, a prosperous and industrious people.

For illustrated literature, maps, description of farm opportunities in Manitoba, Saskatchewan and Alberta, reduced railroad rates, etc., write Department of Immigration, Ottawa, Canada, or

WESTERN CANADA Farm Lands at Low Prices The Wheat Belt of America

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Write Today For Your Copy Of This 68 Page FREE Book Telling How and When to Plant

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CALIFORNIA WILD FLOWERS
Seventeenth Annual Catalog, Illustrated

Theodore Payne 345 So. Main Street Los Angeles

SUGGESTIONS TO SHIPPERS

(Continued from Page 411.)

protected from winds or drafts and should be packed daily. Unless you produce hatching eggs, do not keep any roosters with the hens. In any event, separate the males as soon as the breeding season is over. In hot weather fertile eggs are very likely to spoil.

Grading Rules

Extra eggs must average 24 ounces per dozen from February 1 to July 1, and 23½ ounces per dozen from July 1 to January 31, and no eggs in the case must weigh less than 22 ounces to the dozen.

Slected pullet eggs must average 20 ounces per dozen, and no eggs in the case must weigh less than 18 ounces to the dozen.

"Pewee" eggs are those which weigh less than 18 ounces to the dozen.

All eggs in the above grades shall be entirely white and reasonably clean, the size reasonably uniform, and must be sound, sweet and full.

Brown eggs (this means all eggs that are not absolutely white in color) may be classed as Brown Extras or Brown Pullets, according to size.

Dirty eggs are graded as Dirty Extras or Dirty Pullets, according to size. They also grade as Light Dirties or Heavy Dirties, according to the amount of dirt on them. Light Dirties can be stored if they have not been wet. Heavy Dirties will not keep and they must be sold for what they will bring for immediate use.

Checks or Chex are cracked eggs. They are graded as bakers' eggs, together with shrunken eggs and others that are not good enough in quality to go into the standard grades.

Washed Eggs can be sold at certain times of the year at the same price as the unwashed eggs of the same size and quality, but not during the storage season. For this reason we ask members to wash no eggs during the packing season.

Packing and Shipping

Eggs shrink by evaporation of the contents and thus lose weight quite rapidly, especially if exposed to heat, wind or drafts of dry air. An egg that is just over the standard weight when it is laid, if kept several days before shipping, may shrink and lose weight so much that it will have to go into a lower grade. It is, therefore, important to pack promptly and ship as often as convenient—at least twice a week. If not packed immediately the eggs should be kept covered in a cool place.

In gathering eggs use pails or baskets that will not spring in and pinch the eggs when lifted. Twelve or 14 quart heavy galvanized "stock" pails are very satisfactory, and an old newspaper in the bottom makes an excellent cushion.

In packing your eggs, have a convenient bench or table that will hold your egg bucket and two or three egg cases; also a smaller bucket for the soiled eggs.

First examine your cases and see that sides and bottoms are well nailed; then remove the tops and take out flats and fillers and see that there is a good cushion under each bottom flat. If the cushion is not good, make one by using a little excelsior or straw.

Have a convenient shelf for your egg scales, and when packing have a case for extras and one for pullets; grade eggs into extras and pullets as you pack them, and check any doubtful egg on your scale as you pack.

Every shipper should provide himself with an egg scale, which may be obtained at cost from the association.

Slide the eggs into the fillers—don't drop them—and when a filler is full, pass the hand over the eggs and see that none project above the filler before you put in the next flat and filler.

Washed Eggs

During the season when washing is permissible all soiled eggs should go into a special bucket as you pack the others. You can later scrape the heaviest of the dirt from these eggs and wipe clean with a damp cloth, thus making a separate operation of cleaning and packing these soiled eggs. Always pack these washed eggs separately and mark the fillers with the colored slips provided for that purpose.

When cases are filled place a "grade slip" on the top filler under the cushion. This should state clearly the name and address of the member, the number of dozens of each grade packed in the case, and the number of cases in the shipment. The same information should also be given on the "shipping tag," which should be tacked on the outside end of each case.

It is a good idea to use a rubber stamp for the name and address on grade slip and tag. We supply such stamps at cost to all members desiring them.

Nail covers with four nails at each end of the case. Do not nail in the middle, as this causes the cover to be broken up in taking it off.

Please remember that your eggs are inspected by your own employes, who have nothing to gain by misrepresentation, but on the contrary have every reason to wish to please you.

In handling so large an amount of business mistakes will occasionally happen, but if called to our attention they will be promptly rectified.

When in Los Angeles call at the warehouse and see just how the work is done.

If further information is desired, write to Poultry Producers of Southern California, Inc., 1560 Industrial Street, Los Angeles, California.

Poultry Queries

Conducted by J. A. Koethen

Rheumatic Turkey

One of my turkey hens is quite lame. First joint of left leg is swollen and puffy and slightly feverish. Otherwise she seems perfectly well and is gaining weight. What can I do for her, and will it be wise to use her eggs for hatching?—Subscriber, San Diego.

The iodine you have been using is as good an external remedy for rheumatism as there is. Rubbing with camphorated oil is also helpful. Keep her out of the rain and see that she has all the green feed she will eat. It would hardly be wise to try to hatch eggs laid while the joint is feverish. The trouble is probably due to exposure, and keeping her in a dry, sunny place is the best remedy.

Intestinal Disturbance

Some of our pullets on range have suddenly become helpless and died after lying a day or two with legs stretched out or back. Others die without any apparent illness. They have dry mash in the morning, Egyptian and Kafir corn in litter, and sorghum tops to thresh out for themselves at noon.—Subscriber, Orland.

Those pullets have been eating something which has poisoned them. Maybe some of their grain is spoiled or the mash has been rained on and become moldy, or they have found a dead chicken or gopher on their range. It would be wise to keep them in for a few days till a thorough investigation has been made. Meantime give the whole flock a dose of Epsom salts, a half teaspoon for each bird, dissolved in water and mixed in moist mash. More variety in the scratch feed is desirable. You might feed Kafir and wheat or Egyptian corn and barley, or all four grains, and be sure that everything you feed is sweet and clean.

Turkey Book

Please tell me where I can get a book on turkeys, telling how to raise them.—Subscriber, Bridgeville.

The Cultivator book, "Poultry for Profit," contains a good deal of information in regard to turkey raising. I know of no recent publication devoted exclusively to turkeys except two circulars of the Rhode Island station, Bulletin 141 and Extension Bulletin No. 2, New Series, which, if they are

still in print, may be had for five cents apiece by writing Agricultural Experiment Station, Kingston, R. I. There is also a government bulletin, Farmers Bulletin 791, which goes into the subject quite thoroughly. This may be had free by writing the U. S. Department of Agriculture at Washington.

Vaccination

Will you please explain how to vaccinate for chicken pox? Where are instruments and serum to be had and at what age is it done? What would be the cost of vaccinating 1,000 birds? —Subscriber, Whittier.

Write Dr. Beach, Poultry Division, College of Agriculture, University of California, Berkeley, for serum and directions. Birds of any age may be vaccinated, and I believe it costs approximately ten cents per bird.

American Pigeon Journal

Walter T. Helm of El Rio, Ventura County, writes:

"Under your Poultry Queries in issue of March 5 I notice your reference to National Squab Book. When this book was written it was the best authority that we had, but today it is about obsolete, as the Homer, that formed the basis of the book, has gone into the discard, and today we have such breeds as Carneaux, Maltese, King and Mondaine for squab producers. Would suggest referring to American Pigeon Journal.

Vent Gleet Perhaps

My hens are afflicted with a sticky, whitish discharge from the vent, which conforms in some respects to your description of vent gleet, but there is no odor, and the flock without a male is as badly affected as the mated flock. They have corn, a commercial mash, sour milk and plenty of green, are laying well and otherwise in perfect condition.—Subscriber, Seeley.

Vent gleet usually begins with a hen, is transmitted by her to the male, and by him to the rest of the flock, so there is no significance in the fact that the unmated birds have the same discharge as the mated ones. It does seem unlikely, however, that the whole flock should be affected with vent gleet, and the lack of odor is another point against it. If I were you I would look to their digestion before attempting treatment for vent gleet, which is very difficult to treat. Corn is not good as an exclusive grain ration. Better change to wheat and barley or wheat and milo. Two grains are always better than one. Make your mash half bran, and add a little powdered charcoal. There is sometimes a whitish discharge in diarrhoea.

No Yard House

In your issue of February 12 your poultry expert has an article in which she speaks of the no-yard house. Are the hens kept in this house all the time or is a runway provided?—Subscriber, Springville.

No run or yard of any sort. The pullets go into the house before they begin to lay and never go out till they are sent to market. After they are accustomed to the house they can hardly be driven out.

Poultry Literature

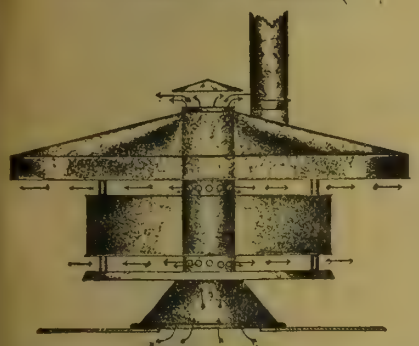
Will you kindly send me Circular 142 of the California experiment station? I have not the address of the station. I should also be grateful if you would recommend reliable literature for a beginner. — Subscriber, Chino.

I am sorry to say I loaned my copy of Circular 142 to an inquiring subscriber and it has not come back. Write Poultry Division, College of Agriculture, University of California, Berkeley, for this and other poultry circulars, and they will send watever is in print free. Of late the university has been so handicapped for lack of funds that typed letters are sent instead of printed circulars, but they are glad to send out free anything they have that will be of use. You should also have the Cultivator poultry book, "Poultry for Profit," which gives full directions for making a start with chickens as well as for raising ducks, geese and turkeys. Nearly all the state experiment stations publish helpful bulletins. Write Cornell Experiment Station, Ithaca, New York, Oregon Experiment Station, Corvallis, Oregon, Iowa Experiment Station, Ames, Iowa, Connecticut Experiment Station, Storrs, Connecticut, and U. S. Department of Agriculture, Washington, D. C., and ask what they have that will be useful to beginners. The state stations charge a little for bulletins sent outside the state but government bulletins are free.

The Okanogan County Horticultural Society, Washington, has been organized with J. R. Everett president.

The Douglas County Poultry Association, Washington, is promoting the raising of standard bred poultry by encouraging organization of boys and girls clubs. The association furnishes the eggs for hatching, the stock to become the property of the youngsters.

The Kresky Brooder Stove
or "Pride of Petaluma"



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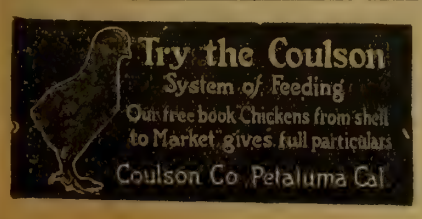
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THERE'S a reason for everything. Nothing ever "just happens." My success with poultry is not an accident or a matter of "luck"—here are the three reasons my hens pay:

The FIRST reason:

My success begins with the baby chick. I start them on the right feed, and in that period when baby chicks so easily sicken and die, the pure dry buttermilk in Globe "A-1" Baby Chick Mash, and the fine balance of ground grain, grain hearts and meatine, builds them to vigorous youngsters, makes them grow, and acts as a safeguard against disease.

The SECOND reason:

My growing chicks are well fed. Experience has taught me not to "stint the ration and stunt the bird." During the stage of rapid growth, when the making of bone, muscle, flesh and feathers demand feeds high in protein, Globe "A-1" Growing Mash (containing Dry Buttermilk) brings them to maturity as strong, healthy birds ready and fit to lay.

The THIRD reason:

I know that it takes feed to make eggs—and so I feed an egg ration—Globe "A-1" Laying Mash (containing Dry Buttermilk).

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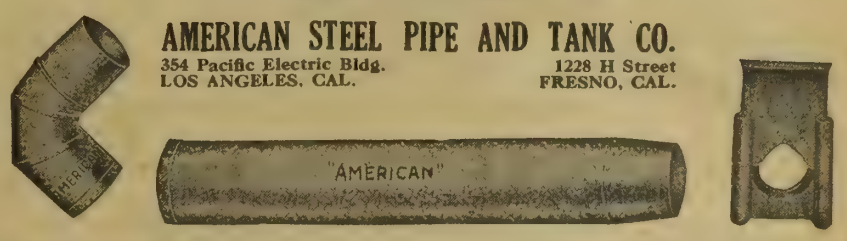

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Your hens don't care about the color of their feed—why should you? They want feed that is good—and you want feed that is good for them.

The color of your feed has absolutely nothing to do with its feeding value. It may be light or it may be dark and yet not vary one-tenth of one per cent. in actual feeding value. Feed for your hens should be bought on its chemical analysis—on its *actual* feeding value—not on its color or texture.

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That's why color means little, if anything. Texture means little, if anything. Feed value means *everything!* Feed value, after all, is the thing you pay for.

And SURELAY sees to it that your hens get the *same feed value* every time. It may vary in color from time to time. It may vary a bit in texture. But it *never* varies in net feeding value. Our daily laboratory tests take good care of that!

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California Is Justified in Boasting of Its Wonderful Production

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — *An Illustrated Weekly for the Rural Home and Ranch* — **San Francisco**

Vol. LVI — **April 2, 1921** — **No. 14**

CALIFORNIANS, ATTENTION! We have long been accused of being boasters. We have insisted we have simply told the truth and could deliver the goods. In fact, we have been engaged in delivering the goods during the past decade. Agricultural goods, we mean. The figures which have come from the department of commerce as to the fourteenth census show California's rich valleys and hillsides to be wonderful producers of wealth.

Of the 12 highest counties in the United States producing the greatest value in agricultural crops, six are within the boundaries of California.

The rating of these counties is first, third, fourth, eighth, eleventh and twelfth, and they are by name, Los Angeles, San Joaquin, Tulare, San Bernardino, Santa Clara, Orange.

In order to give the Pacific Coast the majority of these great producing counties, Whitman County, Washington, enters the roll of honor as sixth.

Ten years ago Californians were highly gratified over the fact that for the first time in the country's history the banner for county producing greatest value in crops came this side of the Rockies. The decade preceding had given that honor to Lancaster County, Pennsylvania (in 1910 taking second place.) A few weeks ago we referred to this and to the fact that California producers were watching for release of the figures of greatest crop production, or rather, crop production for the year 1919, which formed the basis for the 1920 census reckonings. Now comes the information that Los Angeles County is again the winner.

THE FOURTEEN HIGHEST PRODUCING COUNTIES OF THE UNITED STATES

	1919 Crop Value	1919 Rank	1909 Crop Value	1909 Rank
Los Angeles, Cal.	$62,212,843	1	$14,720,884	1
Orange, Cal.	22,735,381	12	6,176,337	52
San Bernardino, Cal.	26,681,925	8	6,818,233	39
San Joaquin, Cal.	39,748,032	3	9,082,240	10
Santa Clara, Cal.	23,679,237	11	6,968,438	34
Tulare, Cal.	33,329,607	4	5,353,994	90
Champaign, Ill.	23,688,925	10	9,991,658	9
Iroquois, Ill.	21,325,488	14	10,607,811	6
La Salle, Ill.	24,191,389	9	10,222,235	7
Livingston, Ill.	22,081,892	13	11,377,297	5
McLean, Ill.	26,887,618	7	12,811,506	3
Aroostook, Me.	52,541,205	2	10,150,955	8
Lancaster, Pa.	32,803,002	5	13,059,588	2
Whitman, Wash.	30,824,407	6	12,540,694	4

	Farm Value 1919	Farm Value 1909
Los Angeles, Cal.	$396,915,164	$199,998,200
Orange, Cal.	176,702,336	64,357,852
San Bernardino, Cal.	99,648,710	68,499,103
San Joaquin, Cal.	140,600,079	67,286,628
Santa Clara, Cal.	149,875,192	67,187,549
Tulare, Cal.	198,312,596	76,539,642
Champaign, Ill.	233,673,411	123,312,914
Iroquois, Ill.	196,789,973	105,107,898
La Salle, Ill.	213,717,738	114,911,820
Livingston, Ill.	230,814,178	121,558,684
McLean, Ill.	267,332,051	147,846,611
Aroostook, Me.	77,759,226	44,220,004
Lancaster, Pa.	119,842,187	84,426,907
Whitman, Wash.	135,765,506	67,357,022

Because of the slump in lemons and some other disastrous crop returns it had been feared that perhaps Los Angeles County might not be able to hold the banner, but notwithstanding these losses Los Angeles County produced during the year 1919 field and orchard crops to the value of $62,212,843, while the next highest county, Aroostook County Maine, produced nearly $10,000,000 less or, to be exact, $52,541,205. But Los Angeles County is not alone in California counties holding honors, for San Joaquin County comes third in all the counties of the United States. Tulare County, again, comes fourth, San Bernardino County is eighth, Santa Clara County eleventh and Orange County, twelfth of all the counties of the country. We have not yet received the figures for other California counties, but the thirteenth census (1910) report as to agriculture showed San Joaquin second in the state with about $9,000,000 production; Fresno third with nearly $8,000,000; Santa Clara with nearly $7,000,000; San Bernardino with almost $7,000,000 and many other counties with remarkable records.

The figures given in the enclosure on this page are subject to correction, but it is hardly probable that the rating of these counties will be changed. Especially is this true as to Los Angeles County which holds first place with nearly $10,000,000 above its nearest competitor.

The state next most highly honored is Illinois, which has three counties in the first twelve; likewise the thirteenth and fourteenth in the list. The only other counties of the East—

(Continued on Page 455.)

The Tioga Plan is for the Small Orchard and Ranch Owner

DO you want to earn from $30 to $40 a day during your spare time? It can be done—*is* being done—*you can do it.*

Here is an example: T. T. Lovelace resides west of Los Angeles. To do his farm work he bought a *Tioga Strength Tested Tractor* because of its celebrated P. T. Track *(Positive Traction)*—the biggest single advancement in tractor design in two years. With it, and the surplus—yes, *extra power* afforded, *he can plow, disc, cultivate, scrape, level* and do all kinds of farming and other operations on side hills, over rolling land, down into sloughs, in adobe, sand, silt, anywhere, *and he makes from $30 to $40 a day on the average* when he does custom work; that is, work for other farmers, contractors, etc., *of which there is plenty to do.*

Whether you farm ten acres, or one thousand acres, it is necessary to have a tractor with sufficient power so you can handle, efficiently, all your work. You should not be governed by the size of your orchard or ranch when purchasing a tractor; in other words; your machine must have sufficient power and traction to take care of any difficult work. *The Tioga plan will enable you to do this.*

We want to correspond with those who *wish to make a tractor pay for itself and earn what the investment and energy entitle the owner to receive.*

This is a new departure, so far as we know, in *tractor* merchandising. Our organization is planning, and carrying out other plans of far reaching effect, that, we believe, will make fortunate *Tioga Strength Tested Tractor owners* the most successful and prosperous tractor owners in California.

(1) Tioga handles side hill work, with loose soil conditions, efficiently. (2) Notice rear wheels riding surface of ground. No digging in or soil packing. (3) Tioga Tractor pulling 3 14-inch plows 8½ inches deep in soggy soil. (4) P. T. Track used on Tioga helps lay and break up cover crop before being plowed under. (5) Tioga pulling goose neck cultivator up 25% grade. Loose soil conditions. (6) Tioga Tractor pulling 3 14-inch plows in a cover crop in San Fernando Valley consisting of wild mustard and clover. These weeds stand 4½ feet tall and some of them are ½ inch thick. This is the first time over and not a weed showed after being plowed.

Why the Tioga Does This

A technical description of any tractor fills an ordinary book. *ONE FEATURE OF THE TIOGA,* the *P. T. TRACK (POSITIVE TRACTION)*, gives it several advantages over both ordinary wheel type and tracklayer tractors. This achievement in tractor building means 700 square inches of ground contact, with weight of only five pounds to the square inch. *No slippage* or *digging—Maximum traction.*

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I (do) (do not) own a tractor.

Every other part of the *TIOGA TRACTOR* shows the highest type of engineering skill and design equal to the *P. T. TRACK* and two years of actual operating under all kinds of conditions *PROVE ITS GREAT VALUE AND DEPENDABILITY.*

THE TIOGA IS A QUALITY TRACTOR, made by an unusually strong organization, both in a financial way and with many years tractor building experience. This coupled with the fact that each and every part is thoroughly tested, enables us to back the *TIOGA* up with a year's guarantee of service gratis.

Are You With Us on the New Deal?

We want to hear from farmers who wish to know more about the *Tioga Tractor* and how others are making $30 to $40 per day operating them on the *Tioga Plan.* It costs you nothing to get this and writing for it places you under no obligations to us whatever.

The *California Cultivator* guarantees its advertising and we will tell you the honest facts about our proposition, if you will be as frank and candid with us. There is work and demand for at least five times as many tractors, right here in California, as we can make this season. We expect to sell our entire factory production through the highest type of salesmanship and render real service.

With a plan to cooperate and help you to earn money; with arrangements being made with banks, wherever we have inquiries, to participate in the TIOGA PLAN, we offer you and others what we believe will prove decidedly interesting to the farmers and ranchers of California at this time. Inquiries will be answered in the order in which received.

California Cultivator

Vol. LVI, No. 14 | Los Angeles, April 2, 1921 | One Dollar Yearly

Grapefruit Culture in the Imperial Valley

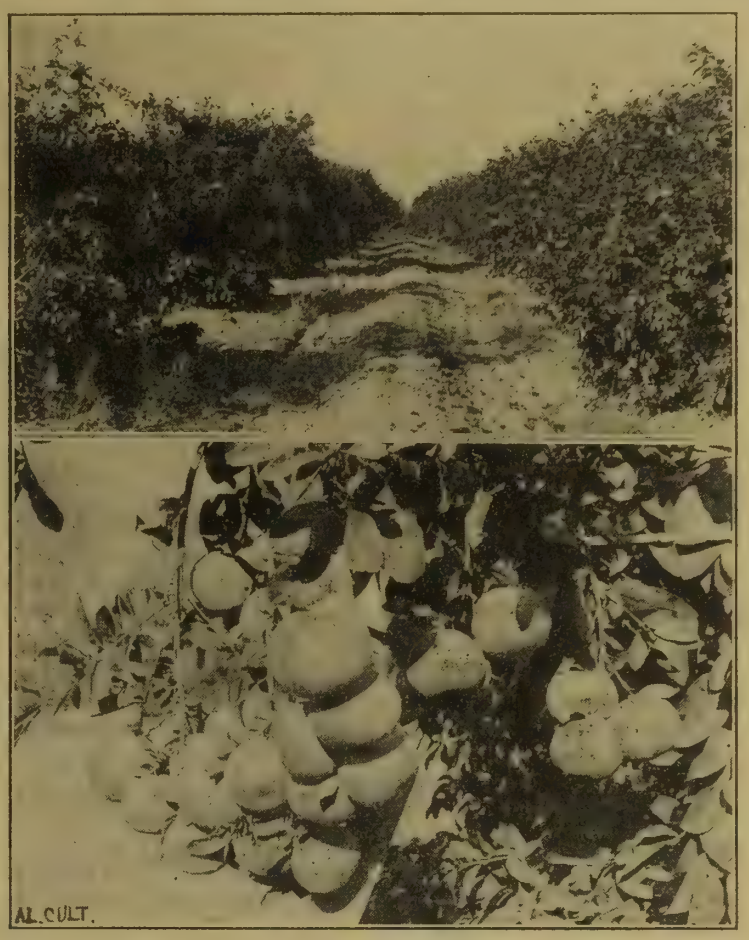
By Robert W. Hodgson

HAVING recently enjoyed, through the courtesy of Farm Adviser E. L. Garthwaite, the opportunity of making a brief survey of the grapefruit industry of the Imperial Valley, the writer has no hesitancy in saying that whatever experimental period there may have been in the culture of this fruit in Imperial County is definitely over. The raising of grapefruit in the Imperial Valley is at the present time a commercial industry and an unqualified success. Orchards were observed which several years ago reached the commercial bearing age and are now carrying crops in every way comparable with those borne by trees of similar size in any other part of the state. And the quality of the fruit leaves little to be desired, in the writer's opinion fully equal to and on the average greatly superior to that of grapefruit produced in any other part of the state. To be able to pick grapefruit directly from the tree and eat it out of hand without the addition of sugar—and to enjoy it—is certainly a novelty, and one not usual to most grapefruit districts.

The Imperial Valley enjoys not a few distinct advantages in the growing of grapefruit, and also has its share of problems. Among the former not the least in importance is the relatively low cost of land and water. In this respect this valley is to be classed with the citrus districts of Northern California. Excellent land adapted to the raising of grapefruit may be had at from a fourth to a third the cost of similar land in any part of the great citrus districts of Central and Southern California. And the cost of water is but a fraction of that in the other citrus growing areas of the state. These are both enormous advantages and of course are due primarily to the newness of the district.

Among other outstanding advantages are those of precocity of the trees and earliness in maturity of the fruit, undoubtedly due in a large measure to the high summation of heat units during the growing season and applying not only to grapefruit but to practically all other crops as well. Three years after planting respectable crops may be expected and commercially profitable crops at four years from setting are the rule. The trees are remarkably large for their age, there being at least a full year's difference in size between trees of the same age in the valley and in other parts of the state, and in many cases the difference is even greater.

The fruit reaches maturity early, the picking season beginning early in October and being practically over by the middle of February, in this respect being fully six weeks earlier than in most other parts of the state. This earliness of maturity is undoubtedly a most important advantage since it means practically no competition from other districts, at least during the fall and winter months.



Grapefruit in the Imperial
Upper: Imperial Valley Grapefruit Orchard. Bottom: As They Grow 'em in Imperial.

Add to this the superior quality mentioned above and one has a most formidable list of natural advantages enjoyed by the Imperial Valley grapefruit industry. The high quality of the fruit is unquestionably due to at least two principal factors, the planting of trees propagated from the very best strain of the Marsh Seedless variety, and the unusual climatic complex occuring in the valley. In this connection it is an interesting observation made by horticulturists time and again that quality of fruit apparently increases as the climatic environment approaches the limit beyond which the variety cannot be successfully grown. In the Navel orange this is particularly noticeable, the finest quality fruit invariably being produced in districts where the difficulties encountered in successfully raising the trees are the greatest—and still the trees survive. Thus the best flavored fruit as well as finest in texture is produced in interior districts where the greatest temperature fluctuations occur, and closest to the frost line. Hardier than any other of our principal citrus varieties, this is apparently the case with the grapefruit in the Imperial Valley, a heightening of quality occasioned by the severity of the environmental situation. In the writer's opinion the climatic complex which is responsible for the outstanding quality of Imperial Valley grapefruit also renders the growing of oranges and lemons commercially im-

(Continued on Page 455.)

Community Ownership of Tractors

IN an address before the Citrus Institute at San Bernardino, W. H. Fleet, manager of the Sespe Rancho, dealt with emphasis on the advisability of not overloading the tractor. Buy one of sufficient power if you want it to last and render efficient service. Mr. Fleet's address was most illuminating as to comparative value and economy of horse power and gas power. In effect, the conclusion of the entire article was: "It depends."

However, Mr. Fleet was emphatic in this, that the tractor has come to the orchards of California to stay. There are types of work and there are rush seasons of work when the tractor gets under the load and does it efficiently and quickly.

The small orchardist, however, finds himself unable to give sufficient work to a tractor to justify its ownership and upkeep. He realizes there are seasons, even in very small properties, where his team is unable to get under the entire load and do it as quickly as it should be done. San Dimas and some other sections have solved this problem by community ownership. A cooperative association is formed, the tractor, or perhaps tractors, are purchased, qualified superintendent and drivers are employed, and the community has its work done at the minimum of cost. Again, another plan is proving remarkably satisfactory, and with less of risk and practically no trouble to orchard or field owner. This is contracting with owner of tractor and equipment for a stipulated sum or per day or per hour. This plan is perhaps the most satisfactory where the individual owner can be induced to take up this line of work. We are not certain but that this field offers a remarkably attractive opening for those who are financially able to bear the initial expense. The publicly owned or privately owned machine under this contracting system would supply to the neighborhood a tractor of sufficient power, as Mr. Fleet suggested at the San Bernardino meeting, to do the heavy plowing, subsoiling and other heavy draft work. Under this plan the capitalization would be greatly reduced for every neighborhood. Parts of Mr. Fleet's conclusions are here given.

"Our ranch is somewhat of a broken nature. It is divided into tracts of from 30 to 100 acres. We call them natural subdivisions, as they are bounded by bluffs, arroyos, railroad and county roads. Our soil varies from heavy adobe to a heavy and light silty loam and each of these types of soil is further complicated in many cases by rocks and gravel. The topography of our tracts varies from those which are practically level to those embracing rolling land and hillsides. You can see from the description of our property that we cannot use tractor power on all of our tracts. In 1913 we purchased two tractors, one a 30 horsepower, the other a 60 horsepower. We have operated these two tractors seven years."

Mr. Fleet then gave tables from which he reached this conclusion:

"You can next see that with depreciation added the cost per day's work done is $1.67 with tractors and $1.40 with animals. By adding seven per cent interest on capital invested both in tractors and animals for seven years we have a cost per day's work done of $1.82 in tractors as compared with $1.49 in animals. This difference in favor of animals is brought about in part by the fact that the animals did almost double the number of days work that the tractors did."

But this disadvantage may be more than made up by the emergency advantage, that is, under stress the tractor is capable of working 24 hours per day while the horse must have an occasional day of rest, besides he is never able to put in more than half of the 24 hours. This is a point especially appreciated at this season of the year. Cover crops are being plowed under as rapidly as possible and when two or three days' delay means irreparable loss of moisture and of right soil conditions, a neighborhood or a contracting tractor may save the day and soon pay for itself. If desert heat prevails there is no danger of a tractor suffering sunstroke. She still plunges through without even a collar gall.

Agricultural News Notes of the Pacific Coast

Northern California

Gridley, Butte County, is making a shade tree planting campaign.

Chico, Butte County, will hold its second annual Flower Show, May 21.

Cloverdale, Sonoma County, is planning for its annual May Day celebration.

Livermore, Alameda County, farm center is making a membership campaign.

Penryn farm center recently tendered banquet to retiring Farm Adviser Amundsen.

Many rural sections of Alameda County are opposing consolidation with city government.

During the last week of February 30,750 dozen eggs were shipped from San Francisco to Hawaii.

Hayward members of the Japanese Exclusion League are making a drive for new members and additional funds.

The Alameda County farm bureau is uniting with the bureau of soils of the U. S. D. A. in making a soil survey.

Butte County farm bureau is unanimous in regard to membership in state and national farm bureau federations.

Chico Almond Growers Association is discussing coming season's output and methods of producing a larger and better crop.

Solano County Horticultural Commissioner Owen is conducting the county's annual squirrel drive which began April 1.

Orland, Glenn County, has a calf club which has the cooperation of the county's best Jersey breeders and all the banks of the county.

Contra Costa County farmers have invested more than $3,000 in carbon bisulphide for the first part of the campaign against squirrels.

A bargeload of rice consisting of 20 carloads was recently sent from Sidds Landing and Butte City. It was grown by Hindus, Japanese, Chinese and Californians.

The Poultry Producers of Central California handled during January an average per week of 9,837 cases of eggs. This is 91 per cent more than last January.

Poultry clubs have been organized in the Rio Linda, Del Paso and Franklin centers of the Sacramento County farm bureau and an egg laying contest has already been started.

Japanese bosses of laborers in the hop fields are demanding increased wages for work of grubbing. Growers are becoming incensed but find the Japs so far in control of the situation.

The P. G. & E. people have been given permission by the state railroad commission to make certain transfers of properties from the Northern California Power Company, connected with the Pitt River project.

Grape growers of Cloverdale recently met and resolved to support to the fullest the Grape Growers Exchange. It is claimed that California produces over 90 per cent of the grape crop of the United States.

The Cloverdale center of the Sonoma County farm bureau has decided to make a vigorous campaign for new members. One of the principal improvements contemplated is clearing the Russian River and reclaiming valuable agricultural land.

Central California

Fresno district fair, September 26. October 2.

Heavy rain and snowfall are reported in Sequoia Park.

Lindsay, Tulare County, is making shipments of broccoli.

Great plans are in the making for the celebration of Raisin Day.

There is being planted this year over 20,000 acres of grapevines.

Stanislaus County Poultry Association is buying feed for members.

A carload of eggs was shipped from Modesto direct to Cuba on March 4.

Oakdale, Stanislaus County, has decided on August 25-27 as fair dates.

Stanislaus County Poultry Association is discussing cooperative feed buying.

The Stanislaus Holstein Breeders Association held a sale at Gonzales, March 24.

The Ceres Farmers Union entertained a large number of visitors at its last meeting.

Turlock irrigators are fighting adoption by the state legislature of Senate bill No. 597.

Today, April 2, is date of the annual meeting of the Milk Producers of Central California at Modesto.

The West Joaquin irrigation district has been meeting and listening to report of the state engineer.

Cotton growers of the San Joaquin Valley are to meet in Fresno and confer as to their common interests.

The California Associated Raisin Company has fixed April 2 as closing date for the new contract campaign.

The land colony at Delhi has purchased a Holstein bull, De Kol Pontiac Tatti, from E. M. Morrow at Modesto.

Commissioner Collins of Tulare County is inspiring a squirrel campaign among the inspectors of the county.

Three farm bureau centers of Tulare County have just secured moving picture machines for community entertainments.

Ten trial plots have been located in San Joaquin County for trying out purple vetch under supervision of the farm bureau.

A quarter of a million dollars for a road into Kings river canyon is the objective of a bill introduced into the state legislature.

Fresno County beekeepers are fighting against Tulare County's new ordinance which provides for exclusion of Fresno colonies.

The farm advisers annual conference trek will begin at San Francisco, May 23, making tour of the San Joaquin Valley, ending May 28.

Official opening date for General, Grant, and Sequoia national parks, May 24; closing date, October 10. Yosemite is now open the year around.

Modesto proposes to organize a $100,000 corporation to handle sorghum syrup. It will be known as the California Sorghum Syrup Products Company.

Cotton growers of the San Joaquin Valley are planning to hold a mass meeting at Fresno for the purpose of forming a cooperative association. Most of this year's crop is still in the hands of the growers.

Southern California

Grain farmers especially are happy over the recent heavy rains.

Twenty-five hundred acres of sweet peas are grown for seed in California.

A lemon and orange pruning demonstration was held at La Verne, March 15.

Banning, Riverside County, is rapidly shipping its last season's almond crop.

October 21-23, Date Festival of the Coachella Valley. The festival will be held at Indio.

Utah and Idaho people picnicked at Sycamore Park, Los Angeles, Saturday, March 26.

The Covina Valley Fumigation Association has been organized with capital stock of $75,000.

The Rialto board of trustees has appointed a committee to look after street tree planting.

Date growers are asking that date palm trees be exempt from taxation for the first eight years.

The Santa Fe railway company insists that its name is not pronounced Santa "Fee" but Santa "Fay."

The San Gabriel Valley Associated Chambers of Commerce is taking up the matter of a daylight saving ordinance.

The directors of the Imperial County farm bureau have turned down the proposition of holding a county fair in the fall.

One day's shipment of lettuce from the Imperial Valley totaled 21 cars. Imperial Valley is shipping tomatoes in carlots.

The Murietta center of the Riverside County farm bureau held a gopher demonstration on the afternoon of March 28.

The cotton crop of the Palo Verde Valley for the season of 1920 was 16,000 bales. The gins have closed for the season.

The first meeting of the newly organized Yucaipa farm bureau center was held March 15. The new center starts with 76 members.

Cotton growers of Blythe, Riverside County, are considering establishing a factory to make cotton goods to secure some return for their crop.

A series of poultry culling demonstrations will be given this summer in the Lankershim district, Los Angeles County, by experts from the college of agriculture.

The shipment of citrus fruits by water from San Pedro is interesting growers of other products, many of whom went to the harbor to watch the loading of the "Liberator."

Imperial Valley shippers have sent telegrams to traffic managers of the great railway systems asking reduction in freight rates in order to save the cantaloupe crop, now estimated at 9,000 cars.

A poultry department has been organized in the Riverside County farm bureau. One object is to secure the services of a poultry specialist for Southern California. Another is to start an egg laying contest.

It is reported that companies owning a large number of trucks will contest the Orange County ordinance fixing maximum load at 23,400 pounds. This is said to conflict with the state law which puts the maximum at 30,000.

The Coast and General

Montana wheat is reported exceptionally fine.

Japanese have opened steamer line direct to Manzanillo, Mexico.

Farmers of Okanogan County, Washington, have decided upon a ground hog eradication campaign.

The Oregon Cooperative Dairymen's League has just taken in a block of 500 members along the lower Columbia.

The federal bureau of animal industry is starting a campaign for eradication of sheep scab in central Oregon.

A grower at Toledo, Washington, has just shipped two carloads of certified American Wonder seed potatoes to California.

The biennial report of the Oregon state engineer shows organization in that state of something over 60 irrigation districts.

Grain growers in the vicinity of Pomeroy, Washington, have purchased from one company 160,000 sacks for next year's harvest.

A cut of ten cents a box in the water rate shipment on apples from the Northwest has been announced by the Royal Mail Steam Packet Company.

Fruit growers in the Wenatchee Valley of Washington have signed up 4,200 carloads of fruit this season. This is at least 35 per cent of the total crop.

Local farm bureaus in Kittitas County, Washington, have completed survey of all the farm animals in the county, the object being to eradicate scrubs.

Honey producers the country over are anticipating a very good season. Most of the larger market centers of the East report supplies light, prices holding firm.

Montana's winter has been the mildest since the establishment of the weather bureau and now heavy snowfalls are being reported which will give moisture for early spring seeding.

An American Chamber of Commerce has been established at Alexandria, Egypt. It is expected that not only commercial advantages will be secured but advantages to farmers of America.

Washington State Holstein-Friesian Association held its annual meeting in Seattle, March 1, reelecting Fred H. Stimson, president, and Stanley V. Butchart of Sunnyside, executive secretary.

The North Marion County Berry Growers Association, Oregon, at its recent annual meeting at Woodburn recommended minimum rates on loganberries, 7 cents; raspberries, 12 cents; strawberries, 9 cents; gooseberries, 7 cents.

H. E. Sellwood of Portland has been elected president of the Oregon Poultry and Pet Stock Association. The association expects to hold its show this year at North Portland in connection with the Pacific International Livestock Exposition.

Wheat growers' associations of Idaho, Oregon, Washington and Montana have formed the Northwest Wheat Growers Association, which will be their selling agency, with temporary headquarters at Spokane. C. W. Nelson is sales manager, George C. Jewett, general manager.

The Grain Marketing Plan

THE Farmers Marketing Committee of 17, after six months intensive study of grain distribution and marketing has worked out a grain marketing plan to submit to the grain growers of the United States.

This plan will, in the opinion of the committee, eliminate waste in distribution, excess freight charges, provide for orderly marketing and more stable prices, and add materially to the net returns to the grower without increasing the price to the consumer. Grain selling will be concentrated in the hands of a national sales association, with membership and voting control limited to actual grain growers. This sales association will establish branch offices at all principal grain markets, including seats on boards of trade if they are found to be desirable. It will establish a complete system of gathering and interpreting statistics of world conditions affecting supply and demand. It will provide adequate means for financing orderly grain marketing through a subsidiary finance corporation. A subsidiary warehouse corporation will provide terminal and district warehouses with cleaning and conditioning machinery. An export corporation, also a subsidiary of the national sales association, will find foreign outlets for surplus grain. All money received for grain, less operating and handling costs, will be returned to the growers.

The best features of all successful cooperative marketing companies have been included in the new marketing plan, in the opinion of the committee. The plan makes no attempt to put grain marketing at once on a nation-wide pooling basis, but provides means for the development and extension of pooling as experience proves its adaptability to the grain business.

There are three fundamental elements in the proposed grain marketing system: The grain grower; the local cooperative elevator company or grain growers association; the central sales association.

The term "grain grower" includes any person who raises grain, and any land owner who receives all or part of his rent in grain. To become a member of the proposed grain marketing organization, the grain grower must do two things: Join the national sales association, paying the membership fee, which will probably be $10 for a permanent membership; sign a contract to deliver all of his surplus grain to the local elevator company or grain growers association for a period of probably five years.

How Grain Is Handled

The surplus grain of the members in a given locality may be handled in any one of two ways, as the members may decide.

It may be handled by the local cooperative elevator company or grain growers association just as at present—by purchase from members or by shipping for them on consignment.

It may be pooled. In such cases the directors of the elevator company or grain growers association will sell the grain at such time as seems most advantageous, and at the expiration of the pooling period will return to each grower the average price received for the grain of his kind, variety and grade, less cost of handling. Pools may cover any period of time up to one year.

Farmers Elevators Basic Part of Plan

The local cooperative elevator companies, which have been so successful in solving the grain marketing problem locally, are to be retained as a basic part of the new grain marketing system.

In order for an elevator company to become an integral part of this grain marketing system, however, it must be truly cooperative and owned by members of the National Sales Agency. A reasonable time will be allowed for elevator companies to make readjustments necessary to meet these requirements.

In case an elevator company does not meet the requirements within the time allotted, and in localities where there is no farmers elevator company, the members of the national sales association in a given locality will organize themselves into a local grain growers association. This association may then provide for the handling of its grain in any one of the following ways:

It may contract with a local farmers private or line elevator to receive its grain and load it for shipment for a handling charge mutually agreed upon; it may rent an elevator; it may build or buy an elevator.

This Month in the Ornamental Garden

Southern California

By Ernest Braunton

APRIL is, perhaps, the most unstable month for gardening of all the year. We may have much or no rain, nights so cold as to closely approach frost, days so hot that all who garden will succumb to "spring fever." What the month holds in store none may say, so be prepared for the worst.

Insect pests multiply as at no other season, so watch and spray; the two or three "green bugs" of today may be a multitudinous host tomorrow or the day after. It is best to stop this multiplication as early as possible. Fungous diseases also develop most rapidly under the stimulus so beneficial to all plant life, fungous or otherwise. Tobacco dust and sulphur are good materials to keep on hand for aphids or plant lice and for mildew, respectively.

In some sections high fogs prevail for days and then comes a very hot spell of cloudless skies. This sudden change works grievous injury to tender plants and often "burns off" seedlings at the soil surface. All plant growth will be benefited by a light sprinkling in early morn, preferably before sunrise. This morning bath is a great invigorator but must not be made to take the place of fundamental waterings or irrigations also so necessary during extreme "growing" weather. Abundance of water must be applied to all crops during April; to herbaceous garden plants it should be given twice each week. Do not leave seedlings too thick; thin out well—better one good plant than five weakly ones.

There is little use specifying what to sow or plant in April; it is essentially a planting time for hundreds of species and varieties in seeds and plants. All perennial roots that are beginning to make top growth may be transplanted either with or without division. It is now safe to put out the most tropical of plants, so do not restrict your gardening as to class, kind or fancied requirements; plants put out now will grow if they are ever to grow. Spring flowering bulbs, daffodils, etc., will be out of bloom but still keep them well watered, for now they make new bulbs, increase in size, and store vigor for next spring's floral effort. Only when foliage begins to turn yellow should you allow them to dry off. You may still plant bulbs such as amaryllis, cannas, callas, caladiums, gladiolus, hippeastrums, tuberoses and tuberous-rooted begonias. Do not forget yellow and pink callas. Bedding plants of all kinds should go out now, no matter what kind. If there remains any bare spot or spots in the garden now is the time to fill. No mistake can be made in April if we plant everywhere and everything.

Northern California

By A. R. Gould

THIS is the time to rearrange plants of all kinds, renew lawns or fertilize them, and here we might remark that even green grass needs a tonic and if you desire that fine dark green color on the lawn this coming season apply the commercial fertilizer now. We have often been asked to give hints on a good ground cover in place of grass for a lawn. There are two commonly used. Lippia makes a very good cover and should be planted two to three inches apart, using small sections. This will stand considerable wear and does not require the care and attention or the water that grass does. Then we have the wild strawberry which may be planted 10 to 12 inches apart. Both these should be planted in well prepared soil. For sloping ground these will be found very satisfactory or nesembryanthemum roseum will quickly give cover.

Climbers for the Trellis

Climbing roses: Banksia, white or yellow. Cherokee, white or pink. Marechal Niel. Reve d'Or. C. Bruner. Silver Moon. Climbing Sunburst, Testout or Beauty of Glazenwood. Passion vines are fast growers and Bignonia cherere, honeysuckle, clematis, ampelopsis, jasmine, mattress vine, Australian pea vine and cobea scandens. All should be planted in ground well manured.

Flower Seed To Sow Now

Asters; Comet, China and Cregos types, Stocks, zinnias, ageratum, nemesia, linaria, marigolds, scabiosa, phlox drummondi, lavatera, larkspur, clarkia and godetia, all free flowering annuals which will provide a display for summer and autumn. Sow these in fine sandy soil or a warm but shaded border at once. Sow very thinly in rows. Prepare beds and borders for planting these out later.

Dahlias

Secure tubers of these to plant out towards the end of the month. See that they have one or two "eyes" well sprouted before planting and prepare the ground by deep trenching with manure. There are now an endless number of varieties and they come in several types known as Show, Decorative, Paeony, Single Collarette Cactus and Pompom. They may also be raised from seed and some very interesting forms are obtained especially from hybrid Paeony and usually some fine single colors are secured. Seed must be sown in boxes of fine soil now.

Perennial Border

This may be added to and large clumps sub-divided and replanted. Secure new varieties of phlox, hardy aster and delphinium, all useful for cut flowers. Apply manure liberally and dig well in.

April in the Vegetable Garden

By A. R. Gould

WE congratulate ourselves on generous rainfall this season in our section. It has encouraged all and with careful management we should be well rewarded with good crops. Our planting list will be rather extensive and the work of preparing the plots by deep trenching and heavy manuring must be pushed forward and there will be also plenty of weeds to destroy before they begin to seed, hence it will be very necessary to keep the hoe moving.

Tomatoes

Having very carefully prepared the plot for these as we advised in our notes of last month and sowing the seed in a small hotbed everything should now be in order and by the middle of this month the seedlings may be put out at a distance of four feet apart. This is of course if you desire to have the plants ramble at will on the ground which is the method adopted by the commercial growers and is generally satisfactory. If you desire to have them climb and train them on the three stem system and grow select fruits then you may plant them closer at 2½ to 3 feet and as they grow tie them to strong sticks. In any case for the first few days after planting out, they must be protected from the sun until established. Plant firmly and water at time of planting. Strong plants may always be secured at this time of the most popular varieties, of your nurseryman. The varieties we recommend are Earliana, Chalk's Early Jewel and San Jose Canner. There are also the Red Cherry and Yellow types.

Lettuce

For succession sow Los Angeles in rows or broadcast very thinly on rich soil if you appreciate solid heads and keep this crop well watered. Any variety sown last month should be thinned or transplanted at least six inches apart.

Peas

Early varieties of this crop will have

(Continued on Page 454.)

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard — D. F. Reichard
J. W. Mills — J. B. Neff
Fred M. Reed — Louis B. Stanton
G. E. Gordon — M. E. Bemis
A. R. Gould — E. L. Koethen

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EDITORIALETTES

We Californians, engaged in the everlasting grind of wresting a living from the soil, find it difficult at such narrow range to estimate the wonders of our own state. At bit of help in that direction is given on the cover of this issue. The census shows the nation's growth commercially, industrially and agriculturally every ten years. It not only shows it in the mass or aggregate, but even county by county. Official figures are not yet given out., but the agent of the Los Angeles chamber of commerce in Washington has secured a fund of information as to agriculture, which has been forwarded and is shown for Cultivator readers. Note that of the 12 highest counties in agricultural production in all America California has six and the state of Washington one, making more than one-half of the 12 highest on the Pacific Coast. Better than all, one California county, Los Angeles, was shown by the census of 1909 to hold first place as producer of agricultural crops and still holds this honor in 1919.

* * *

We believe the most helpful department of the Cultivator is that which has to do with the answering of questions coming to the editorial desk by every mail. Some of these ask as to legal information; others as to poultry; still others have to be referred to the veterinarian; and many go to various sections of the state to bring back to the inquirers just the line of information desired. And there are still others, almost without number, which are answered by letter or by sending former copies of the Cultivator which have answered similar questions. We urge continued use of this department; at the same time would suggest that where a complete file of the Cultivator is kept these last questions referred to may be answered with less of effort on the part of the inquirer by simply referring to the index of former volumes. But keep the questions coming; we will secure the answer if answer is possible. In this particular, however, we ask the subscribers not to be discouraged if the answer does not appear in first issue of the paper following mailing to this office. These questions have come so rapidly lately that it has been impossible to get all into our columns. Last week there were several columns for which we could not find space and fear the same is true this week, though it will be noted we have given liberally of space to that department.

* * *

Poultrymen are being tested out in these days of desperately low egg prices. Prices today are lower than for years and are coming desperately close to the two-bit mark. It is going to be a testing time for co-operating poultry people. Members of the Southern California Association will discuss the situation at an all day meeting and picnic to be held at Pomona next Tuesday. The payments on the authorized capital stock of the association have now practically reached the $100,000 mark.

* * *

The average price of plowland per acre in the United States decreased about seven per cent during the past year, according to a report just issued by the United States department of agriculture. The average value of plowland per acre on March 1 of this year was $83.78, as compared to $90.01 in 1920 and $74.31 in 1919. The statisticians of the department attribute the decline to the reduction in the prices of crops. The report shows that the heaviest drop in the price of land is in the Southern states where cotton is the principal crop. In some sections of these states there has been a decline of 30 per cent in the price of plowland during the year. Kentucky showed the greatest decline, from $70 to $53 per acre, approximately 24 per cent. Iowa shows the highest price of plowland, namely, $200 per acre. Western states show the least decline, and California, Oregon and Colorado show an increase. The valuations of plowlands in this state were $130 per acre, while this year the price quoted is $135.

* * *

The severest frost in years has visited almost the entire United States east of the Rockies. In much of the Middle West it was so severe that blossoms of trees and tulips and other early flowers were frozen stiff and blackened. No crop reports are in as to effect on fruit production, but it is feared that it may be very serious.

* * *

This is election time in many municipalities of California. This, perhaps, does not concern most Cultivator readers, and yet with the liberality of our cities in offering of their benefits to the rural portion of the community, many California ranches are within municipal boundaries, so we are suggesting "do politics"; be a factor in the community's upbuilding. At least in one particular Cultivator readers should be awake, that is, in the matter of school boards. The education of our young is often not considered of sufficient importance to cause a real wide awake looking into the canvass which is made to secure proper directors. Lots of Bolshevik ideas may be instilled into the minds of the next generation by teachers of today. Do we know who is teaching our children and the what and why of their instruction?

* * *

In remarking as above we are not in any way lessening the importance of home training. The homes of America are the true foundation of stable government. If home training is gone, all is gone. Notwithstanding that, we still insist that it must not be lessened by contrary teachings in our public schools. We must not only keep the home fires burning for the return of the boys from war but of the boys and the girls from their daily contact with many kinds of people.

* * *

And by home fires we mean a great deal more than the cozy glow that shuts out all the world and shuts in "Me and my wife and my son John and his wife." It must be also the clear, bright flame that illuminates the world and the peoples of the world, that teaches the children to read and to study and to think and to discuss and be strong to act when the time shall come for them to take their place in the world of doing. We can't investigate the teacher, make sure that he or she is orthodox and then sit down absorbed in what we call the everyday tasks and pass on our responsibility for righteous thinking and acting to the next generation. Never in all history were there such opportunities for enlightened citizenship as today, and it's up to us and to our children to move the world forward in the right direction.

* * *

The figures on the first page are rather gratifying to Californians. The best of it is they are not the only figures favorable to California conditions that can be given. Next week we will have some more information about one little corner of California. It will be a story about "The Richest Poor Farm in the World." We will tell no more this week, not even as to where this farm is located. Our readers may all have opportunity to guess meantime. But we promise some wonderfully interesting facts and photos.

* * *

Anaheim, Orange County, is now getting into full swing with the Valencia Orange Show scheduled for next month, May 17-21. Other towns of Orange County and of Southern California are uniting in giving a boost to a California wealth producer, the Valencia orange. It is expected there will be about 150 exhibitors.

* * *

It is possibly a little late for winter irrigation but it is not too late for just plain every day irrigation. The orchard which starts the season with its soil supplied with water to a depth of four or six feet will make a less frequent demand for irrigation when the hot days of July and August come.

HOW NEAR HOME ARE WE?"

John Burroughs, whose intense love for trees and flowers and birds has inspired all the world to make more intimate these friends, died on his way to his home on the Hudson from a winter in California, on Tuesday, March 29. On learning of the naturalist's death, Thomas A. Edison remarked:

"To me he always appeared to be one of the highest types yet evolved in the advance of men to a higher stage."

Mr. Burroughs' love for nature was only exceeded by his love of home. His last words spoken only a few moments before his death, as the train was speeding toward his home, were, "How near home are we?"

CAROB PLANTING

A few cents put into seed of the eucalyptus tree and a few of the seed put into a fertile soil may result in a great addition to our comfort and possibly to our wealth in later life. Where one has cheaply procured lands, which are perhaps not usable for more valuable crops, there is little question but that a profit may be secured in the planting of the carob, or the tree known as the St. John's Bread tree. The fruit of this tree is covered with a pod or husk rich in protein and sugar.

The time was when we had a wild scramble in planting eucalyptus trees. Corporations were organized and the promoter seemed to rule the state. Small wage earners invested their money in a bubble which soon burst. It takes time to produce a forest tree.

There are some indications that over-enthusiastic friends of the carob are coming close to the danger line. The Riverside chamber of commerce made careful investigation of the carob plantation scheme and its committee made report at a recent meeting, which could hardly be called a recommendation, to pay $400 or $500 per acre for carob planted land. The only advice the Cultivator has is investigate carefully before investing.

A CALIFORNIA SHOW

The California Association of Nurserymen will hold a plant and flower exhibition, in connection with their next annual convention, that is aimed to be the biggest thing of its kind ever held in the United States. It will not be a Los Angeles show or one confined to or participated in mainly by the south end of the state, but a distinctive California exhibit of statewide products. One of the largest plant firms in San Francisco will send a full carload of flowering shrubs. The Pasadena Horticultural Society will merge its autumn show with this one, which still further insures the largest and best.

Exposition Park will be the site and the sunken garden of seven acres will be utilized for one great flower garden. The cut flowers and rare plants will be staged in the patio of the state armory to the east. This space, 240 by 400 feet, will be covered with canvas, making the largest exhibit hall in the south end of the state. The convention dates will be October 20-21-22, with the exhibition including the 23d. The Los Angeles chamber of commerce, the county supervisors, the city park department and many individual firms and business men are back of this show to make it the biggest, most important plant and flower exhibit ever held on the Pacific Coast. It is expected that in 1922 one will be held in San Francisco.

The last rains came at a time when it was feared serious brown rot would be caused to apricot fruit just setting, but the drying and warm weather succeeding the rain is declared to have saved the day.

Hog Wallows Again

By D. J. Whitney

AN unsigned communication in your issue of January 22 adds much to the puzzling and interesting subject of the origin of hog wallows. If others have ideas on the subject, it will be pleasant if they also volunteer them.

I must plead guilty to the charge of knowing very little about tules. However, tules start readily on hog wallow land when given the opportunity—in other words, when given lots of water. It is just possible that the nature of the soil, being much heavier than the soil the correspondent mentions, enabled the tules to grow in small clumps. The tules the correspondent mentions grow on flat, peaty soil. Hog wallows normally are on sloping land. These ideas are given without knowing much about tules, and they have to be taken on that basis.

Another angle to the matter is that possibly some other kind of water plant was responsible for catching the sediment in the water and forming the mounds.

As to the theory that uprooted oaks formed the hog wallows, there are two objections to it. In the first place, it would take large oaks to form such mounds. Large oaks are widely separated, too widely separated for the closeness of the hog wallows. Also most of the oaks I have seen on such land have been rather small, much smaller certainly than those on the well watered loam of the flat lands.

In addition the hardpan underlies practically all of the land and it follows roughly the shape of the surface, though the mounds are flatter and the hollows more shallow. Consequently the hardpan would have to have been formed after the fall of the oaks. Theoretically it would seem that soil which would form hardpan would form it soon after the soil itself got in place and while the oaks were still there. However, as far as the whole subject is concerned it is easier to pick flaws in a theory than to think up even a poor theory. I cannot claim the credit for the theory of water formation described in an earlier issue.

This soil itself is very interesting. Although extremely fertile when well handled, it is so tight and compact, wet or dry, that it is quite barren in a state of nature. In many ways it is much like adobe, but adobe forms wide, deep cracks when it dries out. This stays tight as a drum and hard as a brick.

Tht following theory about the origin of the hardpan may interest readers. It is not original with the writer.

As water from rain sank in it dissolved and carried down from the upper foot or so carbonates, silicates and other soluble soil material. Then when the water evaporated these materials were left at the level at which evaporation took place. Some evaporation took place at the surface; some more several inches down, but after the top soil dried out the bulk of evaporation occurred at a level as deep as the soil texture would let the air work well. That level became the level of the hardpan because most of the evaporation took place there.

These soluble substances left when the water evaporated cemented the ordinary soil particles tightly together. Moisture from below gradually rose as evaporation continued, carrying with it the cementing material until the hardpan as we know it was formed. Any person who has to handle it wishes that this was not the case, but wishing does not help. Hard work and dynamite seem to be the only remedy.

If others can add facts or ideas of interest to this discussion, I hope they will do so.

* * *

Since writing the preceding a neighbor has suggested the following thought. We all know how dirt on the bed of a wagon will gather in little heaps when the wagon is driven over a bumpy road.

Similarly, this rancher thinks that when the world was young the soil may have been very loose and a series of heavy and long continued earthquakes possibly came along and shook it into the little hills and hollows we now find, climatic changes making a change in the texture of the soil. Such a change would have been necessary if this theory is probable, because the soil now cannot be shaken out of its natural form, wet or dry.

The whole subject is so interesting and puzzling that every additional suggestion ought to be of great value.

* * *

By L. C. Crossman

Lately I noticed a bit of theorizing on the origin of "hog wallows" in the San Joaquin Valley, and I venture to tickle the risibilities of the wise ones with the real solution.

The bed of Snake River today presents exactly the same conditions, but because that river very seldom overflows, leaving large mud flats like other rivers, these wallows are seldom seen, but there are places where the work can be seen, and the ripple whirlpools almost everywhere show that the bottom is full of them.

What makes them? Sturgeon. Now laugh, but that is exactly what does it. They root around on the mud flats for all the world like a big hog, and as monsters 10 to 15 feet long and weighing from 1100 to 1500 pounds are not so very uncommon you can readily imagine the wallows they can and do make.

I do not know that the San Joaquin was ever a great inland sea or mighty river, but if it was then the sturgeon, being a very primitve fish, so primitive that he has not even yet developed a bony skeleton, would surely be there in vast numbers, and likely running from 500 to 2000 pounds or more.

West of Delano are many of these hog wallows that nothing ever piled up save something that could root just like a giant hog, and they have no resemblance to the wind dunes of the Imperial Valley.

THIS YEAR AND LAST

A study of the jobbing price of a few of the leading fruits and vegetables as reported by the United States bureau of markets for the first week in March this year as compared with the corresponding week last year is of vital interest at this time.

Take for example potatoes which ranged in ten of the biggest receiving markets of the country this year $1.50-$1.60 per 100 pounds. Last year they were in the same markets $5.50-$5.75.

Sacked onions per 100 pounds this year 75-90 cents and last year $5.75-$6.00 in the same market.

Old storage cabbage per ton this year is jobbing at $18.00-$20.00. Last year it was bringing all the way from $90.00 to $100.00 per ton.

That a corresponding drop in the retail prices of these commodities has not been apparent to the ultimate consumer is due to several causes. Many retail grocers have taken heavy losses on canned goods and on dried fruits and are still selling these items at a loss. They see a chance to cover part of this by holding out for the old price on more perishable vegetables which cost them very much less in a wholesale way than a year ago.

Then too it must be admitted that their cost of doing business has declined little if any and that the consumers themselves are still not buying with as much discrimination as they might. With the keen competition between retailers, the consumers have the power in their own hands to realize these declines in wholesale prices whenever they choose to shop around instead of ordering their supplies over the telephone, having them delivered and the bill charged to their account. —H. H. W.

The lettuce movement from the Imperial Valley is practically over, with a few cars of rather poor quality still to go forward. In spite of the higher freight rates very few fields were plowed under and while the growers scarcely averaged the cost of production, the fact that the market warranted the movement of the entire crop was a surprise to all interested in the deal.—H. H. W.

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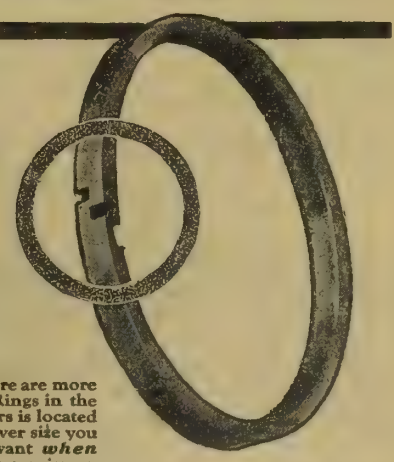

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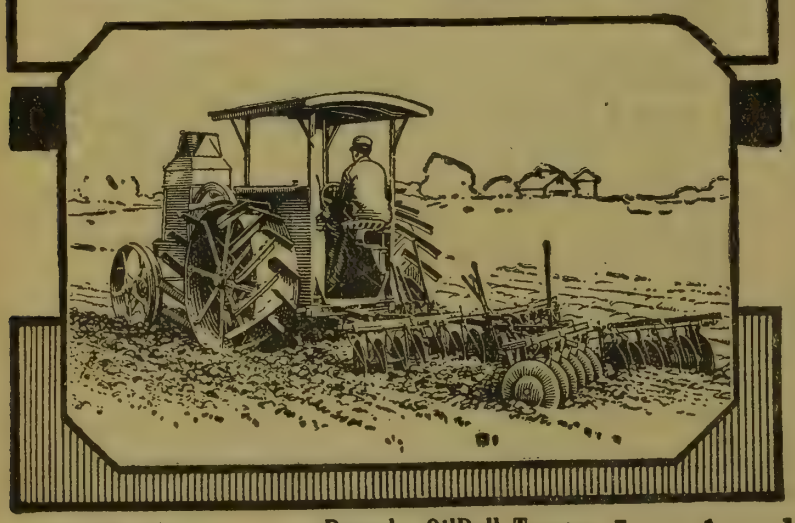

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Farm Bureau Announces Wage Scale

At the recent meeting of the board of directors of the Los Angeles County farm bureau, Director Aschenbrenner, chairman of the labor committee, presented a report on the activities of the farm bureau relative to the labor situation and reduction in wage scales. Originating in the El Monte center, the movement for establishing a standard scale of wages has spread from center to center until at the present time a dozen or more have wage scale committees actively at work. A number of these centers had representatives present at the last meeting of the labor committee, at which time an effort was made to outline a recommended wage scale for the different agricultural districts of the county.

After a great deal of discussion and deliberation, and after consultation with a representative of the public employment bureau maintained in Los Angeles, the committee made the following recommendation as to a reasonable and just wage scale:

For Citrus Districts

Unskilled labor, 35c an hour; teamsters, 40c an hour; tractor operators, 40c to 50c an hour; pruners, 50c an hour; tractor work, $2.00 to $2.25 an hour; team work, $7.00 to $7.50 per nine hour day.

For General Farming Districts

Unskilled labor, $2.00 to $2.25 per day and board, or $40.00 to $50.00 per month and board; ranch foremen, $75.00 to $100.00 per month with house.

It is recognized that there will be slight differences in different districts and that these will necessarily have to be taken into consideration.

The above recommended wage scale is offered as a means of stabilizing the labor situation in different parts of the county. It is suggested that farm bureau members and farmers generally adopt the wage scale recommended and use the farm labor associations which are being organized in various parts of the county through the field department of the California Fruit Growers' Exchange, as a means of supplying needed labor. Such an organization exists in the San Gabriel Valley and one is now being organized in the San Fernando Valley.

The committee also desires to call attention to the fact that the labor supply is ample at the present time and all indications point toward there being plenty for the coming season. The committee suggests and recommends that farmers become better acquainted with the service rendered by the Public Employment Bureau, 212 Franklin Street, Los Angeles.

Orange County Avocados

By Ernest Braunton

THE writer spent a long day last week in the canvass of several of the many avocado orchards in Orange County. More time was consumed in the C. E. Utt orchard near Tustin than in any other. Here are a variety of named trees but mostly of Sharpless and Taft. They are eight years old and of course the latter variety is just coming into bearing.

In an interview with Mr. Utt he stated: "While the Taft is slow in fruiting, so slow I would not now plant a new orchard of it, it is a most excellent fruit, and when once the yield starts, is steady and sure. While several excellent varieties fruit heavily one year and have practically none the next, the Taft bears a fair crop of high grade uniform fruits every year and they command top prices." In warm localities, where frosts are not severe, and where the home orchard will afford space for a variety, a Taft tree should find a place. It is "slow, but sure." Mr. Utt, being a man of large and varied interests, cannot bother with the work of handling his own avocados, so sold the crop in this mixed orchard for the year 1921 for $5,000. Just the acreage the writer does not know but it appears to be ten or twelve.

One piece of information obtained was most pleasing for it has been a leading question: "What returns do the growers receive?" These are facts: One prominent grower, who is sometimes known as "the grand old man" of the avocado industry, sells his entire 1921 crop (largely Fuerte) to a Los Angeles hotel for 72 cents a pound. Another grower has sold his for 80 cents a pound and has taken $300 worth from one tree. The Cultivator is not predicting that such prices will permanently obtain or even last another year, but the trees will yield no less and the reader may make his own prospective computations. The present profits certainly are satisfactory.

Aside from Wilson Popenoe, the plant explorer for Uncle Sam, E. E. Knight of Yorba Linda is the only man to go to Guatemala for the specific purpose of getting budwood from the best varieties of avocados. He secured five which were budded into Mexican seedlings and were named: Queen, Linda, Knight, Kist and Rey and have found favor with commercial growers in the order named. The marked exception is the Rey, which is of little value. The Kist is not a good variety for commercial planting and the seed is too large compared with the amount of flesh present. The three others are of high grade and each year are finding more favor with experienced growers. Of these the Linda is the larger, the largest in fact of all avocados grown in California. Mr. Knight says J. T. Whedon, also of Yorba Linda, and the pioneer avocado grower of Orange County, produces the largest and best Lindas. W. A. Spinks of Duarte has several hundred each of the three leading Knight importations and has the best trees and fruits of the Knight variety. Queen has so far proved the better in yield. Mr. Knight is this year budding over 140 of the worthless Rey to Queen and Linda. The latter has been thought by some to be too large, for under intensive cultivation fruits have been produced that weighed more than four pounds each, but with mature trees and as grown by Mr. Knight the fruits average about one and a half pounds each. It becomes more evident each year that we do not yet understand the adaptability of variety to soil, climate and general conditions. Results are quite variant throughout the avocado orchards, and more light, based on experience, is needed for intelligent planting.

THE NEWER AVOCADOS

The last report of the committee on registration and classification of varieties of the California Avocado Association, under the head of "new varieties," states:

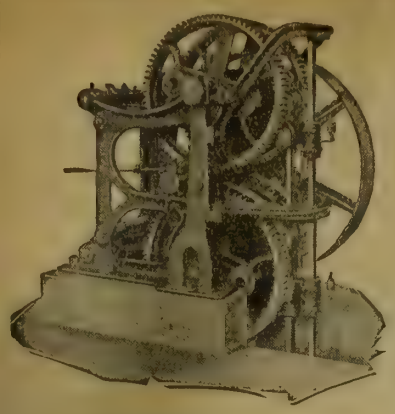
"The Queen and Dickey A are the leaders among the new varieties, but we have only one season's fruit from which to test the first and a limited experience with young budded trees of each kind.

"The Queen is rich in flavor, excellent in quality and notable in beauty of appearance of the flesh when cut. The tree is of a somewhat spreading growth. The ripening period is early summer; the seed medium to small for the large fruit, color dark red to dark purple; shape pyriform, slightly corrugated; skin thick, granular and brittle. Flesh, rich clear yellow, changing to beautiful dark green next to skin, and with no fiber.

"The Dickey A is a spring fruit; it is hardy, promises well in prolificness, and the quality of the fruit is extremely good. The weight, 12 to 18 ounces; seed very small, 1½ to 2 ounces; color, dark red to purple."

AVOCADO: FLOWER TO FRUIT

Many inquiries come in as to the time elapsing between flowering and maturity of avocados. One year may be accepted as the minimum time and this holds good for the Mexican or thin-skinned section only. Even the



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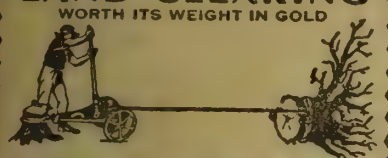
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preferred Puebla, in cold heavy soils, will occasionally run to 14 or even to 15 months. The range of 12 to 18 months will cover all known varieties. It is believed the Sharpless requires the full 18 months but Dickinson and Spinks will run 15 to 18 months, time determined by soil, climate and treatment. Fuerte, Queen, Linda and other standard varieties range from 13 to 16 months from flower to fruit.

SEEDLING AVOCADOS

In Tustin, Orange County, there are numbers of large seedling Mexican avocado trees planted along the streets. These are of poor type, except two or three, many not fruiting at all and the others bearing few fruits of little value. One of the best was mentioned in the Cultivator some months ago as fruiting well in September 1901. C. E. Utt says this, with the others, was planted 28 years ago, or in 1893.

QUICK DEATH FOR CUTWORMS

Cutworms are reported to the United States department of agriculture as making a clean sweep of the wheat lots on the experiment farm of the department's dry land agricultural project at Woodward, Oklahoma. The cutworms are of the species known as the granulated cutworm.

Poisoned bran bait is the specific remedy for cutworms. The accepted formula is wheat bran, 50 pounds; Paris green or crude arsenic, 2 pounds; black strap molasses, 2 quarts; water, 2 to 4 quarts or more as needed. Mix the bran and poison thoroughly in a dry state, then add the diluted molasses, and stir vigorously until thoroughly mixed. Distribute the bran over the infested field broadcast, taking care to sprinkle it sparingly around each hill. Middlings or alfalfa meal may be substituted for bran.

KEEPING DATES

This has nothing to do with engagements or appointments, but with fruits of the date palm. While in Coachella Valley recently the writer ate heavily of dates for several days. Those of common varieties were either dried or in airtight glass container. The latter, sterilized and confined in September, were as fresh and juicy in February as when gathered from the palms. A variety of seedlings from the well known Menakher date were dried and make excellent "chewing dates," but no others in this respect are of such high quality as the Asharasi, the best dry date the writer has eaten. Many date growers have their own curing houses and several cooperative packing houses have been built.

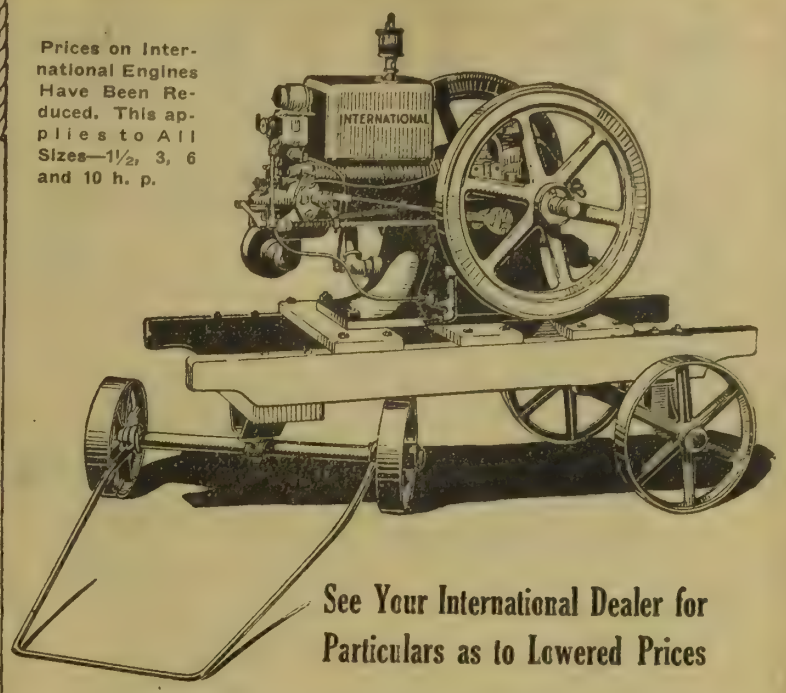
The Coachella rancher is extremely optimistic and of the many offshoots available from many plantations not one is for sale, each grower wishing to extend his own date acreage as much as possible. This is a hopeful sign and full of promise for future dates.

FLOWER SHOW PRIZES

In the 1921 schedule of the Massachusetts Horticultural Society for cash prizes awarded to flowering plants and cut flowers, the total for roses is $4576, and for chrysanthemums $1841, more than half of which sums are for flowering plants. In flowers alone gladiolus leads, with $466, carnations next, with $290, and peonies third, with $105. Orchid plants in bloom are to be awarded $850 and cut orchid flowers $150. Of course all orchids are grown in hothouses, so are not in the same class as the other plants and flowers listed.

FIGS FROM SPAIN

The United States vice consul at Huelva, Spain, reports an enormous crop of figs and chestnuts for 1920, far surpassing that of 1919. The shipments of chestnuts to the United States during the past year show a material increase, but fig shipments to this country were very light last year. The cause of the decrease lies in low price, an indifferent demand and a drop in the value of the Spanish peseta, the latter amounting to nearly 50 per cent.

Prices on International Engines Have Been Reduced. This applies to All Sizes—1½, 3, 6 and 10 h. p.


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In accomplishing this, *International Engines* use low-grade fuels. They are simple to operate—many farmer boys not yet in their teens start and operate International Engines with ease.

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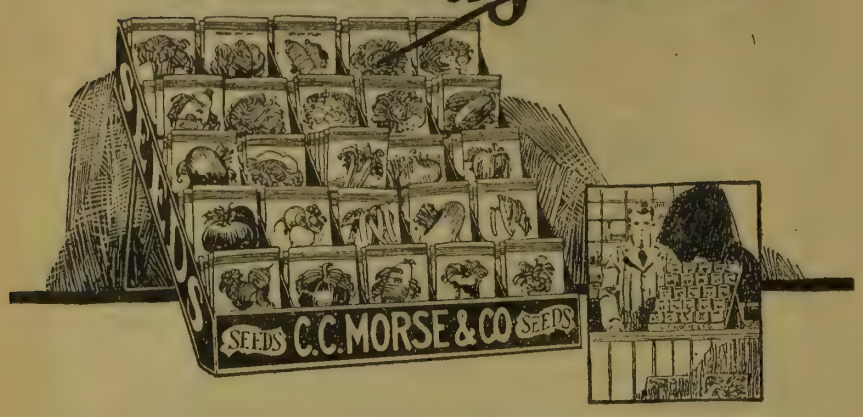

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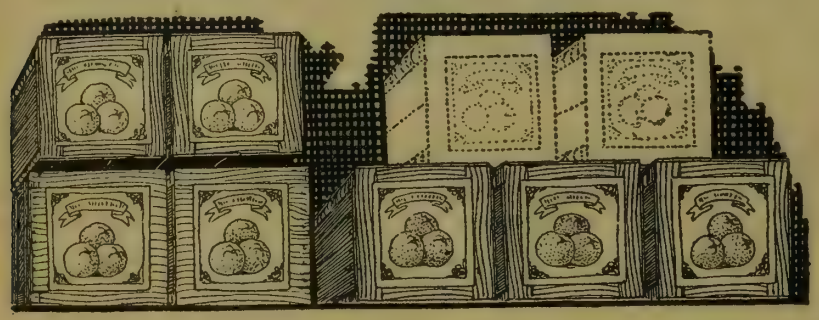

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THIS MONTH IN THE VEGETABLE GARDEN IN NORTHERN CALIFORNIA

(Continued from Page 449.)

been picked and those sown for succession will be now coming in. You should sow every three weeks for a time to keep a fresh supply. Such well tested varieties as Little Marvel, Laxtonian and Stratagem should be planted. Make a sowing now and sow thinly. If you have a surplus they may be collected and kept in the dry state for use during the winter.

Carrots

Make a sowing at the end of the month on rich soil of French Forcing and Danver's Half Long. Sow in rows 18 to 20 inches apart very thinly. After the rains are over these will need irrigating at least every two weeks.

Squash, Muskmelon and Watermelon

These should be sown, three or four seeds to a mound which should be well prepared with manure. Place four feet apart each way. Water the seeds immediately after sowing. There are many squash and pumpkins in cultivation and we dare not mention them all but the best are: Hubbard, Early White Bush Scallop and Boston Marrow. Pie pumpkins are Morse's Marrow and California Field which grow to a considerable size. Vegetable marrows are also very popular. Of these there are both green and yellow varieties. Excellent muskmelons are Persian, Bay View, Honey Dew and Golden Beauty casaba. Watermelons; Georgia Rattlesnake, Kleckley's Sweet and Chilian.

Cucumbers

Follow the same cultural methods as advised above for squash, etc., and sow the following varieties in well manured mounds; White Spine, Long Green and Lemon. The last named is shaped like a lemon and has of late years become very popular as it has an excellent flavor and quickly matures.

Onions

Complete the thinning out of this crop and leave the plants six inches apart in the row. Transplant seedlings to well prepared beds. Dried onions are easily stored through the winter, hence it will be advisable to make an increased planting. As the plants become established cultivate frequently through the rows.

Corn

Sweet corn is always a popular dish and several sowings should be made throughout the season to have it fresh. Make a sowing the middle of the month of Country Gentleman, Golden Bantam and Golden Cream. Sow three seeds in a group three feet apart each way in rich soil. Field corn may be sown under the same conditions and we recommend Yellow Flint, Leaming and Golden Dent.

Beans

During this month we can sow the more tender varieties in rows, 20 inches or more apart. The best pole varieties are Kentucky Wonder, Golden Cluster and Horticultural. The dwarf are Stringless Green Pod, Golden Wax, Refugee and Davis White Wax. Another sowing of Canadian Wonder may be made.

Egg Plant and Peppers

Sow in boxes seeds of Black Beauty egg plant and Chinese Giant. Pimiento and Red Chili peppers, or strong plants may usually be secured from your nurseryman.

Beets and Swiss Chard

If seeds of these were sown last month as advised the seedlings will need thinning out to six or eight inches apart.

Turnips

Sow very thinly Early Snowball and Purple Top in richly prepared soil.

Celery and Leeks

Seeds of both should be sown in boxes of fine soil and placed in a warm situation. Golden Self Blanching and White Plume are very fine flavored varieties of celery and American Flag and Musselburgh are excellent leeks. Trenches 18 to 24 inches deep should be dug and well manured for planting out these two very desirable vegetables.

Parsley

Sow double or Moss Curled in rows thinly for late use.

Southern California

By D. F. Reichard

THIS has been an ideal spring for the garden. The weather has been mild and the rain gentle and generous. These make for good growing conditions. For those who have not been able to get a garden started we can say, "Do t now." Work up the desired plot and get it into shape to receive the seed as soon as possible. This is the last month in which one can successfully get a garden started.

In the gardens that are already started keep diligently after the weeds and cultivate thoroughly. Also cultivate any unplanted ground in order to keep it in perfect mulch that the moisture may be retained and to destroy weeds.

The ground is warm enough now so that plants and seeds in all lines may be put out. Set out plants of tomatoes, peppers, egg plant, roselle and sweet potatoes. Sow seed of sweet and field corn, cucumbers, melons, okra, pole and bush beans, summer squash, also winter squash, roselle or jelly plant. Besides these tender things put in small plantings of the hardier vegetables such as carrots, beets, radishes, turnips, spinach, Iceberg lettuce, onions, parsley, parsnips and the like.

Watch all growing stuff for insect and fungus attacks. The plant lice are usually bad this month and next. Get after them with Black Leaf 40 diluted as directed. Thin out all young plants that they may get their proper growth.

Southern Arizona

By M. E. Bemis

LESSENED activity in planting and increased cultural activities mark the month of April for southern Arizona. The list of plantable things narrows as the warm season advances, and with the coming of warmer weather evaporation increases and the necessity for cultivation and irrigation increases.

Asparagus roots, sweet potato plants, tomato and pepper plants may be set in the open ground. It seems at this date (April 24) that there is not much danger of late frosts. At any rate we have had so little cold weather and there is so small an amount of snow on even the highest mountains that it does not look as though there would be any late frosts to do damage to tomato or other tender plants that may be set now.

This year of all years the garden should mean more to the farmer than any other. With doubtful values attached to future farm products of all kinds, the home living assumes a greater importance relatively than ever before.

It is not too late to make a beginning in gardening even though no preparations have yet been begun. Tomatoes enter to a very large extent into the living of many families, and this is the ideal time to get busy and prepare the land for a few plants and then buy them and put them out. The varieties that do best are readily obtainable at the seed stores. Beets, melons, cucumbers, pumpkins, radishes, and squash may be planted for main crop or for succession.

Peanuts, while not strictly speaking a garden crop, have their distinctive place on every farm, unless it be in the extremely heavy soils. Peanuts are coming less and less to be regarded as a luxury and more and more as a necessity. Their food value is becoming better known, and possibly the time is not far off when peanuts will be regarded as a staple crop quite as much as potatoes.

A difficulty experienced here is in obtaining a stand. Good yields are usual if there is a fair stand. They should be planted in rows three feet apart and 20 inches apart in the row. About 15 pounds of peanuts in the shell are required for one acre The

Virginia Bunch is probably better adapted to southern Arizona than the Spanish or any other variety. They should be irrigated frequently during the growing season and a cultivation should follow each irrigation as long as possible to get through the rows without injury.

GRAPEFRUIT CULTURE IN THE IMPERIAL VALLEY

(Continued from Page 447.)

practicable, not that the trees fail to survive but that the crops are unsatisfactory either in amount or quality or both.

And not only does the Imperial Valley offer the above mentioned advantages as a grapefruit district but in point of yield and in size of fruit it compares favorably with other districts. Contrary to the expectations of some, the yield as above mentioned is not noticeably smaller than in other districts. A seven year old tree carrying 15 picking boxes of fruit would certainly not be considered as a poor crop. And that is what the writer observed on one of the older orchards. And the size of fruit was splendid, not too large and not too small, the ideal size for serving in the half.

Having devoted some little space to discussing the advantages offered by the valley as a grapefruit district, it is only fair to deal briefly with certain of the difficulties encountered and some of the problems confronting grapefruit growers in the valley.

The problem of establishing a grapefruit orchard in the Imperial Valley is a more difficult one than in the more favored citrus districts of other parts of the state. Mistakes have been made in planting in too cold districts where the trees are frosted back frequently. Orchards were seen where the trees had been killed back below the bud union, some having been entirely killed out and others coming out from the stock. Undoubtedly extra care is necessary in order to satisfactorily establish an orchard. Among the factors contributing to successfully establishing an orchard, and which should receive attention from Imperial Valley grapefruit growers, are early planting and protection against both sunburn and frost. Earliness in planting is extremely desirable in order to gain the largest possible growth the first season as a means of successfully wintering the first year. Late February or March seem to be the best months for planting. Protection against sunburn by both whitewashing and protectors would seem to be a precaution well worth while. And wrapping the trees with cornstalks, tule, or other protective covering during the first two or three winter seasons is to be advised. After passing the third year the trees may be expected to be able to stand practically any cool weather which may occur.

The irrigation problem is one on which there seems to be little agreement and a consequent wide variety in practice. In the absence of winter rains it is of course a foregone conclusion that irrigation throughout the entire year is a necessity, although in order to harden up the trees against frost injury it will probably prove advisable to cut down on water during the late summer and early fall months. Winter irrigation, however, in preparation for the spring bloom should not be neglected, in the writer's opinion.

The period elapsing between irrigations and the length of the furrow, as well as the time the water is allowed to run in the furrows, will of course depend very largely upon the soil. In the heavier soils the periods will of course be longer, as will also the length of furrows and the length of time in the furrows, than is the case in the lighter soils. With the high evaporation, however, the periods between irrigations should probably not exceed five weeks even in the heavier soils, and in the lighter soils should very likely not exceed three weeks at most. The use of deep furrows is also to be advised as encouraging penetration of irrigation water.

A problem already causing considerable anxiety is that of the compacting of the heavier soils with the formation of very tenacious and practically impervious plowsoles. This seems to be due to at least two principal factors, the natural formation of many of the heavier soils and the infiltration occasioned by the use of irrigation water carrying large quantities of silty material. The use of tools giving a compacting effect, such as the disk harrow, is a contributing factor to this condition. In the opinion of the writer this constitutes a major problem for orchardists located on the heavier soil and furnishes the principal reason why only the lighter soils should be selected for grapefruit culture. Subsoiling at frequent intervals, deep cultivation, avoidance of packing implements, and the growing of deep rooted cover crops may, and probably will, aid in overcoming this condition, but it undoubtedly will continue to furnish a most vexatious problem for the Imperial Valley grapefruit grower who has planted his trees on the heavier soils.

With naturally fertile soils and using irrigation water which each year adds its increment of silt, the problem of fertilization has not as yet been given much attention. It is doubtful whether surface application of manure will accomplish much under the intense dry heat which prevails in the valley. Plowing such material under deeply in late fall or applying it in deep furrows will undoubtedly be found to give better results.

Pruning does not present a serious or difficult problem. Such treatment should be primarily a judicious thinning of the outer shell of foliage so as to encourage a greater production of inside fruit, and raising the trees up from the ground to permit of cultivating and furrowing underneath. In thinning care must be taken not to unduly expose the interior branches to direct sunlight, else sunburn may result.

Undoubtedly grapefruit culture in the Imperial Valley is destined to become an important industry. With many natural advantages in the shape of low production costs, earliness, and unusual quality it can hardly fail to achieve a notable success. That others feel similarly toward its future is evident from the fact that large plantings for the coming season are contemplated. The writer was recently informed by a prominent Los Angeles fruit grower of his placing an order for trees for 80 acres, to be set a year from the coming spring.

CALIFORNIA IS JUSTIFIED IN BOASTING

(Continued from Cover Page.)

for which we have received figures, are Aroostook, Maine, the potato growing county which produced in 1909, 17,514,491 bushels, a production which was equaled by only six entire states in the Union, which is second to Los Angeles, and Lancaster County, Pennsylvania, the former honor holder, now with a production of $32,000,000, fifth in the list.

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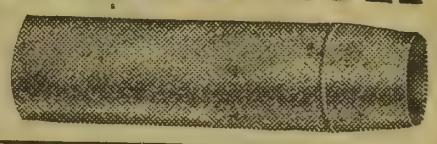

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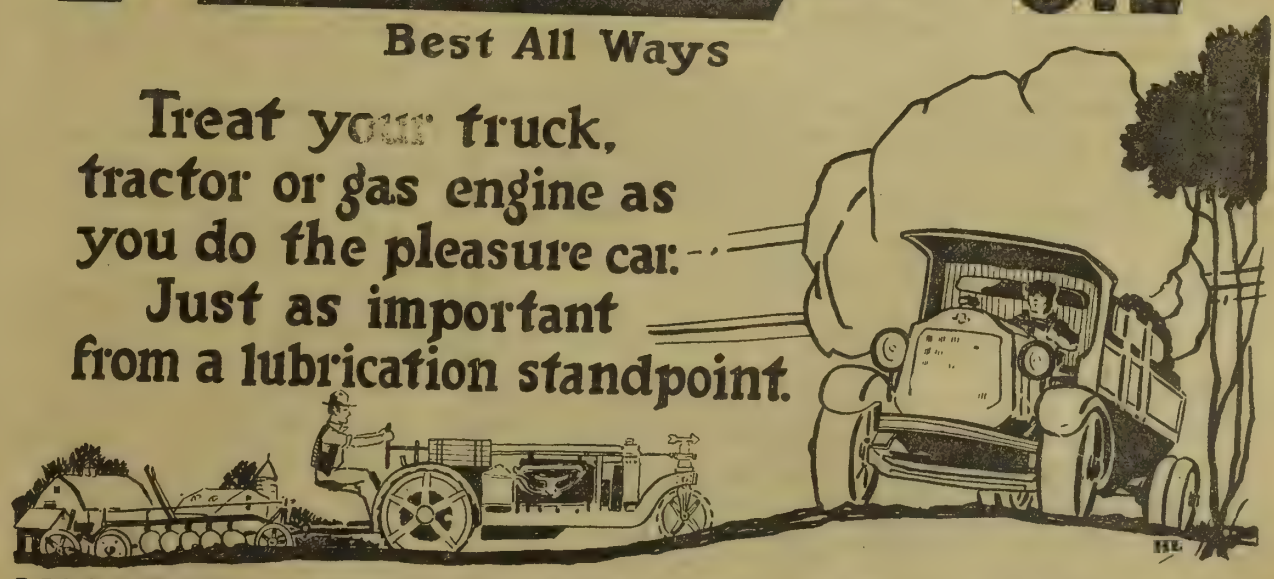


UNION OIL COMPANY OF CALIFORNIA

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Asparagus and Cyclamen

Please tell me how to propagate asparagus plumosus. Can it be grown from cuttings? Please tell me how to grow and care for cyclamen. Should they be kept in a shady location and very damp? How should they be fertilized? Can plum trees be grown from cuttings? If so, how and when should the cuttings be planted?—Subscriber, Bakersfield.

Hardly any truly bulbous plant may be grown from cuttings (the dahlia is tuberous), and asparagus belongs to the lily family. Propagation must be by seeds or by division of the clumps of roots. Cyclamen should at all times be grown in shade, in very well drained soil yet kept moist. Tops of bulbs should be exposed, not buried in the soil. Keep growing for 60 days after blooming and rest by allowing bulbs to dry and tops to die. Then store in cool, dry place until autumn. Mix well decayed manure or commercial fertilizer most thoroughly with soil before replanting. Plums may be grown from cuttings but not readily and resultant young trees are weakly. Bud or graft.

Buried Pomegranates

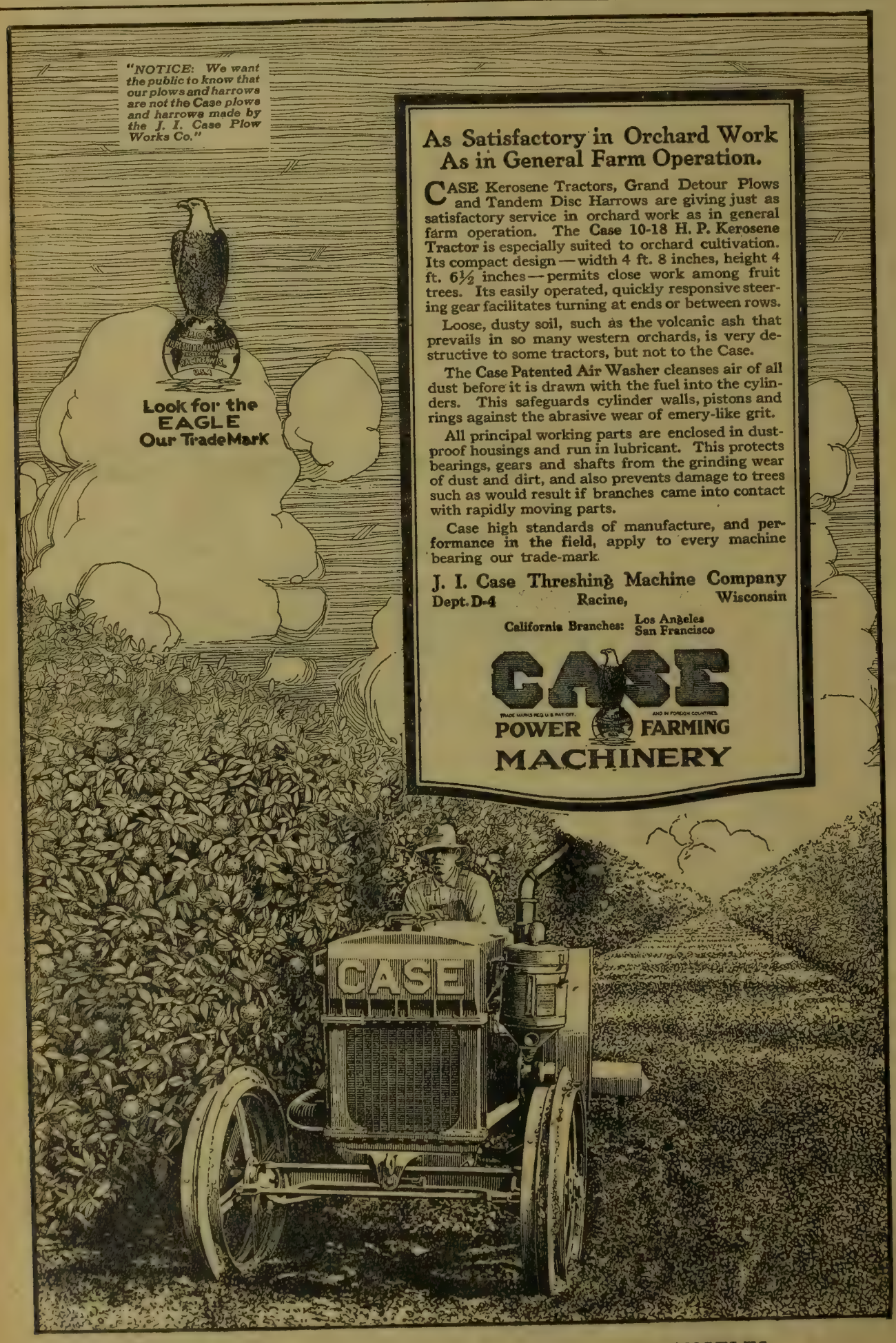
Have some pomegranate trees which were buried about a foot deep with a flood of good rich soil from the hills, and would like to know if this will kill the trees or cause any disease as in the case of citrus trees. They were buried over a year ago and seem perfectly healthy.—Subscriber, San Fernando.

Pomegranates will suffer no harm from such treatment and will need no irrigation during present summer, as they are naturally very drouth resistant.

Pure Breds—Thoroughbreds

I wish information regarding thoroughbreds. You know there are many different thoroughbred varieties of the different domestic animals which have been bred up from the wild breeds, said varieties consisting of a cross-breeding of other varieties, as for instance, the Rhode Island Red breed of chickens which consists of a cross-breeding of dunghill fowl, of Leghorn, Malay Game and other blood which I can't call to mind just at the moment. But as I understand it, it takes just so many different strains of blood derived from a certain method of cross-breeding to make a thoroughbred. Now let us say, for instance, I wished to breed for a certain new thoroughbred strain of hogs. Just how would I go about it? What crosses should I make? How many and in what manner to secure a new thoroughbred breed of animals? This is the point I am after.—Subscriber, Paradise.

Before answering the direct question we trust our subscriber will pardon us for a few words regarding thoroughbreds and pure breds, for by the words we use we express or carry to others correct ideas. Strictly speaking and in its original sense the word Thoroughbred applies to "The English Thoroughbred, a race or breed of horses kept chiefly for racing (running) with an old recorded ancestry of unknown origin, probably oriental or Arabian and Turkish breed. The American Thoroughbred is practically identical." From the inquiry we take it that our Paradise subscriber wishes to know regarding poultry, so on this particular point we turn to "Poultry Production" by Lippincott and we find there that "In poultry terminology 'pure bred,' as used in reference to farm animals, is, technically at least, replaced by 'Standard bred.' The term 'pure bred' implies that a complete record of the ancestry of the individual considered may be traced back to the individuals that are looked upon as the foundation animals of the breed, without admixture of alien blood." "The term 'standard bred' implies that in breeding practice only those individuals have been mated which conform closely to the 'standard'." Then in a short note this: "The term 'thoroughbred' is frequently used in describing standard bred poultry. 'Thoroughbred' is a proper name and refers to a breed of horses. It is as inaccurate to speak of Thoroughbred chickens as it would be to refer to Plymouth Rock horses." Now we are not referring to this in order to secure pure English but simply to get on a common ground so as to make ourselves clear, and in this matter of the term "standard bred," as applied to poultry, Lewis' "Productive Poultry Husbandry" takes identically the same ground save that he seems to prefer "pure bred" stock as applied to poultry. However, on carefully reading the above query it appears that there is desire for information as to the production of another breed than now exists. If such is the desire then a long, long trail is before the experimenter. The first question to answer is: What is the desire in the new breed that is to be produced? That will answer the subscriber's one question, "What crosses should I make?" These crosses will depend entirely on the ideal in the mind of the breeder. What characteristic does he intend to bring forth in the breeds now in existence? Then the two birds should be chosen which come the nearest to the ideal. If the breed to be created is to be a single comb, is to be white or black, is to have a large quantity of white meat or a large capacity for laying, these points are to be considered in the selection of the foundation stock. The stock selected the first generation will probably show much of disappointment, but the best from this generation should be chosen (by best we mean those which come the nearest to the ideal of the breeder) and another cross to be made with still another bird in the hope of securing still closer conformation to the ideal.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and so on through almost unending years when a breed may become established because of its persistence in breeding true to the ideals. Then it becomes standard bred, or better perhaps, pure bred, and in the future pure breds of that particular type can be proven only by tracing back to the original or foundation stock. The common or mongrel fowl may possibly have been used in building up these new strains or breeds, but as a rule pure breds are preferred because they have thoroughly established traits, the reproduction of which may be depended upon. This matter of creating a new type calls for long time and extreme patience. We are reminded of a remark of David Starr Jordan made before the fruit growers convention held in San Jose nearly a score of years ago. Mr. Jordan's address touched upon plant breeding and as to the power of the human in directing and securing accomplishment through breeding, he asserted that it would be possible to breed a lap elephant, starting with the present species and breeding from generation to generation with the one idea of size similar to milady's lapdog. Dr. Jordan said this would require some time, perhaps six or maybe eight thousand years, but if he could be given the time he knew this could be done.

Mushrooms

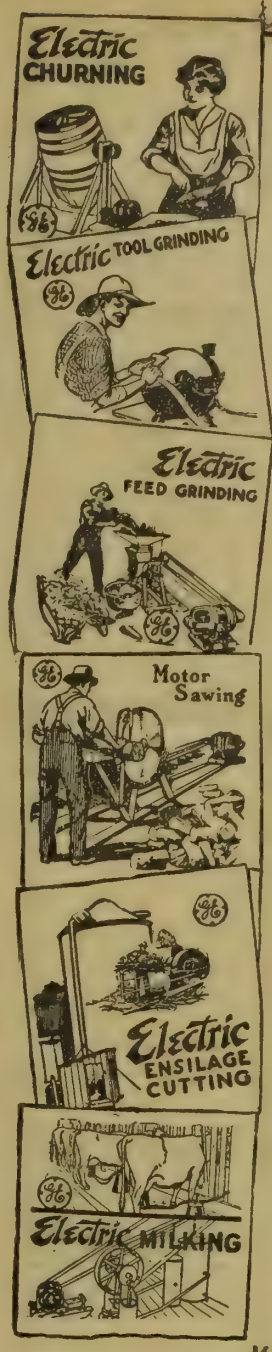
I am sending sample of mushrooms which grow in a field fertilized with stable fertilizer. There are edible mushroom somewhat similar to these, growing there, and I wish to know if this is an edible variety. I can find no description of it in any book I have.—Subscriber, Garden Grove.

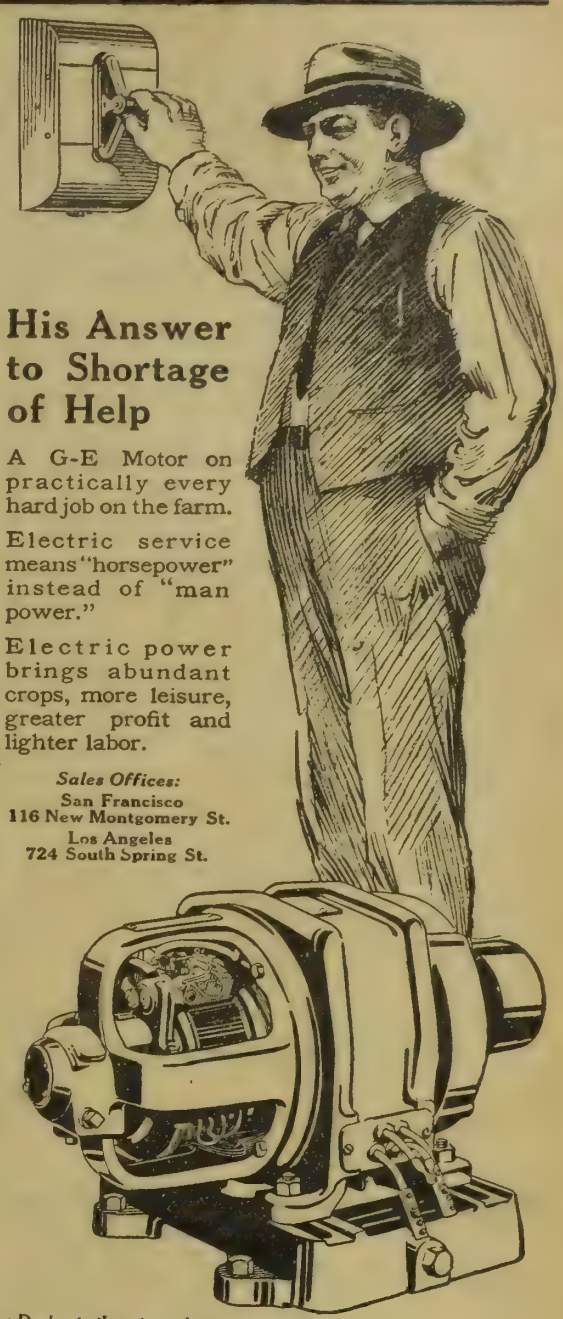
We are not sufficiently expert on mushrooms to give assurance to anyone else. The specimens sent were somewhat wilted and had lost the freshness of the meadow, but they had every appearance of the true meadow or edible pasture mushroom. We believe the scientist calls it Agaricus campester. They have the regular pinkish brown "gills," thin, tender buff or slightly brownish mottled or creased skin on top. They seem identical with those of which we have eaten bushels. However, here is a suggestion to our would-be mushroom eaters. Secure a copy of the National Geographic Magazine of May 1920. On pages 387 to 439 are given particular descriptions not only of edibles but of the toadstools containing the deadly poison. It is the most complete collection of information on mushrooms we have seen. We presume any public library has this mazagine. In addition write the Agricultural Experiment Station, College of Agriculture, Berkeley, and ask for Circular 84, "Mushrooms and Toadstools." This is only a four page circular and has no illustrations but has a number of suggestions regarding mushrooms.

Root Knot

I have French prunes, Tragedy plums and peaches and I find that a black knot forms just below the surface. Some tell me it is called black root and the tree should be dug up and the ground disinfected for one year. Others tell me to clean it off and apply Bordeaux. Please put me on the right track.—Subscriber, Porterville.

If the root knot is entirely circling the tree at the ground or just below the surface of the ground it would probably not be worth while to cut away and try to save the trees. However, where the infection is just starting chiseling off of the diseased knotty excrescence until one reaches clean healthy wood and then painting the wound over with Bordeaux





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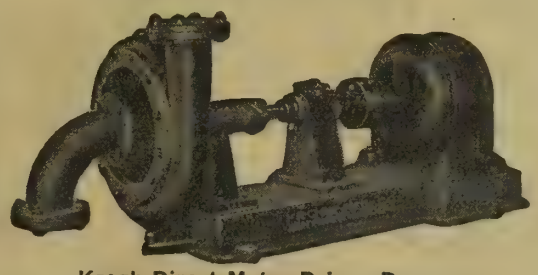

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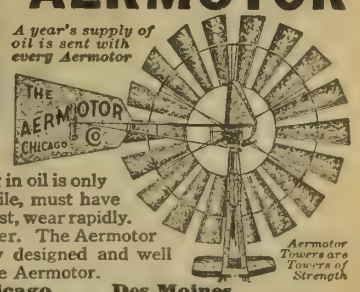

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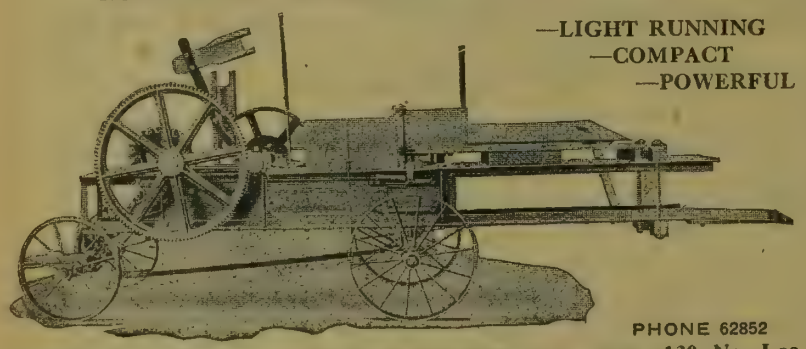

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paste will possibly give satisfactory results. The trouble is that this disease exists almost everywhere and may come to the orchard from the nursery trees so that there is little use in endeavoring to thoroughly disinfect the soil. In planting new trees greatest care should be exercised to have them free from small knots on the roots or any indication of knots about the crown of the trees.

Girdling to Induce Bearing

I saw an article in the Cultivator regarding girdling an orange tree in order to make it bear. Is this the right time of the year to do this?—Subscriber, Alta Loma.

Where a tree receives an injury such as girdling or partially barking the tree with the cultivator it makes "an effort to produce a crop before it dies." How much reasoning the tree may use in reaching this conclusion we are in doubt but the girdling does often cause production of a crop. We would, however, use care in girdling a valuable tree and, in fact, would prefer to girdle only a branch at a time. Our guess would be that it is now too late to have any effect on this season's crop. In fact Mr. Rideout of Whittier has reported his conclusions as to shy bearing avocado trees that spring girdling did no good whatever and girdling in the fall would result usually in increased production on the branch which was girdled. The girdling usually calls for cutting out a strip of bark one-fourth of an inch wide circling or nearly around the branch. This wound will usually granulate and new bark form over, healing before a year has passed and the tree appearing to suffer no permanent injury.

Caustic for Dehorning

Please describe method of applying caustic for dehorning young calves. Do they use common stick caustic, and what age should the calf be? Does this treatment entirely remove the horns or will they have stubs when the animal grows up? — Subscriber, Chico.

"Diseases of Cattle," issued by the department of agriculture, gives the following instructions: "A calf should be treated not later than one week after it is born, preferably when it is from three to five days old. The agent to be used may be either caustic soda or potash in the form of sticks about the thickness of an ordinary lead pencil. These caustics must be handled with care, as they dissolve the cuticle and may make the hands or fingers sore. The preparation of the calf first consists in clipping the hair from the parts, washing clean with soap and warm water, and thoroughly drying with a cloth or towel. The stick of caustic should be wrapped in a piece of paper to protect the hands and fingers, leaving one end of the stick uncovered. Moisten the uncovered end slightly and rub it on the horn buttons or little points which may be left on the calf's head—first on one, then on the other—two or three times, allowing the caustic to dry after each application. Be careful to apply the caustic to the horn button only, for if it is brought in contact with the surrounding skin it will cause pain. Too much moisture on the stick of caustic will allow the application to spread to the surrounding skin. After treatment keep the calf protected from rain, as water on the head after application of the caustic will cause it to run down over the face. If treatment is properly given at time and in manner specified above, the horns will not grow.

White Sapote

In the Cultivator of March 19 you describe a tree called the white sapote. Where can I purchase such a tree?—Subscriber, Petaluma.

Any nurseryman advertising citrus and other tropical fruit trees in the Cultivator can supply these trees.

Congestion of Cow's Udder

Referring to treatment for congestion of cow's udder, given on Page 361 of the Cultivator of March 12, a subscriber at Valley Springs writes:

"Try bathing cow's udder with any heavy molasses and rub it in thoroughly. It will go through the pores and come out in the milk. This is what I always use and always get results favorable."

Do Squash and Melons Mix?

Do cucumbers, squash, melons, etc., really "mix" when planted near each other?—Subscriber, Burbank.

No plants "mix" so far as the first generation is concerned. That is, all plants known may be grown together this year and all will remain pure so far as this year's crop is concerned. It is as impossible for those named to contaminate each other as to "mix" them with oranges or apples on nearby trees. But cross pollination may be effected within certain limits and next year's plants, from this year's seeds, may bear "mixed" fruits. But the plants of this family do not mix so readily as the general public has been led to believe and the three named will remain free. Many species of squashes refuse to cross, even when assisted by man.

Plums on Apricots

I have a lot of seedling apricots. Will the trees do well to be top-worked to plums? Upon what stocks are the following grafted — loquat, sapotas, feijoa and chestnuts?—Subscriber, Etiwanda.

Plums generally do well on apricots if soil is suited to apricots. Each of the other trees listed are budded on seedlings of their own kind.

Care of Fresh Cow

Will you kindly tell me what treatment a cow should have when she comes in fresh? I have been told not to milk her dry the first two or three times. Would like to know what to feed her to keep up production. This will be her third calf. With the second she gave about 13 quarts at a milking, but began to fall down in a few months. I fed her alfalfa hay, beet pulp, corn meal and bran, and part of the time a little coconut meal. I have received much valuable information from your paper and am glad I am.—A Subscriber, Sebastopol.

When a cow freshens most breeders leave the calf with the cow for 10 or

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12 hours in order to let the youngster get several feeds of the first (or colostrum) milk so necessary to its future growth. A few hours after the calf has been removed the cow should be partially milked out, being careful not to milk her out dry. At the next regular milking hour she should be milked out dry and should thereafter be milked at regular milking periods. If your cow gave 13 quarts (or about 28 pounds per day) when fresh she should not have fallen off for at least ten months. The time to feed a cow for production and for holding to her production through the ten months lactation (milking) period is not after she has calved but before. If the cow is dried up at least two months before calving and then carried on a fitting ration composed of the following grains, with plenty of good alfalfa hay, up to two weeks before freshening, and then given a properly balanced ration she should continue to produce a good supply of milk for the ten months period, providing, of course, she is of the right type and breeding. The fitting ration is as follows: All alfalfa hay she will eat, with three hours a day pasture if available; a mixture of 100 pounds wheat bran, 100 pounds corn meal, 100 pounds ground barley, 50 pounds coconut meal (old process). Do not feed cottton seed meal at this time.—R. A. C.

Ration for Dairy Cows

What do you consider the best ration for dairy cows, taking for a basis that I have plenty of alfalfa hay but no pasture.—Subscriber, Lodi.

Alfalfa belongs to the class of feeding stuffs known as protein feeds, containing large proportions of flesh forming substances (protein) and being low in starch or he t producing substances (carbohydrates). The proportion of digestible carbohydrates and fat in feeding stuffs is known as the nutritive ratio; in the case of alfalfa hay it is around 1 to 4, meaning that there is four times as much digestible carbohydrates and fat as digestible protein in this feed. Feeding tests have shown that dairy cows in milk should be fed a ration containing one part of protein to five or six parts of carbohydrates and fats. It will therefore be seen that alfalfa hay must be balanced up with some feed high in carbohydrates and fats to bring the nutritive ratio up to the standard. In California we have two feedstuffs that are comparatively cheap and plentiful that when fed with alfalfa hay will furnish the required carbohydrates and fats. These are ground barley and dry beet pulp. Or if available a good quality of corn silage will do as a substitute for these or can be fed with either or both. We would suggest that you feed the following: All the alfalfa hay the cow will eat and one pound of the following mixture for each 3½ pounds of milk the cow is giving: 100 pounds ground barley, 50 pounds dried beet pulp. Keep salt before cow. The beet pulp may be fed moistened with two to three times its weight of water. If this method is followed six pounds a day is about the right amount to feed, feeding the barley on the basis of 1 pound to 3½ pounds of milk produced.—R. A. C.

Johnson Grass

Can you tell me an easier way to get rid of Johnson grass than by digging it out by hand. I just bought land at Bellflower and find a patch about five rods square covered with the grass.—Subscriber, Pasadena.

In a small section like this we would plow and hand work the soil if possible. Where large field is to be handled, however, it should be mowed as soon as seed stalks begin to form. Continual mowing without ever allowing the seed to ripen will reduce the pest and ultimately kill it entirely for the mowing weakens the root growth. However, later in the season much good may be accomplished by plowing and exposing the roots to direct sun heat. A chisel toothed cultivator aids materially in dragging out these roots and ending the life of the pest. As to chemical control we know of nothing which has proven successful and economical. A department of agriculture publication of some years ago gives the following summary to an extended bulletin issued by the bureau of plant industry as Bulletin No. 11:

"Johnson grass is a tall, vigorous grass, closely related to the sorghums, with a very strong system of long, jointed, underground stems, popularly known as roots. Each joint of this underground stem is capable of producing a new plant. It is a native of the tropics of the Old World, and was first introduced into this country as a hay grass in South Carolina about sixty years ago. It is commonly spread by means of its seeds. They are widely scattered from hay cut after the seed has matured, and are often planted with seed oats. The seeds are unharmed by passing through the digestive tract of animals, and are thus widely scattered in manure. The grass should never be allowed to ripen its seeds. It can be destroyed by hand labor—digging out the underground stems. Under field conditions it is best killed by plowing fallow land during hot, dry weather. The stems are thus exposed to the heat of the sun and soon killed. The same result follows the action of severe frosts."

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Nursery in Orchard

For intercrop between young trees, I leased land for a nursery. Lessee agreed to trim the trees and keep down the weeds. He failed to do this. A pruner, who has evidence to the effect that the nurseryman asked him to come and I would direct him to prune the trees, came to me and asked if I wished the nursery stock pruned. I told him that I knew that the owner did. He proceeded to prune the nursery stock. The owner now claims that he did not employ the pruner, that the pruner topped too low, and not only refused to take out the stock, claiming that it will be necessary for another year's growth to overcome the bad pruning, but refuses to pay the pruner and claims damages against me. What steps must be taken to have the nursery stock taken out and make the owner pay for the pruning The term of the lease has expired.—Subscriber, Redlands.

The lease is not before the writer, but it would seem that if it was properly drawn and contains a provision requiring the lessee to keep his trees pruned, which he has failed to do, that the lessor would be entitled to employ any person to do such pruning and charge the amount thereof to the owner of the nursery, especially in a case such as this where the nursery stock is intercropped between young oranges. Whether or not the pruner was actually employed by the nursery owner is a question of fact. If he was employed, then the nurseryman is directly liable to him, but even if lessor employed him, it would seem that the nursery man would be liable to the lessor. The same rule would apply as to any possible damage to

(Continued on Page 471.)

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500	12	5	5	3	11	440	$27.20	10,000	238	13	10½	9	11	4,660	$255.00
750	18	5	9	4	11	580	34.85	12,000	285	13	10½	11	11	5,370	293.25
1,000	24	6	6	4	11	655	39.95	15,000	357	15	6	11	11	6,080	344.25
1,500	36	7	1	5	11	830	51.00	20,000	476	17	10	11	11	7,280	399.50
2,000	48	8	1½	5	11	975	59.50	25,000	593	18	4	13	11	8,510	467.50
2,500	60	8	4	6	11	1,145	68.85	30,000	714	20	2½	13	11	9,800	527.00
3,000	71	9	1½	6	11	1,270	78.20	40,000	952	23	0	13	11	11,300	631.55
3,000	71	8	5	7	11	1,290	78.20	50,000	1190	24	0	15	11	13,400	765.00
4,000	95	9	10½	7	11	1,555	98.60	60,000	1428	26	3	15	11	15,100	841.50
4,000	95	9	2½	8	11	1,580	98.60	70,000	1666	28	4	15	11	16,700	956.25
5,000	119	10	11	7	11	1,745	111.35	80,000	1904	30	3	15	11	18,000	1,045.50
5,000	119	10	3½	8	11	1,790	111.35	90,000	2142	30	2	17	11	19,800	1,139.00
6,000	143	11	4	8	11	2,010	125.80	100,000	2380	30	0	19	11	21,100	1,249.50
7,000	166	12	1½	8	11	2,160	134.30								
8,000	190	12	3	9	11	2,375	147.90								
10,000	238	13	7½	9	11	2,770	170.00								

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Household Department

WHY DID YOU LEAVE THE FARM

Why did you leave the farm, my lad?
Why did you bolt and leave your dad?
Why did you beat it off to town
And turn your poor old father down?
Thinkers of platform, pulpit and press
Are wallowing in deep distress.
They seek to know the hidden cause
Why farmer boys desert their pas.

Well, stranger, since you've been so frank,
I'll roll aside the hazy bank;
I left my dad, his farm, his plow,
Because my calf became his cow.
I left my dad, 'twas wrong, of course,
Because my colt became his horse.
I left my dad to sow and reap
Because my lamb became his sheep.
I dropped the hoe and stuck the fork
Because my pig became his pork.
The garden truck that I made grow
Was his to sell, but mine to hoe.
It's not the smoke in the atmosphere,
Nor the taste for life that brought me here.
Please tell the platform, pulpit, press
No fear of toil nor love of dress
Is driving off the farmer lads,
It's just the methods of their dads.

As a source of iron, potatoes, properly cooked, furnish nearly as much as do eggs and compare as favorably with cereals in the supply of lime and phosphorus.

CAN GIRLS RAISE STOCK?

By L. R. Drury

THELMA PETERSON, a 13 year old girl of Sonoma County, has proven that she can raise a bull calf that will not only win a prize for her, but earns for her a neat profit for a few months' work.

Thelma's formula for success is "Use common sense and don't be afraid of work."

The purchase price of the young calf was given her last June for a graduation present, but Thelma is a thorough little business woman, so when her calf was sold the latter part of January she paid for the feed she had used to develop it.

Following is her own essay, which earned 15 per cent of the award:

"Sometime during the summer last year I read in the Petaluma Argus an article which interested me greatly; it was about a calf club for boys and girls in Petaluma. I was so sure that I could do something along this line that I asked my father if I might join the club. He gave his consent. I had been promised a graduation present a few weeks before I had finished my school work, and now I thought I would invest my graduation gift in a Holstein bull calf.

Thelma Petersen and Her Prize Calf

"These calves were distributed to members of the club on July 17. I was fortunate enough to draw first pick. My choice was Valdessa Fayne Pontiac, a beautiful Holstein calf which came from the Burr Farm. I purchased it for $300.

"I decided, after paying such a high price, to put the calf back on to a whole milk diet, thinking this the safest way. I picked out a nurse cow, a healthy Holstein. This was the only cow from which he got any milk. I kept my calf on this diet until I felt sure of his progress and gradually decreased the whole milk and increased the proportion of skimmed milk. Since there are no rules as to the amount of grain that can be fed, I was very careful in starting the grain ration, not giving him any more than he could clean up readily, for it is better to underfeed animals than to overfeed. I found that feeding two parts of oats and one part of barley gave good results. This grain was fed immediately after he had his milk; at noon he was fed oil cake meal mixed with bran and finely cut carrots. A certain amount of kale was fed to him daily, being careful not to give him too much kale, for I insisted that he should eat a quantity of grain hay. This hay was run through the feed cutter to prevent waste.

"Regularity of feeding is very important, although cutting the ration for a day is necessary. I washed him occasionally and spent a little time leading him and also brushing him. The feeding and taking care of the calf is very interesting work.

"The trip to Davis given for the Calf Club was very enjoyable and educational. Whenever a boy or girl has an opportunity to join a calf club I should advise them to do so for there are no secrets of success, only to use common sense and not be afraid of work."

The basis upon which ratings were made at the close of the contest were: Progress in developing calf, 45 per cent; records kept, 25 per cent; essay, 15 per cent; showing at the end of contest, 10 per cent; net profit, 5 per cent.

The club was conducted under direction of Professor A. J. Rathbone of Petaluma high school. The registered title of Thelma's calf is Valdessa Fayne Pontiac. His pet name at Thelma's home was "Valley." His selling price was $700.

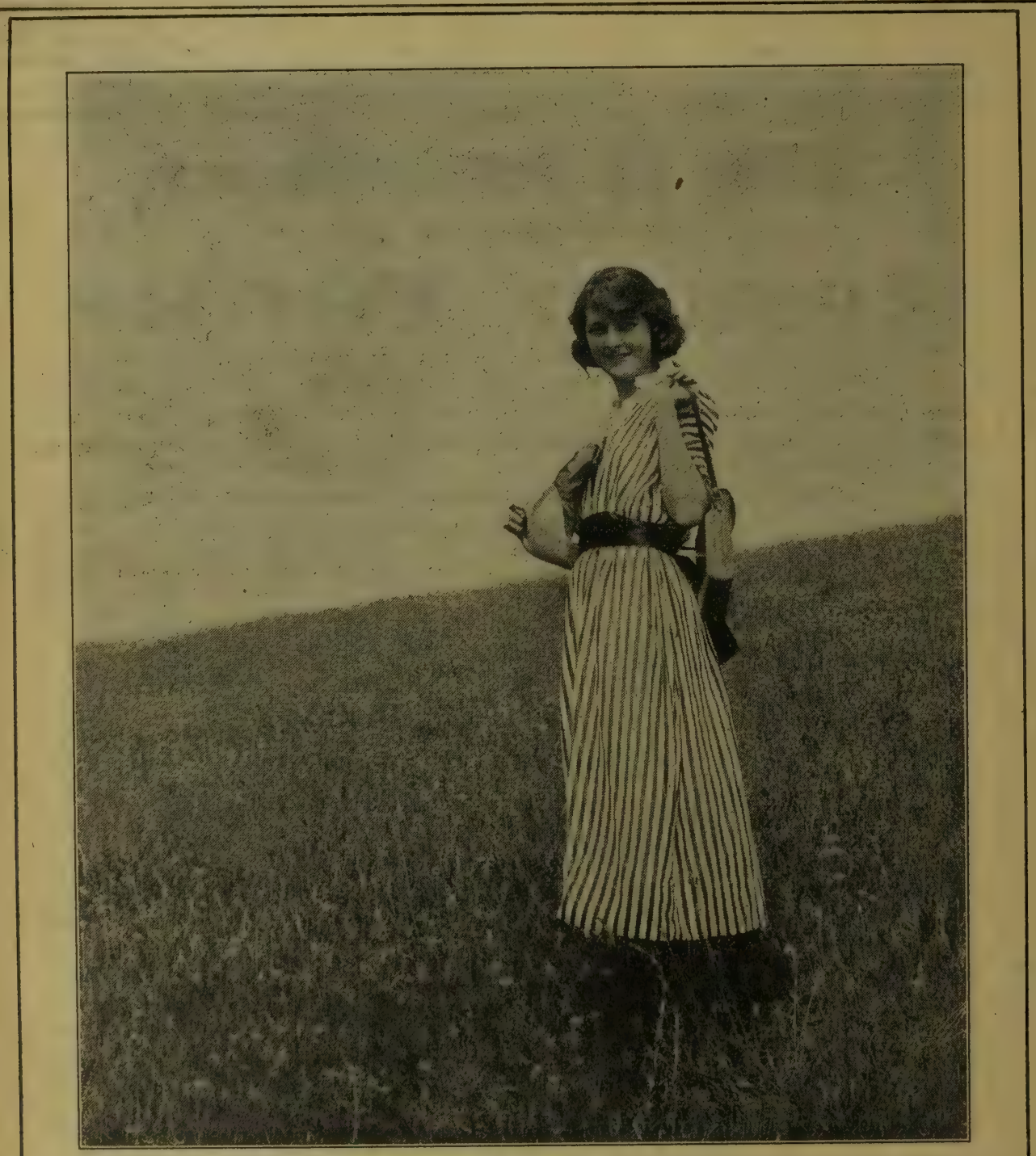
Other members of the Petaluma Boys' and Girls' Calf Club were: E. Warren Roach, L. U. Martinelli, Robert Martinelli, Sam Nisson, Thomas Putnam, Leo Schoeningh, David Sweeney, Albert Clark, Raymond Gambonini, Evelyn Foster, Florence McDowell, Charles Hinshaw, James Harris, Max Flohr, Wilmer Branchard, Everette King, Leslie Schwobeda, Andrew Ayers, all residents in or near Petaluma.

SOME OLD-TIME DYES

In your issue of March 5, 1921, a subscriber at San Fernando wanted to know how to dye rags for rugs as our grandmothers did. I am sending some directions copied from the March issue of Comfort, a monthly magazine published in Augusta, Maine, and hope they will prove beneficial. We get many helpful hints from the Cultivator.—Mrs. David T. Webb, Reward.

"Green—To produce green in the old fashioned dyes the material was first colored with indigo, dried and then put through a yellow dye which is made of quercitron, which is the inner bark from the black oak. So if one has at hand some material dyed blue with real indigo it can be colored green as follows: Place the material in a hot solution of washing soda, using one-fourth pound of soda to four quarts of water. Let it remain over night. Put the quercitron, which will be in the form of a dry paste, into a cheesecloth bag and let it soak over night in three pints of cold water in an earthen dish. To dye bring three gallons of water to a hard boil in a copper kettle and into this dye put the soaked blue material, a little at a time, only letting it remain long enough to turn green. If the yellow loses its color, pour boiling water over the bag of quercitron and drain into the dye kettle.

Deep Yellow—Copperas is the foundation for yellow and is obtainable



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The Cultivator Patterns

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3091. A Pretty Frock.—Cut in 4 sizes: 8, 10, 12 and 14 years. Size 10 requires 4¾ yards of 27 inch material. Price 10 cents.

3247. A Charming Gown.—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 4⅜ yards of 36 inch material for the dress, and 1⅞ yards for the jumper or overblouse. The width of the skirt at lower edge is 1¾ yards. Price 10 cents.

3556. Boy's Suit.—Cut in 4 sizes: 2, 4, 6 and 8 years. A 6 year size will require 2½ yards of 36 inch material. Price 10 cents.

3528. Ladies' House or Work Dress.—Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. A 38 inch size will require 7 yards of 24 inch material. The width of the skirt at its lower edge is 2½ yards. Price 10 cents.

3535. Junior's Dress.—Cut in 3 sizes: 12, 14 and 16 years. A 14 year size will require 6½ yards of 27 inch material. Price 10 cents.

3538-3543. Ladies' Costume.—Waist 3538 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3543 cut in 7 sizes: 24, 26, 28, 30, 32, 34 and 36 inches waist measure. To make this dress for a medium size will require 7½ yards of 36 inch material. The width of the skirt, at the foot with plaits extended is 2¼ yards. TWO separate patterns 10c FOR EACH pattern.

3554. Girl's Dress.—Cut in 4 sizes: 4, 6, 8 and 10 years. A 6 year size will require 1½ yards of 27 inch material for the guimpe, and 3 yards for the dress. Price 10 cents.

3540. Ladies' "Sleeping" Garment.—Cut in 4 sizes: Small, 34-36; Medium, 38-40; Large, 42-44; Extra Large, 46-48 inches bust measure. A Medium size will require 3¾ yards of 36 inch material. Price 10 cents.

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PATTERN DEPARTMENT
California Cultivator
Los Angeles

at any drug store. Dissolve half a pound in a wooden receptacle with eight quarts of warm water. Stir until every particle is dissolved. In another tub dissolve one pound of washing soap or powder until thoroughly dissolved. Into the tub of copperas solution drop the material and with two smooth sticks work back and forth until thoroughly wet. Lift out of the tub (always using the sticks), drain several minutes and then drop into the tub of soapsuds. Work about until the suds have penetrated every part of the fabric, drain and then return to the copperas solution. Repeat this three times, then hang to dry without wringing. After drying, wash and rinse in clear water.

Gray—Color deep yellow with copperas as described in preceding recipe and then dip in a solution made of strong tea and water.

Manganese Brown—This is a warm medium brown. Dissolve two ounces of permanganate of potash in two gallons of warm water. The result is a brilliant crimson and the white material will take on this same color, but when hung in the air gradually change to a light brown. The cloth is not wrung, but allowed to drain on the line. As soon as it has turned brown it is redipped and again drained, when it will change to a deeper shade of brown. If a still darker shade is desired dip the third time and dry. Wash in hot soapy water and rinse well.

Bright Straw Color—This dye is made from peach tree leaves and the most satisfactory results are obtained by gathering the green leaves in the fall. Soak about one quart of leaves in warm water, to which a small piece of alum has been added, for several hours. Add the material and boil all together until the desired shade is obtained, no longer. Remove from dye, drain and dry, and rinse thoroughly.

Crimson in the old fashioned dyes was obtained from the cochineal bugs. The "single bath" contained about six per cent oxalic acid, six per cent stannous chloride and eight per cent cochineal.

Black was obtained from logwood cut into fine chips, soaked in cold water, slowly brought to the boiling point and kept at that temperature from one and a half to two hours."

HINTS FROM HOUSEKEEPERS

How to Cook Old Ham

A Los Angeles reader sends this in from Farmers' Bulletin 1186, "Pork on the Farm—Killing, Curing and Canning":

"Soak several hours, remove all mold and loose pieces, and rinse well. Cover with cold water, add two tablespoons vinegar, one-half cup brown sugar, four cloves, and one bay leaf, and heat to boiling. The amount of cloves and bay leaf may be increased if desired, especially for larger hams. Reduce heat to constant simmer and allow to cook at this temperature at the rate of 20 minutes for each pound weight. Remove from fire, but keep the ham in the liquor in which it was cooked until cold; then remove from the container and allow to drain. Take off the skin, score the fat in inch blocks, and cover with a coating of brown sugar and crumbs. Stick with cloves one inch apart. Bake in a slow oven until nicely browned, basting at intervals with one-half cup of water and one tablespoon of vinegar."

India Relish

Ten pounds green tomatoes chopped rather fine, 6 large apples (not too ripe), 2 large onions. Chop apples and onions, not too fine, in a wooden bowl. Add 1 pound seeded raisins, one and one-half pints of vinegar, two teacups of sugar, one teaspoon cloves, one of ginger, one of cinnamon, three long green peppers, two red ones. Add a tablespoon of salt to the tomatoes, let stand one hour, then squeeze out the green juice, put in a granite kettle; add the other ingredients, cook 20 to 30 minutes, put in jars and seal while hot. It is delicious.—Mrs. A. Miller, Julian.

HEADWORK

"Does Bliggens use any real headwork in his politics?"

"I don't think so," answered Miss Cayenne. "The nearest he comes to headwork is to bet a hat on the election."

The ONE thing that agrees with all the family and that all the family agrees on

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Our storing facilities are ideal. We specialize on storing of household goods, office furniture, trunks and automobiles. Our private locked rooms are also a great convenience to our patrons.

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135 REGISTERED HOLSTEINS 135

110 Females---25 Bulls

Los Altos, California

April, 20-21, 1921

This offering should be particularly attractive to buyers of highly bred young Holsteins, containing as it does some of the most highly esteemed blood lines of the breed.

FIVE DAUGHTERS OF SIR KORNDYKE ORMSBY PIEBE

He is a son of Sir Korndyke Hengerveld De Kol 36th, out of Queen Piebe Ormsby Mercedes, the noted 35 lb. daughter of Sir Pietertje Ormsby Mercedes, with four yearly records to her credit, the highest 1136.01 lbs. butter. These heifers are all out of sisters to the 30,000 pound 4 year old. Cascade Fleta Johanna, two of them are bred to Sir Pietertje Ormsby Canary, and one to Sir Aaggie Mead.

SEVEN DAUGHTERS OF SIR PIETERTJE ORMSBY MERCEDES 43D

This sire is almost too well known to require mention of his breeding A son of Sir Pietertje Ormsby Mercedes and out of Aaggie Wayne Peep, whose five yearly records place her among the first three cows of the breed in that respect. All except one of these heifers are under breeding age, and that one is bred to Sir Pietertje Ormsby Canary.

THREE DAUGHTERS OF SIR PIETERTJE ORMSBY CANARY

He is also by the great Sir Pietertje Ormsby Mercedes, and out of an 864 lb. 3 year old daughter of a 1000 lb. cow. A large number of females in this sale are in calf to him.

EIGHT DAUGHTERS OF SIR AAGGIE MEAD

He is by Sir Aaggie De Kol Acme, son of the world's strictly official yearly record butter cow, Aaggie Acme of Riverside 2nd, and out of Aralia De Kol Mead, 1215 lbs. butter in one year strictly official, she a daughter of King Mead of Riverside and the 1142 lb. cow Aralia De Kol who was the first cow in the world to make over 28,000 pounds milk in one year.

EIGHT DAUGHTERS OF SIR BESSIE FOBES TRITOMIA

He is by a proven son of Fobes Tritomia Mutual De Kol, and out of the famous three times 33 pound cow Jessie Fobes Bessie Homestead who made 932 lbs. butter in one year and topped the Detroit National Sale.

FOURTEEN DAUGHTERS OF NORTH STAR HAPPY BONHEUR

He is a 30 pound son of the noted bull Johanna Bonheur Champion. All of these heifers that are old enough to breed are in calf to Sir Aaggie Mead.

HIGH RECORD COWS AND DAUGHTERS OF HIGH RECORD COWS

The sale list includes cows with records up to over 1000 lbs. butter in one year, and over 30 lbs. butter in 7 days, and daughters of cows with equal records.

DAUGHTERS OF FAMOUS SIRES

Besides the sires already mentioned as having daughters in the sale the list includes daughters of King Korndyke Pontiac 20th, Chimacum Spring Farm King Pontiac, Sir Johanna Ruth Fayne, Johanna Bonheur Champion, Laconner Pontiac Segis, Dutchland Colantha Emperor, and others of high record and popular breeding.

THE OFFERING OF YOUNG BULLS

The list of 25 bulls in the sale affords a remarkable selection, including sons of 1000 pound cows, and other high record cows and heifers, most of them sired by Sir Pietertje Ormsby Canary, Sir Pietertje Ormsby Mercedes 43d, Sir Aaggie Mead, and Sir Bessie Fobes Tritomia.

THE ONLY FEDERAL TESTED HERD IN CALIFORNIA

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested by a Federal veterinarian and sold subject to retest by the buyer.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.

CATALOGS—Will be ready well in advance of sale. Write for one now

Proposed Act to Control Tuberculosis in Cattle

An act to prevent, control, and eradicate tuberculosis in cattle in the State of California; to empower the director of agriculture to establish tuberculosis eradication or free areas; providing penalties for the violation hereof.

The people of the State of California do enact as follows:

Section 1. In order to determine the prevalence of tuberculosis in cattle in the state of California, the director of agriculture shall make a survey of the state to ascertain the extent of infection in the various counties.

Sec. 2. If, after investigation, said director finds the cattle in any area, county, or counties comparatively free from tuberculosis, he may establish an area or areas to be known and designated as "tuberculosis (eradication) area." A tuberculosis eradication area shall be an area established by a proclamation by the director of agriculture. Such proclimation shall designate the territorial boundary of such area and shall be published for three successive weeks in one or more newspapers of general circulation in said area. For the purposes of this act and to eradicate tuberculosis in cattle, and to prevent tubercular cattle from being imported into such area, all cattle shall be subject to examination, inspection, quarantine and tuberculin test applied under the directions and in accordance with the rules and regulations prescribed by the said director of agriculture. After the eradication of tuberculosis in domestic livestock has been completed, the eradication area shall by proclamation by the director of agriculture, as above provided, be declared tuberculosis free area.

Sec. 3. Upon discovery by the director of agriculture of California of any bovine affected with tuberculosis, he shall cause the same to be branded with a hot iron with the letter "T" on the left neck or jaw, for purposes of future identification.

Sec. 4. All animals branded with the above mentioned brand ("T"), within or without said eradication or free areas, must not be sold, slaughtered or disposed of in any manner whatsoever, or removed from the premises where located when branded, unless permission is first obtained from the director of agriculture.

Sec. 5. Every animal known to be affected with tuberculosis may, with permission in writing from the director of agriculture, be removed from tuberculosis eradication or free area, in accordance with and under such rules and regulations as shall be promulgated in said written permission or shall be slaughtered under the supervision of an inspector of the division of animal industry of the state department of agriculture, or of the United States bureau of animal industry, and disposed of in accordance with the rules and regulations of the state of California or of the United States bureau of animal industry, governing meat inspection.

Sec. 6. No cattle shall be permitted to enter any tuberculosis eradication or free area by common carrier or otherwise unless accompanied by certificate of inspection, certifying that they have been examined and inspected within ten days before the date of their entrance into such area, and showing the said cattle to be free from tuberculosis and other communicable disease. Such certificate of inspection which shall include a tuberculin test record, shall also indicate the final destination of said cattle within said eradication or free area, and said certificate shall not be valid until duly approved, in writing, by the director of agriculture, which approval shall be written across the face of said certificate. All cattle so admitted shall remain upon the premises described in said approved certificate for 30 days or until released by order of said director.

Sec. 7. For the purpose of carrying out the provisions of this act, the director of agriculture or his duly authorized inspectors may, at any time or place, enter upon any premises, except dwelling houses. No person shall obstruct, hamper or interfere with the work of said director, his agent, or inspector, while enforcing the provisions of this act. Should any owner or person in charge of cattle subject to examination under the provisions of this act, after ten days notice in writing, refuse to properly confine in corrals or stanchions all cattle in his charge, possession or control, in order to permit of a proper examination under the provisions of this act, the director of agriculture, his agents or inspectors are authorized to employ help and incur such expense as is necessary in order to properly examine for tuberculosis any and all of said cattle, and the expense of rounding up, driving, corraling and holding for the purpose of said examination shall become and remain a lien upon said cattle, and such lien, unless paid within five days after written notice of the amount of the same has been given by the said director of agriculture to the owner or person in possession of the same, shall be foreclosed in the manner provided in section one thousand two hundred eight of the Code of Civil Procedure.

Sec. 8. Any person, firm or corporation, whether principal, agent or otherwise, violating any of the provisions of this act shall be guilty of a misdemeanor, punishable by a fine of not less than one hundred dollars or more than five hundred dollars, or not more than thirty days in jail, or by both such fine and imprisonment.

Sec. 9. In order to carry into effect the provisions of this act and other acts relating to the control of tuberculosis and animal diseases, the director of agriculture is authorized to employ a sufficient number of legally qualified graduate veterinarians and such other assistants as may be required.

Sec. 10. If any section, subsection, sentence, clause or phrase of this act is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this act. The legislature hereby declares that it would have passed this act, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more other sections, subsections, sentences, clauses or phrases be declared unconstitutional.

DO CATTLE OWNERS WANT THE LAW?

By R. P. Royce

I believe that tuberculosis control and eradication is largely a matter of education and for that reason hold that any attempt to successfully handle the disease in question must receive the cordial and open support of the livestock industry as a whole. Any measure as drastic as the bill now before the state legislature will not accomplish the ends all hope for because it will at once antagonize the cattle owners through conferring on state officials almost unlimited power.

I do not in any way question the sincerity of purpose back of the bill, but believe that it is entirely too drastic and impractical.

As a matter of fact the bill as it stands at present, and it has been passed by the senate, has been considerably modified from its original wording. The request for an appropriation of $27,000 to carry out the law has been eliminated. Just now it is not clear how the operation of the law is to be financed. There is nothing in the bill to indicate whether the cattle owners or the state are to stand the cost of testing.

TUBERCULIN TEST MOST RELIABLE

The diagnosis of tuberculosis in living animals by external symptoms without resorting to the use of the tuberculin test is in most instances extremely difficult. This is true even with experts who have had long and varied experiences in dealing with this insidious disease. It is true that certain external symptoms resembling those produced by tuberculosis may be recognized, but they only aid one in arriving at the unsatisfactory conclusion that the animal is probably tubercular.

When certain tissues or organs are infected the secretions or excretions or the tissues themselves may contain the tubercle bacilli which may some-

times be demonstrated by the various laboratory methods.

In the case of an udder being infected the bacilli may be found in the milk, depending, of course, upon the condition and location of the lesion. It must be remembered also that extensive infection may exist in other parts of the body and it is impossible to demonstrate the germs in the secretion of the udder.

A reaction produced in an animal by the application of the tuberculin test is regarded as unmistakable evidence that the animal is tubercular. The California department of agriculture finds this the most reliable method of detecting the presence of tuberculous infection in animals.—S. O'Toole.

THE TUBERCULIN TEST AND TUBERCULOUS CATTLE

A deal of nonsense has been written concerning the tuberculin test and tuberculous cattle. Dr. F. B. Hadley of the University of Wisconsin was one of the first men in this country with nerve enough to publish plain facts to the effect that the tuberculin test, although our mainstay in tuberculosis control work, is far from infallible. I have been telling professional and breeder friends for years that we should frankly recognize the fact that we have two classes of reactors under the tuberculin test. We may call these "Group A," the practically tuberculous, that is, present spreaders, or cattle that are reasonably possible spreaders; and "Group B," non-diseased reactors, those that are merely sensitive to tuberculin and are not now and probably never will be spreaders. Presumably cattle of the second class have at some time been infected; possibly years before. Owing to high resistance or low virulence in the virus, or perhaps to limited exposure, these animals have recovered, so far as any practical consideration is concerned, and yet remain sensitive to tuberculin, and respond to the tuberculin test. Physicians long ago frankly recognized that a large percentage of people have been infected with tuberculosis at some time and that many of them will still respond to a tuberculin test, although not in any serious sense tuberculous. Available information indicates that bovine reactors are developing lesions or have in the past developed lesions. But animals with clinically healed lesions may or may not react, and so may or may not animals with active lesions.

Granting what now seems possible, that a reaction indicates some sort of lesion somewhere, and from which there is leakage, it does not imply an active lesion or living bacilli or the probability of an animal's being a spreader. At present we are necessarily killing many Group A cattle that are not in any practical sense tuberculous. We cannot do otherwise at present and still make progress in control, but this is none the less an unfortunate situation.

To my mind the greatest need now in tuberculosis control work is a reasonably reliable method—presumably a laboratory method—of differentiating between these two groups of reactors, referred to as A and B, so there will be only one-third or perhaps one-fifth as many to condemn. We need also a more economic method of disposing of those that are condemned.

The Wisconsin state tuberculosis farm was a promising experiment and may yet lead to a less expensive disposal of the condemned. Of course, if we could differentiate we might find the number to be condemned small enough so that our present method of immediate shipment for slaughter would then be most practical. But we may never find a reliable method of differentiating between the two groups. In the meantime, therefore, let those who know bovine tuberculosis and farm and cattle management define the faults of the Wisconsin tuberculosis farm or suggest something better and thus work out the needed economical method of disposal which we now lack.

I have suggested that a method of distinguishing between group A and group B cattle and a less expensive disposal of the diseased is the greatest present need in tuberculosis control, now that we have the required public education, interest and support. To my mind the greatest danger (and it is a real one) is that our tuberculosis control work may now become top heavy in the matter of public expense. For this reason some states which I could name without much hard thinking are apt to have their whole tuberculosis control work tumble like the proverbial house of cards. We now have a wave of radical enthusiasm on the part of county agents, farm bureaus and county organizations for tuberculosis eradication, federal agents and new state veterinarians, some of whom apparently have never seen more than a surface view of tuberculosis control problems. There is something of a hurrah for immediate eradication of a disease that cannot be immediately eradicated. The history of radical and rapid methods of tuberculosis control offers suggestions that are unpleasant but wholesome.

The adoption of the intradermal test for official work, with its greatly increased speed, can easily hasten a temporary collapse, which must not be allowed to occur. The states which I have in mind may easily get more herds on the way toward accreditation than they can provide retests and reimbursements for, and then what? Legislative finance committees may balk at a multiplying ratio of increased appropriations, and then what?

Livestock sanitary authorities will do well to keep their feet on the ground during the next two or three years.—Dr. M. H. Reynolds, University of Minnesota in Breeders Gazette.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

April 6-7, Fred W. Kiesel, Sacramento.
April 14, R. F. Guerin, Tulare.
April 21-22, Santa Anita Rancho.
April 21 and 22—Santa Anita Rancho.
April 20-21, Toyon Farm Association, Los Altos.
April 26, Santa Anita Rancho, Santa Anita.
May 11, Victory Herd, Carruthers.

At a meeting of the board of directors of California Holstein-Friesian Association held at Sacramento on March 16, 27 new members were admitted. This is the largest number admitted covering so short a period.

Three daughters of King Segis Alcartra Abbekerk, senior herd sire for Bridgford Holstein Co., Patterson, have completed their yearly records as two year olds. Karlray Ormsby Alcartra, the great heifer sold to R. Stevens, Stockton, in the recent Guaranty Sale at Sacramento, made 22,947.1 pounds milk and 916.2 pounds butter. Modesto Korndyke Abbekerk, also a junior two year old, made 757.72 pounds butter from 16,020.7 pounds milk in 365 days. Susie Segis Alcartra Abbekerk, a senior two year old, made 781.2 pounds butter from 15,921 pounds milk. These three records average 818.3 pounds butter and 18,296.2 pounds milk, a splendid showing for the first three daughters of this bull. Several daughters of the famous Bridgford show bull, King Segis Alcartra Prilly, are now fresh with first calf and on test. Every one of them has milked up to over 75 pounds in one day, and one has over 8,000 pounds milk to her credit in the first 100 days of her yearly work, milking as a junior two year old.

While Earl Graham, Compton, is making such a showing with his herd of registered and grade Holsteins in the California Dairy Competition, he is also making some excellent official records with his registered cows and heifers. The most important perhaps was made by the junior three year old Princess Maida Veeman, with a production of 33.06 pounds butter from 666.6 pounds milk in seven days. This great heifer recently completed a yearly record of 759.1 pounds butter from 20,270.2 pounds milk, milking as a junior two year old. She is now on yearly test again and has milked as high as 115 pounds in one day, and at present is holding right around 109 pounds per day. She is a daughter

(Continued on Page 466.)

Dispersal of A Famous Guernsey Herd

55 — REGISTERED — 55
GUERNSEYS
Hollow Hill Farm
Owned by G. W. Wilder
Colton, Cal.

Thursday, April 28, 1921

In the Show Ring
In 1920, at Sacramento, Los Angeles, Riverside, and Phoenix, in strong competition, this herd won 40 firsts, 36 seconds, 11 thirds, 5 fourths, and 4 fifths, with one Grand Championship, two Junior Championships, and one reserve Junior Championship.

In Production
this herd has developed class leaders, and the sale list contains cows with over 400, 500, 600, and 700 pounds butterfat, daughters and sons of such cows.

In Breeding
this herd contains representatives of some of the most sought for imported and American families, close up to the fountainhead of the foundation animals of fashionable families.

In Health
during five years of regular testing by a Deputy State Veterinarian only one animal has reacted to the tuberculin test.

The Production Records
in this herd while large, have been made under most unfavorable conditions, as the herd has always been operated as a certified dairy and the test cows have had to undergo the regular cold water baths with the rest of the herd. Every breeder who has handled cows on test knows what effect this has on high records.

The Bulls
This is a wonderful opportunity to select a real Guernsey herd sire. The offering includes young bulls of such merit as to be attractive to owners of high class registered breeding herds, and there is also a very choice selection that will undoubtedly go at dairymen's prices.

NEXT WEEK we will give an outline of some of the great individuals in the offering.
WRITE FOR CATALOG NOW.

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Calif.

DISPERSAL SALE
One Hundred and Seventy-Five
Grade Holsteins
Including One Hundred Cows

At Gridley, Saturday, April 9th

One of the Best Producing Herds in Sacramento Valley

Col. Ben A. Rhoades, Auctioneer

My Personal Management Herd of M. S. Garcia

SIERRA VISTA HEREFORDS
One of the largest herds in the West. Built on a Repeater and Fairfax foundation. At present we have to offer 24 choice young bulls ready for service.
Sierra Vista Vineyard Co. Minturn On Highway 2 — Madera County 2 Miles North of Chowchilla — Cal.

Italian Vineyard Company Big Type Berkshires
We are offering for sale some fine big sows and gilts bred to our great herd boars for early litters. Some very special bargains to farmers and new breeders. Everyone tuberculin tested and cholera immune.
Alex. M. Wilson, Supt. **Guasti, Cal.**

State Dairy Cow Competition

List of cows producing 50 pounds of butterfat or over during February, 1921:

Adohr Stock Farms, Guernseys and grades: C-9, 1,666 pounds milk, 96.63 pounds butterfat; C-269, 1,596, 71.82; C-263, 1,590, 62.01; C-26, 1,016, 58.93; C-319, 1,092, 57.88; C-210, 1,313, 57.77; C-248, 1,162, 55.78; Leota of Sunny S., 968, 55.18; C-88, 784, 50.18.

Dean Beeman, Holsteins: Capuniste, 1,656 pounds milk, 69.89 pounds butterfat; Pearl NaD. DeK., 2,260, 62.38; Betty NaD. DeK., 1,754, 58.06; Johanna Heng. Cap., 1,691, 54.28; Jean NaD. DeK., 1,535, 53.11; Naomah NaD. DeK., 1,564, 51.62.

Tonnikson Bros.: Financial C's Ler. D., 895 pounds milk, 51.62 pounds butterfat.

Nelson L. Browning, Holsteins: Segis DeK. Bess, 1,497 pounds milk, 62.74 pounds butterfat.

Burr Farms, Holsteins: Zampa Annie L. 2d., 2,048 pounds milk, 61.86 pounds butterfat; Heilo Bess Kornd., 2,065, 56.59.

D. F. Conant, Jerseys: Lady Kate's Rosette, 1,576 pounds milk, 94.85 pounds butterfat; Lambert Glory's Pearl, 1,081, 68.96; The Owl's Nymph, 1,083, 52.39.

J. W. Coppini, Jerseys: Noble's Sayda P., 752 pounds milk, 57.19 pounds butterfat; Olga Fern Smith, 780, 51.87.

M. J. and B. A. Edwards, Holsteins: Sarcastic Dora of M., 1,922 pounds milk, 63.43 pounds butterfat; Mechthilde Aral. W., 1,608, 53.55.

C. E. Fisher, grades: Juliet, 1,134 pounds milk, 52.16 pounds butterfat; Wisconsin, 941, 50.81.

Earl Graham, Holsteins and grades: Princess Maida V., 2,858 pounds milk, 109.16 pounds butterfat; Gamma Sarcastic of L., 2,326, 82.56; Brownie, 2,050, 79.95; Cora Jarie, 2,031, 75.16; Rose, 1,649, 65.96; May Walker Gelsche K., 2,191, 65.51; White Emma, 1,322, 62.13; Montana, 1,817, 59.96; Tomie, 1,487, 59.48; Alice, 1,646, 57.61; Smithy, 1,834, 56.95; Peg, 1,554, 55.94; Niger Heifer, 1,688, 55.70; Jersey, 1,106, 53.09.

J. G. Cross, Jerseys: Francesca of Eureka, 1,183 pounds milk, 68.02 pounds butterfat; Raleigh's Augussie G., 1,209, 65.98; No. 9, 964, 59.50; Cynthia of Butter V., 977, 57.36; Raleigh's Peggy M., 786, 52.12.

A. B. Humphrey, Guernseys: Calla Grove Itchen, M., 1,334 pounds milk, 64.45 pounds butterfat.

Los Angel County Farm, Holsteins and grades: Whittier Pontiac N. 4th, 2,138 pounds milk, 85.29 pounds butterfat; Amador, 2,058, 78.°0; Alameda, 1,821, 72.83; Placer, 1,947; 72.05; Sunland pearl, T. K., 1,989, 63.04; Blue Bell, 1,334, 60.02; Princess, 1,477, 57.61; Blossom, 1,693, 57.58; Ventura, 1,419, 56. 74; Butte, 1,657, 54.69; Mariposa, 1,755, 52.66; Orange, 1,154, 51.91; Whittier Segis P. M., 1,414, 50.49.

W. Henry Meyer, Ayrshires: Finlaystone's Annie L., 2,154 pounds milk, 80.34 pounds butterfat; Bright Eye of Highl., 1,538, 67.22.

Guy H. Miller, Jerseys: Gladys of Venadera, 915 pounds milk, 57.07 pounds butterfat.

Napa State Hospital, grade Holsteins: No. 651, 2,138 pounds milk, 68.10 pounds butterfat; No. 760, 1,889, 66.50; No. 663, 1,676, 53.45; No. 786, 1,784, 50.66.

F. F. Pellissier, grade Holsteins: No. 2403, 1,784 pounds milk, 71.36 pounds butterfat; No. 1899, 1,935, 69.66; No. 2150, 1,473, 58.92; No. 2165, 1,282, 57.69; No. 921, 1,218, 51.16; No. 1681, 1,691, 50.73.

Olga Saxer, Holsteins: Moorland Col. Rosse, 2,977 pounds milk, 94.38 pounds butterfat.

University Farm, grade Holsteins: Ramona, 1,653 pounds milk, 54.87 pounds butterfat.

J. E. Thorp, Jerseys: Sonny's Benedita, 1,066 pounds milk, 51.16 pounds butterfat.

L. L. Wakeham, grades: Jim's Wonder, 2,?76 pounds milk, 106.97 pounds butterfat; Tony's Perfection, 1,428, 85.68.

R. H. Walrath, grades: Minnie, 1,369 pounds milk, 78.03 pounds butterfat; Pansy, 1,459, 68.57; Guernsey, 1,042, 57.31.

Winsor Ranch, grade Jerseys: Teresa, 1,089 pounds milk, 56.63 pounds butterfat.

The reports for February so far received show that 246 cows in milk during the full month produced an average of 1,107 pounds milk and 45.8 pounds butterfat during the month. (Average number of days in milk at beginning of month, 100.)

The largest production of butterfat for the month was made by the purebred Holstein cow Princess Maida Veeman, owned by Earl Graham of Compton, viz., 109.16 pounds. Another cow, a grade Jersey, produced 106.97 pounds butterfat; three cows produced between 90 and 100 pounds of fat; four between 80 and 90, and eight between 80 and 70 pounds.

The California Cultivator prize for February was won for the third time by Earl Graham of Compton, for an average production by five grades of 62.03 pounds butterfat (ranges 55.7 to 68.9 pounds; average credit 71.09 pounds). This is the third group of this prize; five grade Guernseys owned by Adohr Stock Farm of Van Nuys five grades in this herd that has won had a higher average production—69.45 pounds butterfat, but being all aged cows they received credit for this production only. Other groups of five grades eligible to compete for the California Cultivator prize produced on the average as follows: F. F. Pellissier, Whittier, 61.76 pounds; R. H. Walrath, El Centro 59.50 pounds; Napa state hospital, Imola, 56.53 pounds; Los Angeles County Farm, Hondo, 55.90 pounds; C. E. Fisher, Hughson, 45.05 pounds; J. M. Christen, Pacheco, 40.79 pounds; S. G. Gambonini, Petaluma, 38.83 pounds; University Dairy, Berkeley, 38.51 pounds.

WAR'S EFFECT ON MEAT

POPULAR misunderstanding is magnifying the superficial fact that this country has a beef surplus, a surplus that has had a precarious existence both before the World War and since. There is something more to the story than the exports of several hundred million pounds of beef and its products in a year, says a report recently released by the United States department of agriculture. To the extent that this is balanced by imports of beef, beef products and beef cattle, it is not a surplus, according to the bureau of crop estimates, United States department of agriculture.

Not only did the imported exceed the exported beef in 1914, but the equivalent beef and its products and edible offal of the cattle imported from Canada and Mexico greatly exceeded the exports of beef cattle, so that, within the scope of the terms here used, the United States was a deficiency country with respect to beef in that year to the extent of 480,000,000 pounds. Similarly in 1915, the national beef deficiency was 92,000,000 pounds.

War demands turned the tide in 1916, when the national surplus of beef was 153,000,000 pounds; in 1917 it was 206,000,000 pounds; and in 1918 the surplus was 576,000,000 pounds.

But the debits so far offset the credits in 1919 that the beef surplus fell to 59,000,000 pounds, or less than one per cent of the production, including edible offal.

The United States has been a surplus mutton country, since 1913, only in 1918 and 1919, by 1,000,000 and 5,000,000 pounds respectively.

On the other hand, the enormous export of pork and its products has been unfailing year after year for a great many years, with totals of hundreds of millions of pounds, even extending beyond two and one-half billions of pounds in 1919.

With regard to excess of either production or consumption of beef and mutton, this country may be said to be in a seesawing position, except as influenced by such high priced foreign demand as that of a great war. After all, the constant great national meat surplus is one of pork and its products.

Meat was exported by the surplus countries of the world in greatly increased quantities in response to the war's demands. The better to understand this, continues the bureau of crop estimates, it is well to compare the change in supply for the five years from 1913 to 1918 with the change for the 18 years from 1895 to 1913, or a period 3 3/5 times as long.

The total exports of all kinds of meat increased by one-half in each period; animal fats and oils gained by one-fifth in the earlier period, but remained stationary in the war period; mutton nearly doubled in the earlier period, but declined about one-half in the later one, or to the original quantity; pork gained only one-tenth in 18 years, or hardly at all, yet it almost doubled in the five years.

What was substantially the world's export meat trade of the surplus countries in 1895 was 2,734,000,000 pounds, as determined by the bureau of crop estimates; by 1899 the quantitl had risen to 3,537,000,000 pounds; and by 1913, the year before the World War began, it was 4,101,000,000 pounds. In 1918, the last year of the war, the world's export meat trade was 6,460,000,000 pounds.

Distribution of the world's exports of meat was naturally greatly changed by war. From the point of view of

A De Laval will bring prosperity to your farm

A De Laval Cream Separator saves and serves twice a day, every day in the year. It is the producer of a steady, never-failing cash income during every month, regardless of season or weather.

Its saving of butter-fat alone is so great that the De Laval pays for itself in a short time and then the extra profit is yours—to provide more comforts and conveniences, to buy new stock or equipment, or to save.

The De Laval Separator eliminates the drudgery of gravity skimming. It saves the cream wasted by an inefficient separator, and it lasts a lifetime. It is the most economical separator to buy. That's why there are more than 2,500,000 De Lavals in daily use the world over.

Sold only through agents, to insure you satisfactory service during the life of your machine.

See your De Laval agent now about getting a new De Laval. Furnished in a variety of sizes, in hand, power or electric drives.

The De Laval Pacific Company

61 Beale Street **San Francisco**

Sooner or later you will use a

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Cream Separator or Milker

Warranted to Give Satisfaction

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Caustic Balsam

Has Imitators But No Competitors

A Safe, Speedy, Positive Remedy for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs and Lameness from Spavin, Ringbone and other bony tumors. Cures skin diseases or Parasites, Thrush, Diptheria. Removes Bunches from Horses or Cattle.

As a Human Liniment and Antiseptic for external use it is invaluable.

Every bottle of **Caustic Balsam** sold is warranted to give satisfaction. Price $1.75 per bottle. Sold by druggists, or sent by parcel post, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

FREE BOOKLETS ON

FARM SANITATION

The following booklets tell how to prevent disease among livestock and poultry and give directions for using

Kreso Dip No. 1

(STANDARDIZED)

PARASITICIDE AND DISINFECTANT

which is specially adapted for use on all

Livestock and Poultry

BOOKLETS

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No. 157—**DOG BOOKLET.** Tells how to rid the dog of fleas and to help prevent disease

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No. 163—**POULTRY.** How to get rid of lice and mites, also to prevent disease.

Kreso Dip No. 1 is sold in original packages at all drug stores.

ANIMAL INDUSTRY DEPARTMENT OF

PARKE, DAVIS & CO.

DETROIT, MICH.

BICKMORE'S GALL CURE

Used by the Family

Used extensively to relieve bed sores, itching piles, cracked hands, etc. If a white ointment is desired ask for our XYZ Skin Ointment.

The Bickmore Co.
Box 344
Old Town, Me.

California Breeders

have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

California Breeders Sales & Pedigree Company

C. L. Hughes, Sales Mgr. Sacramento, Cal

imports, the United Kingdom, which had for many years taken 62 per cent or more of the world's total, increased its share to 75.4 per cent in 1914, and received 70 per cent in 1915 and 1916, 67 per cent in 1917, and 69 per cent in 1918. France's share of the world's meat imports increased from 1.8 to 15.9 per cent from 1913 to 1918, and Italy's from 2.1 to 10.3 per cent. The three countries named took 68 per cent, or two-thirds, of the world's total meat imports in 1913, and 95 per cent in 1918, or almost the entire quantity.

Brazil, China and British South Africa rose to some prominence during the World War as exporters of meat, Brazil especially. From a normal export of 1,700,000 pounds of meat from Brazil in 1913 and 1914, the quantity jumped to 94,000,000 pounds in 1916, to 230,000,000 pounds in 1917, and to 251,000,000 pounds in 1919, of which 146,000,000 pounds was beef, 46,000,000 pounds pork and 59,000,000 pounds unidentified meat.

China was exporting yearly about 50,000,000 to 65,000,000 pounds of beef and pork from 1912 to 1915. The quantity became 101,000,000 pounds in 1917, and rose to 148,000,000 pounds in 1919. From British South Africa meat exports, mostly beef, increased from about 500,000 pounds at the time the war began to 18,000,000 pounds by 1916, and to 46,500,000 pounds by 1919.

The war changed the United Kingdom's imports of pork and its products from 29 per cent of all meat imports in 1912 and 1913 to 34 per cent in 1916, to 40 per cent in 1917, and to 50 per cent in 1918, weighing 1,656,000,000 pounds. The fraction for beef was about 47 per cent before the war, and it fell to 39 per cent by 1918.

France increased its imports of beef relative to total imports of meat from 45 per cent in 1913 to 75 per cent in 1915, after which year the fraction declined to less than 65 per cent in 1918, or to 495,000,000 pounds.

WEIGHING MILK GIVES WORTH OF COW

Reports coming to the United States department of agriculture often include stories of the surprises which cow owners meet when they start keeping records of their cows' production. For instance, in a Missouri cow testing association there was a man who, when he entered the association, did not appear to have a very good herd; but among his cows was a crippled ten year old Jersey named Goldie. Old Goldie led the whole association, with an annual production of approximately 9300 pounds of milk and 526 pounds of fat, and an income over cost of feed amounting to $267, in spite of the fact that when the test started she had already gone three months since freshening. The amusing part of Goldie's record is that her owner tried to sell her just before she went on test, for $75. Six months later he refused $275 for her.

The whole herd of which Goldie was a part averaged over 360 pounds of fat for the year. In contrast with this was another herd of 37 cows in the same association, which had been reputed to be the best in that part of the state. Yet 14 of these were sold during the year as unprofitable, and it seemed likely that more of them would be.

Similar stories come from other states. The dairy division has been giving a great deal of effort to the extension of cow testing associations throughout the country, and there are now nearly 500 associations in various states.

The man who joins a cow testing association never runs the risk of selling a $200 milk producer for $80 because her appearance is poor, nor of wasting his feedstuffs and work on a good for nothing cow because she looks like a good milker.

It is both profitable and practicable to know for a certainty the worth of a cow by weighing her milk. A man in a cow testing association has the milk of every cow weighed and tested once a month, from which it is easy to caluculate the total for a year. He saves the trouble of doing it himself by having the cow tester do it. The tester also weighs the feed, and figures out the cost of the milk; so that at the end of a year the owner of a herd of cows knows exactly what each one has given, what she has eaten, and how much income over cost of feed she has brought him.

MOLASSES

don't measure stock food in cans!

Don't measure the feed you give your stock in quarts or pounds, buckets or cans.

Measure it in food values! Choose it for the fat elements it contains! Feed Molasses. It is rich in sugar, low in price.

A little Molasses mixed with your other feeds makes better appetites, quicker profits.

We have prepared a booklet for the stockman that tells of actual results that have been accomplished by the feeding of Molasses.

This is a regular mine of information for the man with a feeding problem. Your copy will be sent you the day we get your letter asking for it.

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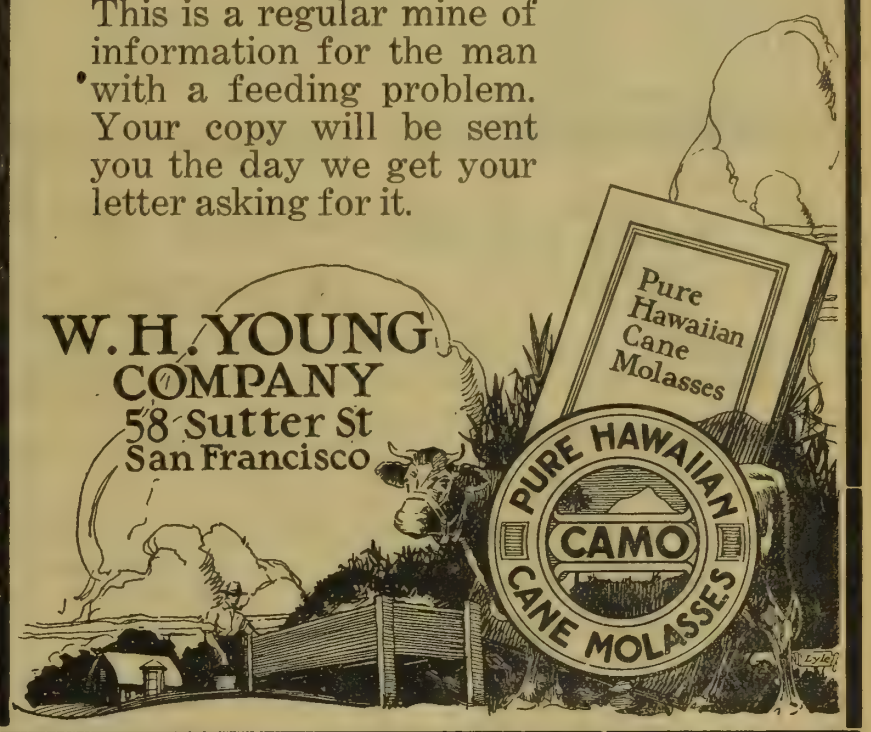

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— THE UTMOST IN DUROCS —

My herd has been selected for type, conformation and utility, with regard to fashionable blood lines. Here you will find Pathfinders, Sensations, Orions, Creators and Defenders.

Visitors Welcome. Correspondence Solicited.

J. P. Walker **Visalia, Cal.**

Order One of These Duroc Gilts Now

and get started in the hog business. A few extra good yearling gilts, either open or can be bred to California Orion King or King Cherry Orion, a pair of proven herd boars that are unequaled in any herd in the West. Satisfaction or your money back. BETTER DUROCS AT REASONABLE PRICES

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Watch La Tierra de Uva Duroes **Pathfinders, Orions, Sensations**
Three Top Boars

Fannie's Orion King assisted by Uneeda Orion B, 2nd prize aged boar at State Fair, 1920, and grand champion at Glenn County Fair, 1919, and Valley View's Sensation, 3rd prize junior boar pig and litter mate to 1st prize and reserve champion at State Fair, 1920, and a wonderful string of prize winning sows and gilts, including Miss Sensation, 1st sow pig and reserve champion at State Fair

C. C. ELLIS **Exeter, Cal.**

THE WILLOWS RANCH

Home of Big Type Poland China Hogs
This Herd Noted for Size and Quality
CORRESPONDENCE INVITED

A. J. Elliott, Proprietor **Box 45, Route 1, Tulare, Cal.**

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65% EFFICIENCY

SIMPLE, DURABLE, EASY TO INSTALL

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For Irrigation:

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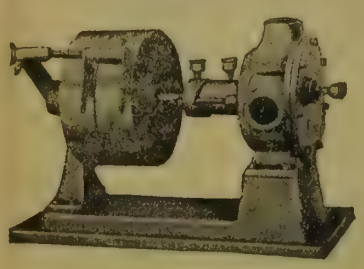

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THE PRINCIPLE upon which the Viking is designed — the rotary principle—accounts for its unusual high efficiency. No churning of water in the pump casing—no waste of power. Every revolution draws in a definite amount of water, passes it through the pump, and forces it out the discharge. Viking pumps reduce the cost of pumping by using less power. STUDY THE PRINCIPLE.

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The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows

HARVEY'S CHOICE
Grand Champion Boar
at Los Angeles, 1919

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Grand Champion at Liberty Fair

SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale

A. E. Harvey, Manager Redlands, Cal.

O.U.R. Hampshire Swine

Ortega-Underhill-Rancho

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70 **Head Registered Big Type Poland China Hogs** 70

together with

7 head of extra good Horses and Mules to be sold

Wednesday, April 6, at Ranch, Pomona, Cal.

Have rented my place and am going east and stock must be sold.

Ranch: half mile east of Pomona City Limits on Grand Ave.

Send for Catalogue.

J. L. Dunlap Pomona, Cal.

When Writing Advertisers Mention California Cultivator.

LIVESTOCK NEWS NOTES

(Continued from Page 463.)

of Sir Veeman Korndyke Pontiac, now heading the Burr Farm herd, Los Angeles. A large number of her half sisters by the same sire are owned by Frank M. Helm, Fresno, and another large group will appear in the R. F. Guerin dispersal sale at Visalia. Several other good records have been completed in Mr. Graham's herd, including Gamma Sarcastic of Linwood with 26.86 pounds butter from 569.1 pounds milk in seven days. Cora Jarie Pontiac, a daughter of King Pontiac Netherland Segis 3d, and one of the top heifers in the Rosamaines Rancho dispersal, made 28.29 pounds butter from 511.7 pounds milk in seven days as a senior three year old. Miss Segis Pontiac Walker, another daughter of King Pontiac Netherlands Segis 3d, made 20.51 pounds butter from 426.9 pounds milk in seven days as a junior two year old. She is out of May Walker Gelsche Korndyke, a 27 pound three year old daughter of the great 28 pound cow Locust Terrace Gold Drop.

Two daughters of King Korndyke Pontiac 20th, the $12,000 Burr Farm bull, have completed yearly records of interest. It will be remembered that these two heifers calved unusually young, both making the highest records for heifers of their age in California. Anoakia King Korndyke, freshening at 17 months of age, has made 583.8 pounds butter from 13,955.6 pounds milk in 365 days. Anoakia Pontiac Beets 2d, freshening at 19 months of age, has made 635.2 pounds butter from 15,677.7 pounds milk in 365 days. Both are owned by Anita M. Baldwin, Santa Anita.

G. W. Wilder, president of the Butterick Company, New York, has decided to disperse his high class herd of registered Guernseys on Hollow Hill Farm, Colton. The herd is unusually well bred, and the individuals in the herd have made some noteworthy official records besides consistent winnings in the show ring. The sale will be made at public auction on the farm on Thursday, April 28.

An announcement made from the box in the recent Holstein Guaranty Sale at Sacramento, by C. L. Hughes, sales manager of California Breeders Sales and Pedigree Company, has attracted wide attention. He stated that a plan has been perfected whereby any reasonable amount of money is available for the financing of notes in the public sales of registered cattle. While no details of the plan were given it is understood that the well known sound condition of the registered cattle breeding industry of California made the financing of such a move attractive to men able to supply the capital, and provides for the cattle breeding interests of the state a system of credit that is entirely original in its conception.

Charles MacDonald, who has been in charge of Toyon Farm Association herds almost since their founding, will become superintendent of Santa Anita Rancho, owned by Anita M. Baldwin, Santa Anita, immediately after the Toyon Farm dispersal on April 20-21. MacDonald has had a world of successful experience and will find plenty of scope for his talents at the big ranch.

Bert Nixon, who at one time owned one of the top Guernsey herds of the West, was instantly killed in an automobile accident at Salinas, March 23. Nixon was just on the eve of sailing for an extended trip to Australia.

Dean H. E. Van Norman of the university farm school is now in the East conferring with B. H. Rawl, chief of the dairy division of the United States department of agriculture, in regard to the World's Dairy Congress which will be held in 1922. It is rumored that Dean Van Norman may be offered the management of the congress.

Friar Rock, the $250,000 Thoroughbred stallion owned jointly by John E. Rosseter of San Francisco and J. E. Madden of Kentucky, and the cause of much litigation between the two owners, has been awarded to Madden by a New York court order. The liti-

California Wonder Corn

Something New and Good. Produces 3 to 12 good ears per Stalk. I sell the stalks with the ears right on them so you can see just what you are getting. I also sell ear corn and shelled corn postpaid. My best plots have averaged 6 ears per stalk, over 300 pushels per acre. I am now selling seed grown directly from this same stock. This seed will produce Big Crops on Your farm. A few dollars starts you making Big Money This Year. My photo illustrated booklet tells all about it and gives prices. Send for your copy today. It's Free.

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CORN SPECIALIST
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TANKS UNION PIPE

Union Tank & Pipe Co.

Designers and Manufacturers of Heavy Plate Work and Light Sheet Metal

Well Casing

Plain and Corrugated Tanks
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2801 Santa Fe Ave.
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BERKSHIRES

RAISE BERKSHIRES

They are prolific, the best of mothers and will thrive under any of the climatic conditions in the West.

They Always Top the Market

We will supply your wants or tell you where you can obtain them. For full information address. Chas. M. Talmadge, Sec'y,

Western Berkshire Congress,
Box L, Salem, Oregon

The Profitable Hog

USE SHIRE POWER

The cheapest and best power that any farmer can use. Shire mares will raise as good a colt when working as when idle. Breed your mares to Shire stallions, the young stock will make you a very good profit. For information on Shires write:

W. G. Lynch, Secretary, American Shire Horse Association, Box H, Tonica, Illinois.

gation arose over the question of the stallion spending part of each season in Kentucky.

Harvey M. Berglund of Dixon believes that the outlook for swine raisers was never better and states that he is receiving more inquiries for breeding stock than at any time in months. Berglund has sold boars to E. W. Comer of Sparks, Nevada, and William Shurbam of Bakersfield. Two bred gilts have been sold to C. F. Uhl of Vacaville.

F. W. Sandercock of Sacramento has purchased a Shropshire ram from the Butte City Ranch flock to head his small flock maintained near San Luis Obispo.

New herds of Hampshire swine are being established near Artois, Glenn County, by E. S. Reed and W. H. Jopes, who have recently moved to this state from the East.

Cattle in the United States are estimated by the department of agriculture to number 66,191,000 head. Of these, 23,431,000 are in dairy herds, 33,824,000 in beef herds and 8,936,000 not classified.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Ringbone

I have a horse that has a bad ringbone. It started a year ago. Can anything be done for it?—Subscriber, Vacaville.

With so little knowledge of the case it is difficult to advise what to do. If the growth is very large and the horse is very lame it is hardly worth treating. Ringbone starts with inflammation of the joint caused by an injury, as a bruise or strain, or from rheumatism. Once the inflammation is well established the joint oil and the cartilages of the joint is destroyed and a fibrous growth surrounds the joint, which is a provision of nature to hold the ends of the bones firm while bony material fills the space between them and the two bones grow solid together and become as one. If the horse is worked or allowed to exercise too much the bones do not unite and the lameness continues. At the first appearance of ringbone the horse should be placed in a box stall with a foot of planing mill shavings for a bed and the joint fired and blistered. This should be done by a veterinarian. With this treatment the bones should unite in two months and soon after the lameness should stop but still the horse will be blemished for life. After a year standing and the horse still very lame it is hardly worth treating.

Kittens Died

My cat has let two of her kittens die at 14 and 17 days old. They are white with blue eyes. They just refused to nurse and died without any apparent pain or sickness. She also came in heat again at 14 days. Could this trouble be caused by the cat eating too many gophers?—Subscriber, Earlimart.

Probably the gophers had something to do with it. White cats with blue eyes seem to be hard to raise anyway. They do not seem to have strong constitutions. The cat coming in heat so soon indicates that there was something wrong with her.

Dog Distemper

My bulldog has been sick a month and all home remedies have failed. Since we came to the ranch she has chased rabbits until she became quite thin in flesh. Now she has a cold on her lungs, has fever and nose and eyes are running. She coughs and raises some phlegm. She also has worms, the flat, white kind. What would you advise doing for her?—Subscriber, Earlimart.

The symptoms are those of distemper. After it has run for a month it is hard to cure completely. Dissolve a teaspoon of salt in half a cup of warm water and give it all at one dose in the morning. It will cause her to vomit and clear the stomach of that phlegm. Repeat this every second morning for two weeks. In the meantime give a little liver pill every few days, the same kind as people take. Feed her dry, hard bread and a little raw beef. For the worms see the article on "Tape Worms in Dog" on page 421 of the Cultivator of March 26.

Lump Jaw

Kindly advise me regarding a cow. Her right jaw is badly swollen and broken out in four different places on the ridge between the eye and nose. I have used fly blister three times and reduced nearly all the swelling. Am using fuel oil on it daily after washing it clean with hot water and sheep dip. The cow has improved very much since beginning the treatment. A veterinarian says it is due to an injury and can be cured in time, but others who are farmers say it is lumpy jaw and cannot be cured. What is your opinion?—Subscriber, Ukiah.

This may or may not be lump jaw (actinomycosis). Lump jaw generally comes on the lower jaw but there is no reason why it should not attack the bones of the upper jaw since the germ that causes it gets in through the gums at the roots of the teeth. The remedy is half a dram of iodide of potash once a day for three weeks. After a rest of two or three weeks, if it seems necessary repeat the treatment. This will probably do some good whether the germ of actinomycosis is present or not. You seem to be a good nurse and will probably have good success.

ANOTHER GREAT CALIFORNIA PRODUCER

A great record has just been completed by Norma Korndyke Cornucopia, a five year old granddaughter of Pontiac Korndyke. She has just made 38.41 pounds of butter and 666.3 pounds milk in seven days. Norma Korndyke Cornucopia is owned by H. E. Spires, Caruthers.

Lame Pig

I have a lame pig. At first it was lame in one hind leg but gradually got worse and now the whole hind part is lame. It walks on its toes and then falls over. We feed it sour milk, potato peelings and bran mash. Please tell me what is wrong.—Subscriber, Acampo.

The trouble is probably rheumatism due to damp quarters. Keep pig in a warm, dry place with a dry bed of straw and when it is possible get it out in the sunshine. Have your druggist prepare 20 powders, each containing 30 grains of salicylate of soda and bicarbonate of soda. Give one powder in the feed once a day.

KEEP A-GOIN'

Keep a-goin' and a-goin' and a-goin',
A-goin' and a-goin' and a-goin'.
'Tho you heart sinks deep within,
Just keep raisin' up you chin
And a-goin' and a-goin' and a-goin'.
—Charles Christian Gramlich.

COME EARLY!

The big Jane Garden Farm dispersal will start promptly at 9:30 each morning of the sale days, and some of the most desirable young cows in the herd are already scheduled to sell right from the opening of the sale, which is a complete dispersal of

180 REGISTERED HOLSTEIN COWS AND HEIFERS **180**

3 REGISTERED HOLSTEIN HERD BULLS 3

JANE GARDEN FARM

Owned by

Fred W. Kiesel

Sacramento, Cal.

WEDNESDAY AND THURSDAY

April 6-7, 1921

180 COWS AND HEIFERS, only eight of which are 7 years old or over.

30 COWS AND HEIFERS now on yearly test, some with 305 day records already completed.

THIS HERD is leading the Sacramento-Yolo Cow Testing Association. They are real dairy cows!

THIS HERD is one of the most highly bred groups of registered Holsteins ever offered in the West, and is the most highly bred herd ever offered in the West in equal numbers.

THIS HERD is outstanding for high average type and growthiness and splendid condition of its individuals.

40 DAUGHTERS OF SIR AAGGIE DE KOL ACME, son of the world's strictly official yearly record butter producer Aaggie Acme of Riverside 2nd, who is dam of a world's record daughter, who in turn is dam of a bull that sold for $41.000.00, King Korndyke Pontiac Acme.

30 DAUGHTERS OF KING KORNDYKE PONTIAC, the great son of King of the Pontiacs who sired the $12.000.00 bull King Korndyke Pontiac 20th, who in turn sired the $41,000.00 bull King Korndyke Pontiac Acme.

30 DAUGHTERS OF PRINCE GELSCHE WALKER KORNDYKE, one of the best sons of Prince GELSCHE WALKER, out of the same dam as King Korndyke Pontiac.

DAUGHTERS OF OTHER FAMOUS SIRES, including King Korndyke Sadie Vale, King Morco Alcartra, Segis Pontiac De Kol Burke, and Prince Gelsche Walker.

THE THREE HERD BULLS, King Korndyke Pontiac, Prince Gelsche Walker Korndyke, and Aristo Korndyke Pontiac, will sell.

A LONG LIST OF OFFICIAL RECORD COWS AND HEIFERS with up to over 34 lbs. butter in 7 days for a three year old will sell.

Every animal positively guaranteed to be a breeder; no animal tuberculin tested.

JANE GARDEN FARM is 12 miles north of Sacramento in Natomas district. Paved road on the levee all the way.

HEADQUARTERS OF SALE will be Travelers Hotel, Sacramento. Make your reservations early. Transportation to sale furnished each morning to those who come in by train.

THE OWNER is prepared to extend liberal terms to those who make arrangements with him before sale. Application for credit may now be made either in person or by letter to FRED W. KIESEL, Sacramento, Calif., care California National Bank.

Auctioneers:
Col. Ben. A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

Problems of the Dairymen in the Coast Region

By L. W. Wing, Jr., before Stockmen at Davis

WITH their animals upon luxuriant pasture for most of the year the dairymen of the coast region of California are particularly fortunate. With a range in temperature which is comparatively narrow as compared to any other section of our coun. try this region is well adapted to the dairy cow for she is out of doors practically the year round.

But what are the problems in our industry? Have you ever stopped to analyze your dairy operations as a business man does? The problems of our section are many. Some of them are not new by any means for they appear wherever dairying is practiced. The reading, 'riting and 'rithmetic, or the three R's, of dairying are feeding, breeding and marketing. We do not consider labor a serious problem at this time; there seems to be plenty of help available.

Silo Needed

To approach the problem of feeding in any community we must first find what is available on the farm and then study to improve what we find by supplementing with purchased feeds. As a general rule most of the dairymen of the coast region are fairly well supplied with roughage for their cows both of the dry and succulent form except in summer and early fall. For this period what do we need to supply this succulence? A silo. Dairying without a silo is like trying to run a machine with one of the main cog wheels missing. The pasture land in a great many sections has deteriorated. This should be improved so they will care for more cattle and last for a longer season. Corn for the silo and root crops make heavy yields in the coast section. These, with good pasture, supply all the succulence needed and no one should be short of succulent roughage.

A veterinarian tells me that a common trouble with dairy cattle in some sections of the coast region is impaction due to the awns or beards from alfilaria. This is an excellent forage plant during the growing season but the trouble comes in the dry season of the year when the small awns become dry and hard. He is of the opin. ion that if the cows are receiving succulent feeds there is little danger from this. Here again the silo would supply us a corrective.

Grain Feed

With plenty of alfalfa or oat hay and succulent feeds, with what production will it pay to add grain to the ration? They tell us at the present time that for a cow to be profitable she must produce 8,000 pounds of milk and 365 pounds of butterfat or over Will our dairy cows produce this amount on hay, silage, roots and pasture, without grain? If so what will be the increase when grain is added, and is it economical to add the grain? This is a problem well worth the consideration of our experiment station.

What is our cheapest grain mixture for the dairy cow at the present time? For our region it is ground barley and coconut meal, equal parts by weight. However, this does not supply as much variety as is advisable to feed and then some cows will not eat so large a proportion of coconut meal. A grain mixture that is proving very satisfactory for us in our regular herd feeding is: Coconut meal 100 pounds, ground barley 100 pounds, bran 25 pounds, cottonseed meal 10 pounds.

The nutritive ration of this mixture, according to Henry & Morrison, is 1 to 4.1 and it costs approximately $1.75 per hundred. The amount of mixture to feed per cow depends on her production and on the amount of roughage she will consume. Some will eat more hay, silage, roots and pasture grass than others, and these require less grain. The roughages are our cheapest feeds so we want to use as much of them as possible. Where cows are receiving all the hay, good pasture and possibly silage they will clean up I would recommend one pound of this mixture per cow per day for each four to five pounds of milk she produces per day if she is a Holstein or an Ayrshire; for Jerseys and Guernseys this should be for about each three pounds of milk produced per day. In feeding the individual's habits must be studied to get best results.

Breeding Pays

When one goes about over our state and sees scrub cows that utterly fail in true dairy conformation he knows that the owner is working with inefficient machines. From an inferior machine we expect unsatisfactory results, and the same is true of the scrub cow. You find many such animals still in existence in our dairy herds, although great improvement has been brought about through our cow testing associations and the pure bred sire campaign. Let's keep pushing these with renewed vigor until all scrubs have disappeared.

Care is a very important factor in high production for the dairy cow. However, until we get an animal by breeding that has inherited the ability of high production as the foundation on which to place our care we are working for naught. Lay the foundation first, get a pure bred sire at the head of your herd. Remember a bull from high producing ancestry is the cheapest in the long run as a general rule, although he does cost more. You should know what the ancestors of a pure bred bull have produced before placing him at the head of your herd.

And last but not least of our three R's comes marketing. This is of utmost importance when it comes to balancing the books. Wherever the product goes, or in what form, are we getting a fair remuneration? Close cooperation among the dairymen goes a long way toward solving our problems of marketing. There is one thing in marketing that we must bear in mind along with our cooperation and that is that dairy products of poor quality must be sold at a lower figure. There is always a strong demand for the best grade of butter on the market if there is for any and it is the inferior grades that are weakest in selling and are severely cut in price. The dairyman is the one that must stand these low prices if he produces milk or cream of a poor quality. With the climate that we have in the coast region dairy products keep very well, but at the same time vast improvement can be and must be made in our methods of handling our product. With the creameries now demanding cream that does not need to be neutralized before butter is made from it, greater care must be taken in producing and handling by the farmer. Remember that expensive equipment is not necessary to produce milk of excellent quality but right methods are essential. Of course sanitary equipment helps and makes the work easier.

In the marketing of our pure bred livestock we have an outlet that I believe will develop very fast in the near future. That is the trade in the Orient. The people there are waking up to the value of the dairy cow as an economical producer of human food. California is the logical place for them to come for their cattle for we offer them facilities that no other section can unless it be along the Pacific Coast to our north. The breeders by sending only the best and doing everything they can to make satisfied customers when they have the opportunity can help materially to develop this market. What are you doing along this line?

Are we in a rut or are we awake to our problems? Remember about the only difference between the rut and the grave is the difference in the size of the holes.

COMPLETE DISPERSAL

R. F. Guerin Herd

60 Registered Holsteins 60

55 FEMALES 5 BULLS

Visalia, California Thursday, April 14, 1921

In this entire herd there is only one animal past four years old, and the uniformity of breeding presents unusual attractiveness to buyers of foundation herds.

22 DAUGHTERS OF SIR VEEMAN KORNDYKE PONTIAC, the great 30 pound son of Sir Veeman Hengerveld now owned by Burr Farm. He has a good list of A. R. O. daughters and a large number of living daughters yet to freshen with first calves. One of his daughters made 20,270 lbs. milk and 759 lbs. butter in one year as a junior 2 year old, and recently freshened as a junior 3 year old in the herd of Earl Graham, Compton, and made 33.06 lbs. butter in 7 days from 666.6 lbs. milk.

23 DAUGHTERS OF KING SADIE VALE IDYL SEGIS, a son of King Korndyke Sadie Vale 27th out of K P Idyl Segis, a 35 lb. 3 year old daughter of King of the Pontiacs. Most of these are out of daughters of Sir Veeman Korndyke Pontiac.

Among the Individual Females Are:

TWO 21 POUND SENIOR 2 YEAR OLD daughters of Sir Veeman Korndyke Pontiac, both of which will complete excellent yearly records at Burr Farm before sale. Both bred to the $12,000.00 bull King Korndyke Pontiac 20th.

A DAUGHTER OF KING KORNDYKE SADIE VALE 27TH out of a 22 lb. 3 year old daughter of Changeling Butter Boy, second dam a 30 lb. daughter of Tidy Abbekerk Prince with 985 lbs. butter in one year.

A DAUGHTER OF A 30 POUND COW, sired by King Sadie Vale Idyl Segis.

A DAUGHTER OF A 31 POUND COW, well along with calf to King Sadie Vale Idyl Segis.

A DAUGHTER OF A 28 POUND COW. sired by King Sadie Vale Idyl Segis.

A DAUGHTER OF KING SEGIS ALCARTRA PRILLY, the Bridgford three times grand champion, out of a daughter of Spring Farm King Pontiac 5th.

TWO DAUGHTERS OF KING MORCO ALCARTRA, son of Tilly Alcartra, both heavy with calf to King Sadie Vale Idyl Segis.

A 23 POUND daughter of the twice 26 pound cow Black Patti, that is now making a big yearly record.

A DAUGHTER OF THE 30 POUND COW MELBA HENGERVELD, well along with calf to King Sadie Vale Idyl Segis.

SPECIAL FEATURE!

This offering contains one of the best bred young bulls ever sold in the west, King Korndyke Pontiac Tola. He is sired by the $12,000.00 bull King Korndyke Pontiac 20th, and is out of K P Tola, the great 36 pound daughter of King of the Pontiacs that is now finishing a yearly record at Burr Farm that seems certain to go above 1,000 pounds butter. This young bull will soon be ready for service and he is a splendid individual. If you need a real herd sire consider this youngster carefully.

KING SADIE VALE IDYL SEGIS is in the sale, and is ready for heavy service. His pedigree entitles him to a place at the head of a good herd.

SEVERAL YOUNG BULLS, some that are sure to go at dairymen's prices, complete the offering.

Mr. GUERIN'S RANCH is six miles north of Tulare, six miles southwest of Visalia

Sale Begins Promptly at 10 A.M.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and individual certificates furnished.

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. Geo. W. Bell, Tulare

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

SUPPLY THE HOG WITH FRESH AIR

During the winter season pneumonia is a disease that is quite common among hogs. One marked cause of this disease is improper ventilation. When the hogs are housed in a tight, poorly ventilated enclosure for a time their susceptiiblity to pneumonia is intensified when they go out into the cold air.

A simple and efficient ventilating shaft may be constructed of four boards 1 by 12 inches each. The lower end of the shaft should be about one foot above the floor and the upper end extend a little above the ridge pole. A ventilator of this kind will take the impure air from the floor and the hog house will not become cold. In the majority of cases it is not necessary to have inlets for fresh air, but when such are necessary in tightly closed buildings they should be located near the eaves. For each 25 or 30 feet of the length of the house one ventilator is required.

The dairy department of the San Joaquin County farm bureau will start the season's cow testing work during April with about 600 cows signed up.

HOLSTEIN CATTLE

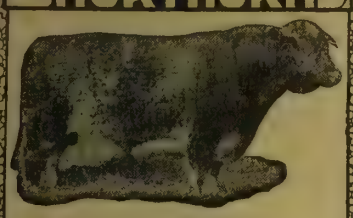
Messrs. Robinson & Schultz, Independence, Kansas, write:

"Three years ago in September we bought a Holstein cow for $240. This cow has produced $2,520 worth of milk in three years, and it cost us $800 to feed her. Her four heifers are worth $2,200. This cow has brought a net profit into our herd of $3,400."

Send for Free Booklets

The Holstein-Friesian Association of America
120 American Bldg., Brattleboro, Vermont

CALEDONIA SHORTHORNS



Imp. Caledonia

Caledonia Shorthorns constitute one of the choicest collections of the breed owned in America. Our herd bulls, Imp. Caledonia, Gainford Matchless, grand champion at the 1919 San Francisco show and Pine Grove King stand out prominently in the West. Our females represent choice Scotch and American families, and are noted for their type and quality. We can at all times furnish foundation material and bulls suitable for any herd or for the range. Our prices are moderate and every animal is guaranteed. Visit our farm and herd. Send for special bull list.

CALEDONIA FARMS
WEST SACRAMENTO, CALIF.
OFFICE-57 POST ST. SAN FRANCISCO.

Shorthorn Cattle

My herd consists of Scotch and American families headed by the Marr Clara bull, Clarion. Just now I have a few good young bulls and a few females for sale at right prices. Market your crops through good Shorthorns.

GEO. E. DIERSSEN
Box 913 Sacramento, Cal.

Make Money

Shorthorn Bull Bargains

In order to close off the bulls now on hand, I am quoting some exceptionally attractive prices. These bulls were bred right and have been raised right to go on the range and increase your profits. Also a few good cows and heifers.

Howard W. Vaughn
Dixon, Cal.

TIM ANSPACH
Livestock Auctioneer

30th & R Streets Sacramento, Cal.
Write or Wire for Sales Dates

For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

D. G. Cummins & Son
Route 1 Visalia, Cal.

USE BULLS OF HIGHEST QUALITY

"I FIND that a man cannot use too good a bull, even on good grade cows. The best is none too good." This is from the letter of a South Dakota stockman forwarded by his county agent to the specialists of the United states department of agriculture, in charge of the "Better Sires—Better Stock" campaign. The stockman cites a number of instances from his own experience in raising livestock to show that the profits when a high class pure bred heads the herd far exceed those made when inferior animals are used.

"Three years ago," says this stockman, "my brother and I owned a bunch of good grade cows, just average range animals. We also had eight pure bred cows and bought a big pure bred bull of best quality. As we did not have full use for him we bred the range cows to him. We shipped some two year old steers and a few two year old heifers to market on the same train in which our neighbor shipped his steers. His animals were about the same as ours and he had a registered bull, but it was just a good average range type. Both lots of cattle were sold on the same day by the same commission firm. Our steers netted an average of $144.80, and the heifers $123.07; our neighbor's steers netted $88. Our bull cost much more than his, but we considered ours the cheaper in the end."

The writer of the letter relates an experience he had while visiting the Chicago stockyards, which again illustrates the value of good pure bred bulls. He says: "A dealer had several loads of our native cattle on the market which he had bought up from parties I know. There were good average yearlings and quite a lot of 'twos' in the lot, a fair sample of our cattle. In the next pen were two loads of Wyoming yearlings that looked as if they were all sired by the same bull and as likely a bunch as you will often see. The dealer's cattle of mixed 'ones' and 'twos' sold at seven cents and the Wyoming yearlings at 11 cents and weighed within a few pounds of the mixed loads. I do not remember the weights, but I figured the price at the time, and the Wyoming man received a premium of nearly $28 per head for using a good bull. This would be a total of $1,700, as I figured it at the time, which would pay for a couple of good bulls and leave some cash to his credit besides having the steers sisters to use in his breeding herd."

The stockman concludes his letter with some sound advice to all stock breeders and, while he has particular reference to his section of the country, his recommendations deserve careful consideration by stockmen throughout the United States. "With the cost of production high, grass rent high, labor high and scarce, and everything we use at top-notch price," he says, "we can not afford to bother raising a scrub. They will not pay, much less make a living for the owner. After what we have been through the last year, dry season and tight money, my advice to any man is, no matter what breed of cattle he fancies, when he buys a bull, buy a good one, and the best is none too good. Do not buy a pedigree unless a really good bull is attached to it. Take plenty of time in selecting a bull and when you find the one you want, buy him. I have spent the price of several bulls in railroad fare and expenses in hunting a bull that would suit me and when I found him I bought him. I have always succeeded in picking out one that has given perfect satisfaction."

SUCCESSFUL BREEDERS HAVE DEFINITE AIMS

The improvement of grades on the farms no doubt will result from the present inferior stock being bred to high class animals. If the breeder desires the most satisfactory results he must have in mind some definite aim and proceed with his plans until he has accomplished the desired results. The man who succeeds in raising livestock is usually the one who determines a logical plan of procedure and continues along that line until success has been achieved.

60 REGISTERED HOLSTEINS 60

First Individual Public Sale

Santa Anita Rancho

Owned by Anita M. Baldwin

Santa Anita, Cal.

Tuesday, April 26, 1921

A WONDERFUL OPPORTUNITY TO SECURE HIGH RECORD, HIGHLY BRED COWS AND HEIFERS BRED TO THE GREAT $41,000.00 BULL KING KORNDYKE PONTIAC ACME.

This is an offering of select cattle. Mrs. Baldwin has impressed upon every one in her own organization and in the management of this sale that these cattle go out as representatives of the Santa Anita Rancho herd, and that the utmost care must be exercised in the selection of individuals for the sale.

All of the high record cows in the herd are included in the sale list, as well as many of their daughters.

The list also includes the two great herd sires MERCI LAD KORNDYKE BURKE, and PRINCE WALKER CORNUCOPIA, as in the reduction of the herd the service can be handled alone by the $41,000.00 bull King Korndyke Pontiac Acme.

Watch next week's issue for an outline of the many great individuals in the sale. Write to sale managers for catalog now.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.

SYCAMORE ACRE

ROBERT N. CLAPP
PROPRIETOR

HOLSTEIN-FRIESIAN — CATTLE

Nuevo, Riverside County, Cal.

Registered Holstein Females FOR SALE

My recent purchases of registered Holstein females have overcrowded my yards and I beg to announce that I must dispose of a number of yearling and two year old heifers, both open and bred to freshen before fall.

These are wonderful individuals, strong in the blood of King Segis, and are a wonderful buy for any breeder who has the room to carry them. I feel you will find them priced to suit you.

They Will Grow Into Money for You

Come out and see them. Correspondence promptly answered.

I want to impress every breeder that every animal I sell is tuberculin tested, guaranteed to be a breeder and I stand squarely back of each individual sold. Breeding Holstein-Friesian Cattle is my sole occupation and every transaction must be satisfactory to the buyer or the transaction is not complete.

Sycamore Acres is located at Nuevo, twenty-two miles Southeast of Riverside and five miles East of Perris. Fine roads all the way.

ALL RISKS ELIMINATED

Nothing left to chance when you buy one of our Holstein bull calves. Every one guaranteed free of tuberculosis. Every one guaranteed to be a breeder. Every one from an official tested dam, A. R. O.-A. R. S. O., yearly semi-official and cow testing association records. (All made under normal dairy conditions in string with 100 others.) Sires from the most popular high producing strains in California. Offered at Bargain Prices. Phone, Downey 42

LOS ANGELES COUNTY FARM Hondo, California

Sunny Side Holstein Dispersal

I am dispersing my good Holsteins on April 14, 1921. These will include the daughters of Sir Veeman Korndyke Pontiac and a yearling son of King Korndyke Pontiac 20th out of K. P. Tola who made 36.16 lbs. of butter in 7 days and 1000 pounds in a year.

R. F. Guerin Visalia, Cal.

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The direct selling method from producer to consumer, and a clearing house for over 40,000 subscribers. Weekly Liner rates: Single insertion 4½ cents per word; 45c per issue minimum charge. Cash with Order

Mail all classified copy to Los Angeles Office.

POULTRY

Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

Petaluma Hatchery — Established 1902. Capacity 30,000 chicks a week. White Leghorn chicks from heavy laying free range stock after April 15th, $15.00 per 100, $140.00 per 1000. During May and June $14.00 per 100, $130.00 per 1000. Brown Leghorns $1.00 per hundred more than White Leghorns. We positively guarantee safe arrival and full count of good strong chicks and no questions asked. L. W. Clark, Proprietor, 615 Main Street, Petaluma, California.

Eggs, Chicks Reduced Remainder of Season. Our early maturing, heavy winter laying, 180-290 egg Leghorns, Anconas, Reds, Rocks, Minorcas (ducks, turkeys) often clear customers $5.00. 140,000 electrically hatched. "My pullets laid at 4½ months, cleared $1.00 each January." "Get more winter eggs from 60 your hens than from 200 formerly." Write (rarely home). Profitable Poultry, 19 North Fair Oaks, Pasadena.

S. C. White Leghorn Baby Chicks from heaviest laying (Hoganized) stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June $5.00 per 25, $9.00 per 50, $14.00 per 100. Special prices 500 and 1000 lots. Largest electric hatchery in the World. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh Street, Petaluma, California.

Hillview Buff Plymouth Rocks — An American bird for Americans. Splendid layers, fine broilers and fryers, beautiful in color, the ideal for the farm, city lot or show room. Blue ribbon winners 1920 in Oakland, Riverside and San Diego shows. Eggs for hatching from our best matings $5.00 per setting of 15, commercial eggs $3.00 per setting. Hillview Poultry Ranch, Chatsworth, California.

Sly's Old Mission Strain Rhode Island Reds. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. SLY, 1642 (D) Middleton Place, Los Angeles, California.

Baby Chix—S. C. White Leghorns from open range standard bred parent stock of utmost utility. Protect yourself in having your order booked early. Prices, etc., on application. I. X. L. Hatchery, 619 Upham Street, Petaluma, Sonoma County, California.

S. C. White Leghorn Baby Chicks from my carefully selected, pure-bred stock of S. C. White Leghorns. Orders for spring delivery booked now at $15.00 per 100, $140.00 per 1000. Write for particulars. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks — Barred Plymouth Rocks and Rhode Island Reds in 25, 50 and 100 lots 20c each. Hatching eggs $2 per 15. We ship by Parcel Post, pay all charges. Write for circular. Hargett & Son, Route 2, Compton, California.

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. Eggs from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

Baby Chicks hatched to order from Black, White and Buff Minorcas. Eggs for sale. Also 4 White Minorca Cockerels $5.00 and $10.00 each. Black Cochin Bantam Eggs. Horace W. Crowell, 58 N. Craig Avenue, Pasadena, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

For Sale — Hoganized White Favorolle with laying records 230-240. Setting of 15 eggs $5 and $10. White Favorolle Poultry Farm, Andres Stammerjohann, Ontario, California.

For Sale—Baby chicks, turkeys, small Queen incubator. R. F. D. 12, Box 292, Los Angeles; 1065 Elizabeth, Cudahy. Phone South 3694 R. 2.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Single Comb Black Leghorns—Combine beauty and utility. Why? Write for circular. Hatching eggs, etc. Fred Turnbull, Box 108, Alameda, California.

Exhibition Quality Reds, trapnested, bred to lay. Write for descriptive circular. Satisfaction guaranteed. T. S. Caldwell, 835 B West Broadway, Glendale, Calif.

Hoganized Rhode Island Red Eggs for hatching, $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Baby Chicks—Can book a few more orders S. C. White Leghorns, McFarland strain. Mrs. F. C. Reineking, Inglewood, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jesch, Fallon, Nevada.

POULTRY

For Sale—Incubators (540 egg), Jubilee, Charters and Pioneer, equipped Charters Regulator, large oil tank, fire extinguishers; April delivery. Guaranteed perfect working order, priced reasonable. Three Hunter (American Petaluma) oil burning brooder stoves, 500 to 1500 capacity, nearly new and best condition, at bargain. Geo. Ellison, Campbell, California.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

Booking Orders For Eggs from our wonderful utility and prize stock of Bronze turkeys, geese, Pekin ducks, Muscovy ducks, White King pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, guineas. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

White, Light Brown and Dark Brown Leghorn Hatching Eggs from highest class exhibition stock, competitive with any flocks in the United States. Splendid layers. Eggs $3.00 per 15, $15.00 per 100. From best pens, $5.00 per 15. Mahajo Farm, P. O. Box 597, Sacramento, California.

Baby Chicks—We have 8,000 selected Hoganized hens, all on free range on different ranches, all mated to Tom Barron roosters. We guarantee full count of strong, healthy chicks. Book your orders with us now and avoid disappointment, as orders are coming in fast. 30 years in the business. Lasher's Hatchery, Petaluma, California.

Get Chicks Now and have layers for next winter when eggs are high. Hatches every week. Prompt reliable service. Safe arrival of vigorous chicks from good layers guaranteed. Hatched by electricity. White and Brown Leghorn, R. I. Red, Barred Rock. Reasonable prices. Stubbe Poultry Ranch and Hatchery, Box 67-D, Palo Alto.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Baby Chicks — Correctly hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas, and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second Street, Pomona, Calif.

White Leghorns—hatching eggs our specialty, produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the West. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R. 1 Box 29, Gardena, California.

Chicks — Eggs — Hoganized White Leghorns, Brown and Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, Calif.

White Leghorn Baby Chix from heavy-laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Price for April, May and June, $14.00 per 100. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

Baby Chicks hatched from our utility S. C. White Leghorns, a result of many years selecton and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

"Better Hatched Chicks"—S. C. White Leghorns, R. I. Reds. Our chicks are Bred Right, Hatched Right, Priced Right, Delivered Right and they Grow Right. Hatch each week. San Diego County Hatchery, San Diego, California.

For Sale—Baby chicks every week. Barred Rocks, R. I. Red, Black Minorcas, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Watch Us Grow—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, California.

White Leghorn Baby Chicks — Tancred strain. Fourteen years trapnested stock behind them. Never buy eggs on the outside. Henry Tarratt, Corning, Cal.

Baby Chicks — Can book a few more orders for early S. C. White Leghorn and S. C. Rhode Island Red chicks. Tupman Poultry Farm, Box 7C, Ceres, California.

Baby Chicks—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, California.

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

POULTRY

Baby Chicks—White Leghorns, 10s, 100s, 1000s hatched right in $60,000 brick and concrete hatchery from Hoganized, Trapnested heavy layers. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Partridge Wyandottes, some superfluous cockerels, well matured birds. Mrs. J. L. Dunn, Valley Home, California.

For Sale—White Wyandotte eggs, $2.50 per 15, $9.00 per 100. Mrs. Flora Cox, Anaheim, California.

Thoroughbred White Wyandotte Eggs, $1.50 per 15. Mrs. Chas. Dougherty, Norwalk, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

For Sale Cheap if taken at once, 2 large type Duroc Jersey boars reg. 8 months old, weight 300 lbs. C. M. Kellogg, 65 W. Montecito St., Sierra Madre, California. Night Watchman, Phone Green 52.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

Grape Wild Farm—Berkshires, Guernseys, Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

POLAND-CHINAS

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California

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Two Young Hampshire Boars—Ready for service. Perfectly Belted. H. R. Tomlinson, R. No. 4, E. Bakersfield, California.

Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

MISCELLANEOUS

For Sale—300 hives of bees all three stories high. Sell as a whole or in part. Ten frame standard equipment, A1 shape. Self spacing frames built on wired foundation. Mostly 1920 queens bred for business by an expert. Hives full of bees and brood and uniform in strength. The pick of 1400 hives. Delivery May 20th. Price $15 a hive. Sam P. Nealey, Owner, Rialto, San Bernardino County, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Mesquite Honey—Can 60 pounds $6.50. Five case lots $10.00 per case, 120 pounds. F. O. B. Parker, Arizona. G. E. Striplin.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

Kentucky Tobacco, Natural Leaf; smoking, 10 lbs. $2.50, 20 lbs. $4; chewing, 10 lbs. $3; 20 lbs. $5. R. F. Veal, Sedalia, Ky., Agent.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

WANTED

Wanted—A few more members to join my colony sailing for Eastern Peru early the coming summer. Sail directly to land from New Orleans via Amazon River. Healthy climate; rich land; good market; suitable for white settlement. Send for booklet. Highest references. J. B. Shoenfelt, Box 631, Okmulgee, Okla.

Experienced Farmer and Stockman wants good hog and grain ranch on shares or salary and share basis. Have capital for a sound proposition. Box HOT, Cultivator, Los Angeles.

Wanted: A few more contracts for the growing of citrus nursery stock. Address R. F. D. 215, Upland, California.

Wanted to Purchase—1500 feet used rabbit proof wire fencing. Give width, size of mesh. J. C. Thompson, Moorpark.

SCHOOLS AND COLLEGES

ENGINEERING

Thorough, Complete and Practical courses in Civil, Electrical and Mechanical Engineering, Automobile Engineering and Machine Shop. One of the best equipped schools in the United States. No time wasted in non-essentials. Students do actual engineering work. Address Polytechnic College of Engineering, Oakland, California.

DUCKS

Mammoth White Pekin Duck Eggs for hatching. $1.00 per dozen. A. Surtman, Petaluma, California.

FARM LAND FOR SALE

FORECLOSURE BARGAIN
WANT QUICK ACTION

We have the exclusive sales agency on 80 acres of Eureka lemons, 5 and 6 years old. Located in one of the most favored foothill districts. Land lies level with drop of about 100 feet to mile. U. S. Soil Survey mentions this land as one of most favorable for citrus trees. Easilywo rked, retains and absorbs moisture to great depth. Allows the roots to penetrate to great depth, which makes big trees, therefore large crops. An abundance of water piped to each tree row.

There is a mortgage of $350 an acre, which can be refinanced. Can sell this grove in 10 or more acre tracts for $650 to $850 an acre, which is less than bare land price, and make terms on balance above mortgage. I say! The greatest citrus bargain in Southern California today.

DUNBAR McDONNELL,
STRONG, McGRATH & SELOVER,
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60195. Evenings 77971.

For Sale—Best Ranch Buy in State. A real money making fruit land investment, located in most desirable part of the famous Pajaro Valley. 340 acres, 75 per cent ideal fruit land; 40 acres in apples, cherries and apricots; 25 acres in grapes; annual fruit value $15,000; 2 sets buildings; delightful climate, no frosts; no irrigation; springs, well and brook. Settling estate, sacrifice price now $140 an acre. Get full details and photos. FARM & FOREST CO., 467 Main St., Watsonville, California.

CALIFORNIA IRRIGATED LANDS

Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

For Sale By Owner—21 acre ranch of young Bartlett pear trees. River bottom soil. No alkali. Abundance of water. Small family orchard in bearing. Good improvements. Price $16,000. Terms: $6,000 down, $1,000 at end of 2 years, rest at 6%. Address: R. F. D. No. 1, Box 36, Escondido, California.

Modern Home in Riverside with about 1 acre bearing fruit, nuts, etc. Ideal for poultry. Price $8000. Might exchange for house in town nearer coast. Address 2763 New Magnolia, Riverside, California.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192, Indio, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

For Sale—11 Acre Olive and Orange Grove. For price and description write to owner. M. G. Davis, Oroville, Calif.

CATTLE

AUCTION SALE

17 GUERNSEY BULLS

of all ages out of imported and high record dams will be sold in our big dispersal sale on

April 28

HOLLOW-HILL FARM—Colton Management
California Breeders Sales & Pedigree Co.
C. L. Hughes, Sales Manager,
Sacramento, California.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Ayrshires—A few well marked and well put up bull calves from high producing stock. Wyndham Dairy, Redding, Cal.

TRACTORS

Merry Garden Tractors — Circulars and demonstration free. Dwight E. Smith, Southern California Distributor, 1645 North Normandie Avenue, Los Angeles.

For Sale — Waterloo Boy Tractor, Good Condition. Phone 724-R-1, Alhambra Exchange, San Marino Ranch, San Gabriel, California.

For Sale: Lambert Tractor best of condition—terms if desired. Baker Ranch, Piru, Cal., or 2903 S. Normandie, Los Angeles.

Wanted—Orchard tractor and automobile in exchange for citrus nursery stock. W. B. Ames, San Dimas, California, 1 mile west of town.

For Sale—International tractor, good condition. $550. Stored at Hemet Garage. Ellen Stout, Hemet.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

SEEDS AND PLANTS

Squaw Mountain Sudan Seed. This seed was raised 12 miles from Murrietta in the mountains. It is free from Johnson grass. If you buy Squaw Mountain Sudan seed year after year you will be safe. Less than 100 lb. lots 15c per pound. Less than 500 lb. lots 10c per pound. Less than 1,000 lb. lots 9c per pound. More than 1,000 lb. lots 8c per pound. All the above prices f. o. b. Murrietta. Murrietta Valley Land & Seed Company. B. W. Tarwater, Murrietta, California.

For Sale—500 Burbank Thornless Blackberry plants 20 cents, six for $1.00. 5,000 Arizona Everbearing and Brandywine crossed with wild strawberry plants (none better). I pay parcel post. B. E. Wilhite, Aguanga, California.

Tomato Plants — Chalk's .Early .Jewel grown from choice seed for my own use, more than I need, 15c per dozen. $1 per 100 postpaid. Wm. T. Mantz, San Luis Obispo, California.

R*O*S*E*S $1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue C. KAVAN NURSERIES, San Bernardino, California.

Brandywine Strawberry Plants from stock which produced $3,000 worth of berries from acre this season. Price reasonable. Lon King, 1158 West Fourth, Riverside, California.

Peas—"Blue Bantam" earliest and sweetest of all table peas. Heavy yielder, 15c per lb. SEVIN-VINCENT CO., Seedgrowers. Established 1860. 512 Washington Street, San Francisco, California.

Chrysanthemums — Rooted Cuttings — Choice Commercial Varieties — White Chieftain, Maud Dean Bonafan, etc. $3.50 per 100 postpaid. Beaverton Greenhouses, Beaverton, Oregon.

Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch —767 S. Central Avenue, Los Angeles, Cal.

Napier Grass—A wonder for the South. Sprouted Joints, 40, $1.00; Divided Crowns, 25, $1.00. Postpaid and parcel insured if prepaid this month. Satisfaction guaranteed if instructions followed. Tinel Grass Ranch, Yucaipa, California.

For Sale — Sweet potato plants; Jersey Yellows $4 per 1,000; White Southern Queen, Georgia yams $1 per 100. No personal checks. Ready now. B. F. Crutchfield, R. F. D. No. 3 Box 6, Santa Ana, California.

Certified Strawberry Plants, New Oregon, Magoons $5 thousand, guaranteed or money refunded. J. Christiansen, Canby, Oregon.

50,000 Vines, rootings, Thompsons, Emperors, Sultana, Muscats, $30.00 a 1000. Fruit trees, berry plants, farm and garden seeds. Box 501, Fowler, California.

For Sale—Millions of tomato, egg plant, celery, pepper, rhubarb and other plants. L. C. Johnson, 795 W. 7th Street, Pomona.

For Sale—Dwarf Red Milo Seed. Selected stock. Heavy producer. Eight cents per lb. delivered C. O. D. or check. C. E. Newman, Chowchilla, California.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination. 25c per lb. Aurora Seed Mill, Stockton, California.

For Sale—Limited supply of mountain grown Strawberry plants. Write for particulars. B. Bryan, Camp Baldy, Cal.

California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

Plant Rhodes Grass Now—Write Imperial Valley Seed House, El Centro.

Durango Cotton Seed—See display ad of Boston Land Company in this issue.

MACHINERY

For Sale 50 rebuilt windmills,
50 new and used tanks,
50 brass cylinders, rods, plunger pumps 1-in. to 30-in. capacity.
Why pay more? When you can save so much these times. Send for bargain sheet. Demmitt Co.'s. Office 120 North Main, Los Angeles. 15191.

For Sale—Complete plowing outfit, two International 8-16 tractors, plows, double disk; 20 ft. harrow, wagons and tools. Price very reasonable. G. F. Crowell, Box 623, Newman, California.

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Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

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McNeely's Mammoth Geese $5.00 each, $15.00 for trio. Eggs in season 25c each. Peacocks $5.00 each. Chas. McNeely, Alpaugh, California.

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Pedigreed Fleming Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California

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Beautiful Ringneck Pheasant Eggs $5.00 per setting—guaranteed. Pause Pheasantry, Fairoaks, California.

TREES

For Sale—All kinds of citrus nursery stock, one and two year buds, fine roots. Y. Yamaguchi, Upland, 10th Street and Cucamonga Avenue. Phone 386-W.

Home Grown Budded Eureka, Placentia and Chase Walnut Trees, 50 cents and up. None better. Choice lemon trees $1.00 each. Balled. Bartlett Pear, etc., 50c each. Trees of all kinds for sale. We deliver. Tel. 122-J. Burbank, California. Opposite High School (West), Burbank, California, Snyder Nurseries.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

Walnut Trees of dependable varieties and quality grafted on Northern California Black Walnut, carefully selected scions from best bearing trees. Good condition for planting now. Placentia, Perfection and Eureka at Reduced Prices. Los Nietos Valley Nursery, Phone 692, Downey, California.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 395, Los Angeles, California. Phone Boyle 3225.

Citrus Nursery Stock for Sale—Oranges, lemons and grapefruit. Strong, vigorous stock, selected buds. Wholesale and retail. Mr. Ames, with Lone Hill Citrus Association, San Dimas, California, 1 mile west of town.

5,000 Valencias; 2,000 Eureka lemons; 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

For Sale — 10,000 Florida Sour Orange Seedlings, very fine. Two year old Valencia Orange and Eureka Lemon Trees. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

Florida Sour Seed-Bed Trees, six to twelve inches high. Straight roots. Stocky trees. Highest quality. L. A. Tuttle Nurseries, Route 1, Pasadena.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

For Sale — Sacks and burlap for balling trees. J. Ross, 313 N. Boyle Avenue, Los Angeles Telephone Boyle 1800.

TURKEYS

Turkeys — "Goldbank Boy." Champion Giant Bronze young tom. First Prize Cockerel at the New York, Madison Square Garden Show, the premier show of America, with 4311 poultry exhibits, held January 18th to 22nd, 1921, has just been imported by us, arriving at our mountain ranch February 26th. His sire, "Goldbank VIII," was grand champion at the same show, winning first in Cock class. We have mated this young champion bird to a limited number of twenty and twenty-one pound fancy, highly colored, eastern bred hens, also just imported. No eggs of this strain for sale this season at present.
A thirty-six pound yearling son of "Copper King V," the famous thirty-eight pound yearling giant bronze grand champion of the 1919 Madison Square Garden Show, will head our other flock—having mated him to our choice twenty pound hens. Egg prices reasonable. Two young toms of this last strain on hand for immediate delivery. For further particulars address: Bronze King Mountain Farm, Box 308, Calistoga, Napa County, California.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

"Goldbank" Strain — Giant Bronze turkey toms. Partridge Plymouth Rock chickens. Chicken and turkey eggs in season. M. M. Reiman, Planada, California.

Turkey Eggs—Mammoth Bronze — Write for folder. Guarantee stock built up by 5 years of untiring effort. Andrews & Andrews, "Bo-K-Haunt" Hemet, Calif.

For Sale—White Hollands, Quality, Size and Vigor. Tom $15, eggs 50c each. Blue ribbon flock header. L. A. Robinson, Hemet, California.

White Holland Turkey Eggs, 75c each, guaranteed. Pause Pheasantry, Fairoaks, California.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St. Pomona, California.

VALUE OF CROP ROTATION

The value of crop rotation could not be better demonstrated than in the ancient fields of the Far East. E. F. Beaumont, an American visitor, sent home photographs from Jerusalem, Palestine, taken of wheat fields on the plain of Sharon. These lands bear fine crops and have never been fertilized, yet have been farmed continuously for centuries. The peasants practice rotation with crops of the pea family.

LEGAL QUERIES

(Continued from Page 459.)

the nursery stock, with this proviso that if the lessor employed the pruner, in case of damage he, of course, would be liable. If he did not employ him, he would not be. As to failing to remove the nursery stock, it would seem that the method would be the usual one of an action for unlawful detainer after the expiration of the lease, that is, briefly, to serve the lessee with a three day notice of the expiration of the lease and require him to remove from the premises. If he fails so to remove within said three days, action may be filed to obtain a judgment to remove him, together with treble damages. In such action the lessor could also obtain payment for the expenses in pruning, if he employed the pruner.

Veteran's Exemption

The county assessor of Solano County claims that no mention is made of exemption of taxes for veterans of the last war in the constitutional amendment. Is this true?—Subscriber, Suisun.

The constitutional amendment makes no specific reference to any war, simply stating that it applies to those who have served in the army, navy and marine corps or revenue marine service of the United States in time of war and received an honorable discharge therefrom; that is to say, the constitutional amendment is not self-executing. The legislature has prescribed the procedure for its execution and also the wars which are recognized within the intent and meaning of said section of the constitution. By amendment approved May 6, 1919, the legislature expressly recognized the war with Germany and Austria as being within the intent and meaning of the section of the constitution. This amendment is found in the statutes of 1919 at page 305.

Wife Refuses to Sign Deed

In case the wife arbitrarily refuses to sign a deed to community real property, does the law make any provision whereby the husband can make such deed without the wife's acknowledgment?—Subscriber, Lucas.

When the real property stands in the name of the husband a deed of such husband would convey the title to the property, provided, however, that it be made to a purchaser acting in good faith, and without knowledge of the marriage relation. The wife may, however, bring an action to avoid such instrument within the period of one year from the date of filing the deed of record. If the title is held in both names, then they are tenants in common and it is possible that the husband can give a deed to only his undivided one-half interest, which would be unsatisfactory. There seems to be no other method than as the result of litigation.

Division of Estate

Husband and wife own community property, consisting of a ranch, title to which stands in the name of each as joint tenant with right of survivorship, personal property incident to the ranch, a joint bank account, and shares of stock standing in the husband's name. There are no children. In case either dies intestate, what becomes of the property?—Subscriber, Fresno.

In case of the death of the wife the entire community property without administration passes to the husband. In the case of the death of the husband, the ranch would pass to the wife under her title as survivor. The bank account would also pass to the wife. The household furniture could doubtless be set aside to her in the probate proceedings, but the shares of stock and personal property on the ranch would be subject to administration, in which event the wife would receive one-half and the remaining one-half would pass as separate property of the husband; that is to say, one-half to the wife and one-half to the husband's mother.

Trespassing Cattle

My land is wholly enclosed with a fence. My neighbor's cattle broke the fence and committed considerable damage upon my property. I took a few head of the cattle, sent him my bill for damages, and warned him not to take the cattle out. However, he came upon my property and took the cattle away. What can be done?—Subscriber.

The owner of the cattle, of course, had no right to trespass upon your property either to take the cattle therefrom, or at all. The law gives a lien to the taker of trespassing cattle; in fact, in an action brought to recover damage caused for trespassing cattle attachment thereon will issue without the filing of the affidavit for attachment required under the general attachment provisions. You would probably be entitled to an action against the owner of cattle for the damage caused and have an attachment issued for the seizure of the cattle trespassing.

Contract for Cutting Wood

Two Mexicans contract to cut a tree into stovewood at $10 per cord. After they have cut all but 22 feet of the trunk, they say, "It is too hard" and refuse to finish the work and demand $50 for their pay. Are they entitled to it?—Subscriber, Fresno.

If the contract was to cut up the whole tree, then the contract is entire and in order to obtain payment for their labor it is necessary for them to complete the whole contract. If, however, the contract was merely to cut the wood and they are to be paid so much per cord, then the contract is divisible and they are entitled to their pay for each cord that is cut. Whether the contract is entire or divisible is largely a question of fact.

Trees in Road

A man has a large row of almond trees in the road eight feet from his line. In cultivating these trees he works up about 15 feet of the road. This is a county road. What steps can be taken to get these trees off the road?—Subscriber, Red Bluffs.

The board of supervisors is entrusted with general supervision over the roads in the county. Each county is divided into road districts and one of the supervisors is the road commissioner within his district. In case any occupant or owner of land encroaches upon the county roadway the road commissioner of that district may orally or in writing require the encroachment to be removed. This notice must be given to the owner or person causing the encroachment or left at his place of residence, must specify the breadth of the highway, the place and extent of the encroachment, and require a removal of the same within ten days. If he fails to remove it, then the supervisor must commence in the proper court an action to abate the nuisance, in which action, in addition to having the remedy for abatement, recovery may be had of $10 for every day that the nuisance remains for ten days after service of the notice, together with costs of action. If the encroachment is not denied, but is not removed, then five days after the giving of the notice the supervisor may remove the same at the expense of the owner, recovering his costs together with $10 per day.

Collecting Note

I hold a note signed by a man and wife. They are paying for their ranch on a time contract. He has a team of horses and an old automobile. What can I do to collect?—Subscriber, Porterville.

The horses are exempt from execution. The man's labor, if he works out, is exempt from execution for 30 days next preceding the levy. Levy of attachment may be made upon the automobile and for the interest on the ranch.

AVOCADO IMPORTATIONS

Under the above title an article appeared in the Questions and Answers department of March 26 that was somewhat misleading. No avocados from Hawaii may at present enter the United States. Avocados of the Guatemalan or hard shelled type are allowed entrance to Atlantic Coast ports only under special permit from the federal horticultural board.

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Filth Kills Turkeys

C. P. EMERSON of Gardena raised 300 turkeys last year and sold them at Thanksgiving and Christmas for 50 and 55 cents a pound. This years he plans to raise 500. He does not claim to raise every turkey he hatches, but his experience extends over a number of years and he believes he has found the secret of poult mortality.

It is not overeating—Mr. Emerson is quite sure of that. The blackhead germ—trichomonas, the scientists call it now—is somewhere in the intestines of every little turkey when it is hatched, and is voided in its droppings. If these droppings are left in the coop or brooder or on the floor of the brooder house for a day or two the microbes develop, the poults pick around among the droppings more or less, however carefully they are fed, and their digestive organs are soon infected. In accordance with this theory the first aim in raising poults is perfect cleanliness.

Sawdust on Floor

All the poults are raised in a brooder house 14 feet square, and if there is more than one hatch the house is thoroughly cleaned and disinfected between hatches. The floor is covered with sawdust which is swept up and burned every day.

Brooding is done by two hovers, each 2 by 6, made of 1 by 1 planks cut into inch strips. Strips of felt are tacked underneath these frames and here 200 poults can be brooded in comfort. The hovers are attached to the roof by pulleys so that they can be hung at any height. Four hundred poults are brooded at one time, and Mr. Emerson is planning to build another house of the same capacity so that he may raise 500 or 600 poults and have them all the same age. A younger brood, he says, that has to run with turks a little older, never does so well.

An unusual feature of the brooding on this ranch is that the heat is under the floor. Two ordinary incubator lamps at opposite sides of the building are connected with galvanized iron pipes which carry the heat to a little asbestos floor under each hover. Mr. Emerson contends that turkeys are much less inclined to pile up, as well as more comfortable, if the heat is under their feet.

Feeding

Turkey eggs tested out of the incubator, hard boiled and mixed with very dry bread and young, tender alfalfa tops, are the poults' first meal and their chief ration for two months. The alfalfa tops are used as the foundation of the mixture and are run through the clover cutter with the egg and bread, now an egg, then a crust of bread and a handful of alfalfa. No onion is fed. As the alfalfa makes the mixture quite moist, a little buttermilk mash is added to dry it till it is crumbly. One turkey egg to 20 turkeys for a day's feeding is sufficient. When the mixture is ready a little chick grit is added.

This mixture is fed three times a day for the first two months and the poults are allowed all they wish. To make sure that the feed is not polluted in any way the birds are fed on newspapers laid on the floor and held down by wooden frames, a fresh paper for every meal.

While Mr. Emerson believes that the amount fed has nothing to do with the development of blackhead germs, he also believes that the condition of the bird when it eats is of great importance. If the poults come in a little chilly for their dinner they are given but half the usual ration.

Range

From the very first the poults are allowed outside if the day is warm. They are temporarily confined in a small yard made by laying 12 inch boards on edge, but as soon as they can fly over the boards they have the run of a five acre patch of melilotus. It is this big range which makes feeding such a simple matter. The poults remain in the brooder house till they are two months old when they have learned to roost and are transferred to a three acre cornfield where they roost out of doors and nibble at the young cornstalks till they are gone. Their ration now consists of bran and whole barley fed in self feeders.

When the poults are three to four months old half their bran is replaced by ground milo. Oyster shell is always before them.

POULTRYMAN'S CALENDAR—APRIL, THE GROWING MONTH

Not much hatching is done in April in this climate. The chickens are out of the shell in February and March, and April is devoted to keeping them growing.

Now is the time when a very little carelessness may spoil the whole flock. Let mites just once find their way into the coop or brooder and it may not be possible to get rid of them this season. Let the flock just once become infested with lice and some may be stunted for life. Let their fountains of water become contaminated and remain so for a few hours and serious bowel trouble may result. Coccidoisis is another enemy which is very likely to appear this month, if at all. It is generally due to contaminated ground and is best prevented by absolute cleanliness.

Don't let the growing chicks become crowded. Give more coops as they are needed. Feed a good growing mash and clean, fresh wheat and cracked corn. Green feed is important after the first two weeks. If the chicks can have green range the whole problem of exercise and greens is solved.

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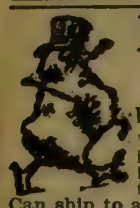

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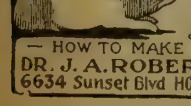

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Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

PROGRAM COMPLETE FOR POULTRY MEETING

The executive committee of the poultry department of the Los Angeles County farm bureau has completed arrangements for the big poultry meeting which will be held at Ganesha Park, Pomona, on Tuesday, April 5. The program will include the following speakers: R. W. Hodgson, farm advisor for Los Angeles County; Prof. J. E. Dougherty, head of the poultry division of the University of California, who will speak on the advantages of an egg laying contest to the poultry industry of Southern California; and J. M. Davison, president of the Poultry Producers of Southern California, who will speak on the advantages of the poultry department of the farm bureau to the poultry industry. The meeting will be in the nature of a basket picnic. All in attendance should bring lunch and cup and spoon; coffee will be furnished by the poultrymen of the Pomona district. The program will commence promptly at 10:30 and all in Southern California interesetd in the poultry industry are welcome. It is planned to make this meeting a big event for the poultry industry of Southern California, and those in attendance are assured that their time will be well spent.

Poultry Queries

Conducted by J. A. Koethen

Red Lice

Our chickens are covered with reddish lice. How can we rid them and the houses and yards of these pests? —Subscriber, Acampo.

If these lice had been more fully described I should be better able to prescribe for them. The common hen louse, which lives on the bodies o chickens, is not red, but yellow. The little red mite, which lives and breeds on dropping boards and roosts and walls, is found on the bodies of hens only at night. It never remains on the body, except on sitting hens. There is another mite, which I have never heard of in California, the "harvest bug" of the Middle West. It is bred on vegetables, grain and berry bushes, but sometimes attaches itself to the bodies of young chickens which frequent its breeding place, producing intense irritation and sometimes death. Any ordinary louse can be killed by dusting thoroughly with a strong louse powder or with flowers of sulphur. Greasing well with lard is another sure cure but should be tried only in warm weather. If these lice are in the houses I think they must be red mites, and the best way to get rid of them is by painting walls, roosts, nest boxes and dropping boards, after they have been washed with the hose, with crude carbolic acid and kerosene. Mix a quart of the acid with two gallons of kerosene and paint every inch of the wood of the house twice with a week between. The ground can be purified with lime, but it would be much better to put the birds on fresh soil for a while and grow a crop of barley in the runs.

Too Much Fiber

Two days ago I cut open two of my six weeks old pullets that had been droopy and found the end of the intestines stopped up with a thick yellow substance with a hard, red, foul smelling center. Cockerels of the same hatch in a different house are not affected. I feed buttermilk chick mash, baby chick scratch, plenty of grit, charcoal and greens. The pullets have been running on ground that is planted to barley, but the barley is not up yet. The pullets' crops are full of fiber.—Subscriber, Redlands.

You have diagnosed the case yourself. The pullets are digging up the seed barley and stuffing themselves with it. Put them in another yard and give them more whole grain. They are too old for chick scratch. Whole wheat, cracked corn, milo and Gyp corn are their proper grains as soon as you can wean them from the other. Chicks a week old will eat whole wheat if they have been educated to it. This improper ration may have developed a condition favorable to

(Continued on Page 475.)

Wonderful New Hay Crop
SUDAN GRASS

First Introduced into the U. S. in 1909 from the Sudan in Africa. Tests by the department of agriculture have proved it to be of the greatest value in the Southern and Western states, where rainfall is deficient.

Culture—Sudan Grass is strictly an annual. It may be drilled or broadcasted. If drilled 8 to 12 lbs. per acre is ample; for broadcasting 15 to 25 lbs. should be used. It grows 8 to 10 feet high and yields from 3 to 8 tons per acre. You are sure of two cuttings, and if irrigated three or four cuttings.

Sudan Grass for Pasture—During the months of August, September and October all other grasses are dry, then is the time Sudan is most valuable for fall pasture, and by having it fenced in small fields it will yield food for six times as much stock as any other forage will without irrigation. For milk cows and hogs, there is no better and more abundant pasture than Sudan Grass. It will solve the hay proposition as nothing else can or will do in this climate. A good silage and balanced ration. This seed was grown on our own farm, and is free from Johnson Grass.

Price Per Pound:

10 lb. lots, 20c — 250 lb. lots, 12c
100 lb. lots, 15c — 500 lb. lots, 11c
1000 lb. lots, 10c

Bowman's Hardware and Implement Company
721 J. Street Sacramento, Cal.

Harvest 20 to 45 Bushel to Acre Wheat in WESTERN CANADA

Think what that means to you in good hard dollars where land costs less, perhaps, than you are paying in rent. Many farmers in Western Canada have paid for their land from a single crop. The same success may still be yours, for you can buy on easy terms.

Farm Land at $15 to $30 an Acre

located near thriving towns, good markets, railways—land of a kind which grows **20 to 45 bushels of wheat to the acre.** Good grazing lands at low prices convenient to your grain farm enable you to reap the **profits from stock raising and dairying.**

Learn the Facts About Western Canada

—low taxation (none on improvements), healthful climate, good schools, churches, pleasant social relationships, a prosperous and industrious people.

For illustrated literature, maps, description of farm opportunities in Manitoba, Saskatchewan and Alberta, reduced railroad rates, etc., write Department of Immigration, Ottawa, Canada, or

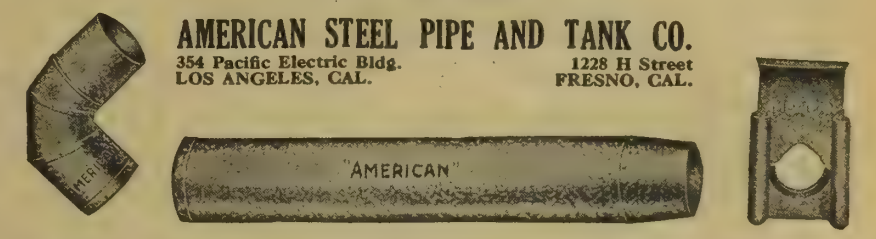
GILBERT ROCHE
3-5 First St., Sheldon Block
San Francisco, Cal.
Canadian Government Agent.

WRITE US FOR PRICES ON

Tanks, Well Casing, Riveted Water Pipe and Surface Irrigation Pipe with Double Lock Seam

AMERICAN STEEL PIPE AND TANK CO.

354 Pacific Electric Bldg. LOS ANGELES, CAL.
1228 H Street FRESNO, CAL.



PERFORATED TREE PROTECTOR

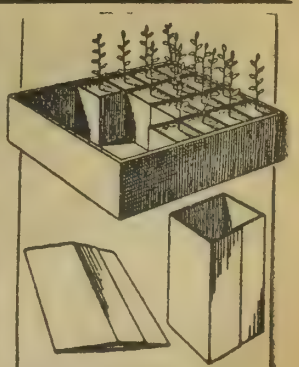
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

COLLAPSIBLE PLANTING POTS

Why not raise your early

Tomatoes, cabbage, chili, and egg plant for home use or for market. Do you know that you can start Cucumbers, Cantaloupes, Melons of all kinds in these pots in flats until they have three and four leaves, then plant pot and all, have melons two or three weeks earlier for market. Just the thing for Propagating Eucalyptus and Olive cuttings.

Write for samples and prices of both Pots and Protectors. State which you are interested in.



THE EXPAN CO., 935 E. CENTRAL AVE., REDLANDS, CALIF.

For Universal Service

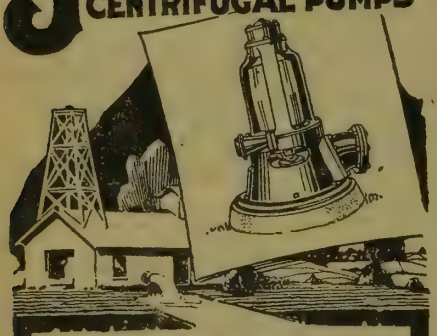
The power plant of the "Caterpillar" Tractor is performing dependably in the snows of Alaska—the heat of the desert—the dust of the plains and the roadless mountains.

It is built entirely by Holt—to within 100,000th of an inch of specifications. That means trouble free, economical operation of the "Caterpillar" Tractor for you under all conditions.

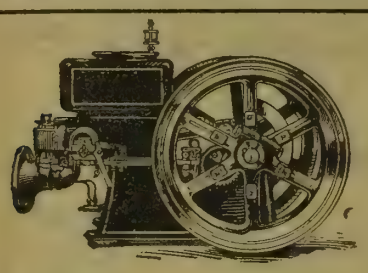
The Holt Manufacturing Company
Stockton, Calif. Peoria, Ill.
Los Angeles, Calif. Spokane, Wash.
San Francisco, Calif.

CATERPILLAR
Reg. U.S. Pat. Off.

JOHNSTON TURBINE CENTRIFUGAL PUMPS



Installations can be made in wells 10 inch or larger. Produce 300 to 4,000 gallons per minute. Ask for Folder No. 4. **American Well & Prospecting Co., 407 E. 3rd, Los Angeles.**



HERCULES

The Ideal Ranch Engine
1½ to 12 H.P.

SMITH-BOOTH-USHER CO.
PUMPS—ENGINES—MOTORS
MACHINERY—SUPPLIES
LOS ANGELES 328-238 Central Ave.
SAN FRANCISCO 50-60 Fremont Street

Save 1-2 on Fuel

CHEAPEST HEAT YOU CAN BUY

The Sievert Oil Burner burns either distillate or kerosene oil in cook stoves, heaters, furnaces, pasteurizers, boilers, prune dippers, dairy sterilizers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Install it yourself. Write for circular and prices on different sizes. Address Sievert Oil Burner Co., 710 North Main St., Los Angeles.

Plant Winter Rhubarb and BERRIES for PROFIT

We can supply plants—all sorts for large fields. Plant also peaches, plums, prunes, pears, figs, apples, apricots, asparagus, artichokes, etc., for your own table and pleasure. We have a good assortment of fruits of all sorts. Write for price list. J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Cal.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

Los Angeles Markets

Los Angeles, March 30, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price, 40 cents.

Mar.	23	24	25	26	28	29
'21 ...	40	38	..	..	36	36..

CHEESE

Brokers' prices:
California flats, 24@26.

EGGS

Fresh extras (case included): Produce Exchange closing price 29 per dozen. Case count Produce Exchange closing price 26 closing price 25 per dozen.

Dairy Exchange price last week on extras:

Mar.	23	24	25	26	28	29
'21 ...	29	31	..	..	29	29

Manager Stanley of the Poultry Producers of Central California reports:

New York reports receipts running between 30,000 to 50,000 cases daily with quotations for California Whites at 37@38 cents.

POULTRY

Price to producers: Hens, lt., 35; heavy 35; colored, 36; broiler, 25@48; roasters, 40; old roosters, 15; fryers, 55; ducks, old 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 13@18; old, 9.

LIVESTOCK

Los Angeles, March 29. — Weighed and delivered off cars without food or water:

Hogs, (hard grain). 125 to 175 lbs., 11.00; 175 to 225 lbs., 11.50.

Cattle (on foot, gross weight): Steers, good, 9.50@10.00; medium, 9.00@9.50. Cows, good, 9.00; medium, 7.00@7.50. Calves, 1.25 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 6.00; lambs, 12.00@12.50.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe Avenue. Receipts from the interior for 24 hours ended at 10 a. m. Tuesday were: 91 hides, 50 pelts, 437 lbs. tallow, 563 lbs. wool.

Green and green salted hides—No. 1 heavy hides, 50 lbs. and up 4½ per lb.; No. 1 light hides, 25 to 50 lbs., 4 per lb.; No. 1 kips, 15 to 25 lbs., 6 per lb.; No. 1 calf skins, under 15 lbs., 9 per lb.; No. 1 skunks, 15@30 each; No. 1 bull hides 3½ per lb.; No. 1 horse hides, over 50 lbs., 2.00 each; No. 1 do., 40 to 50 lbs., 1.50 each; No. 1 do., 30 to 40 lbs., 1.00 each; ponies and glues, half price; No. 1 grubby hides and skins, 1½ less; No. 2 hides and skins, 2 less; glue hides and skins, half price.

Dry flint hides—No. 1 hides, 16 lbs. and up, 9 per lb.; No. 1 kips, 7 to 15 lbs., 10 per lb.; No. 1 calf skins, under 7 lbs., 11 per lb.; No. 2 hides and skins, 2 less; glue hides and skins, half price.

Pelts—Large, long wool, 45@75 each; medium, 25@45 each; short wool and shearlings, 10@25 each.

Goat skins — No. 1 common, 10@30 each; No. 2, 5@10 each; badly damanged and small kids, worthless.

Tallow—No. 1 white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool—According to qquality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock March 29, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading

Potatoes: Supplies liberal, market firm. Stocktons: Burbanks, quality poor, 1.75@2.00; few best 2.25@2.50. Idaho: Russets, mostly 2.25@2.35. Sweet potatoes: Supplies moderate, market steady. Best mostly 2.00@2.25 lug. Arkansas and Texas, 7@7½ lb; jobbing sales, 6@6½ lb.

Onions: Supplies heavy, market weak. Stocktons: White Globes, cold storage stock, 75@1.00; Browns, mostly 35@65 per cwt. sacked.

Garlic: Local best mostly 12@15 lb.; poorer 8@10.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock March 29, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 75@1.25; mostly 1.00@1.15.

Asparagus: Supplies liberal, market unsettled. Imperial Valley, 15@20 lb.; local 20@23; Northern quality poor, 14@18 lb.

Beets: Doz., 30@35; sk., 1.75@2.00.

Cabbage: Field cr. best mostly 75@85; poorer 50; best 1.00.

Carrots: Doz., 30@35; sk., 1.00@1.25.

Cauliflower: Supply moderate, field cr., best, 1.25@1.50; poorer, low as 75; few best high as 2.00@2.50.

Celery: Field cr., 4.00@5.00.

Cucumber: Hothouse, best, 2.00@2.50 dozen.

Lettuce: Local field cr. mostly 75@1.00; best mostly 1.25@1.40.

Peas: Supplies liberal, market firm. Imperial Valley, quality good, 10@11 per lb.; poorer, 5; jobbing sales, 7@8. Local, best 12@14 lb.; jobbing, 10@12.

Radishes: 15@20 doz.

Rhubarb: Crimson Winter, best bx., 75@90; Strawberry bx., 1.25@1.50.

Spinach: Doz., 15@20.

Squash: Summer, 1.40@1.60 cr.

Tomatoes: Mexican, per lug, best 3.50; repacked lug, 3.75. Much poor stock at wide range in prices.

Turnips: Per doz., 20@25; sk., 90@1.10.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 2.00@2.25; special packed brands, 2.75@3.25; Imperial box, 4.75@5.25; small sizes, 4.25@4.50.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.50@2.25, few high as 2.75; loose, bx., 75@1.00; lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack large size 3.00@3.50; small low as 1.75; special brands small sizes 2.75@3.25 large 4.00@4.25; packing house culls, 25@50 box; few best 75. Tangerines, best, 6@7 lb., small, 4.

HONEY

Shipping Point Information, U. S. Bureau of Markets. Southern California: (First part of March). Practically no wire inquiry. Supplies heavy. Demand and movement slow, market weak. Few sales being made in 60-lb. cans. Carloads f. o. b. usual terms: White Orange and White Sage 12@13½; White Alfalfa, 8@9; Light Amber Alfalfa, 6@6¾. Hawaiian, White 7½; Light Amber 6. Due to unsettled market conditions, a large proportion of shipments are consigned to Eastern markets to be sold by packers in less than carlots. Bulk honey is moving a little more freely. Practically no export demand is reported. The heavy recent rains are said to insure a large crop this season. Many producers are still holding last year's crop for higher prices than the present market will pay. Monterey County reports most of the old crop sold, with good prospects of the coming year. San Diego County has some 35 cars still in warehouses. A very high per centage of California honey is now disposed of through cooperative associations. It is reported that contracts of the new crop are being offered for June and July shipment at very low prices. Sacked beeswax of light color is being sold in less than carlots at 33@35 per lb., dark stock being quoted as low as 26.

WALNUTS

California Walnut Growers Asociation's prices: Soft Shell, No. 1, 22½; Soft Shell, No. 2, 16½; Budded, fancy, 26½; Budded, standard, 22½.

GRAIN AND FEEDS

Grain Exch. price bid March 29:

Milo: Carlots, 1.45; No. 2 Eastern bulk, 1.53¾.

Corn: No. 2 and 3 Yellow bulk 1.55@1.61¼.

Barley: Carlots, 1.25.

Bran: Kansas, 29.25.

HAY

Alfalfa Growers of California report under date of March 28:

There were no new developments in the alfalfa market during the week. Receipts were again quite light and theoretically the price making factors just now are in favor of growers, but in reality the only benefit which they received was that the market for hay about held its own while the markets for everything else in the line of food and feed products continued in their sagging tendency.

There were 370 tons received on the Los Angeles tracks the week ending March 26, with 30 tons held over, as against 280 tons received the week before.

Rabbit Alfalfa	36.00
No. 1 Dairy	24.00
Standard	21.00
Stock	16.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@30.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@16.00
Straw	11.00@14.00

San Francisco Markets

San Francisco, March 29, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras	35½

Dairy Exchange prices extras this week and year ago:

Mar.	22	23	24	25	26	28
'21 ...	40	39½	38	36	36	35½
'20 ...	63½	..	63	62	60	59

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Ore. Y. A.	35
Ore. Trip	36
Cal. Y. A.	26
Cal. Flats	25

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	29½
Extra Pullets	28
Undersized	26

Mar.	22	23	24	25	26	28
'21 ...	28½	30	31	31	28½	29½
'20 ...	44½	..	44	43	44½	44

POULTRY

Wholesale prices are:

Hens: Colored, 37@40; White Leghorn, 30@32; strictly young roosters, 39@40; old roosters, 20@22; fryers, 47@53; broilers, small 45@50; large, 58@60.

Ducks: 30@35.

Squabs: 70@75 per lb.

Turkeys: Nominal.

Geese: 32@35 per lb.

Pigeons: Old, 3.00@3.50.

Belgian Hares: Live, 25@28.

Jackrabbits: 3.00@3.50 per doz.

LIVESTOCK

Western Meat Co. prices:

Cattle: Steers, No. 1 8@8½; do, second quality, 7@7½; do, thin, 4@5½.

Cows and Heifers: No. 1, 6@7; do, second quality, 5@6; do, thin, 3@4.

Calves: Light weight, 8½@9½; medium, 8@9; heavy, 7@8.

Lambs: Yearlings, 8@8½.

Sheep: Wethers, 6@7; ewes, 3½@4.

Hogs: Hard, fat, grain-fed, weighing 100 to 225 pounds 11½; 225 to 300 pounds, 11; 300 to 400 pounds, 10.

California Farm Bureau Marketing Association reports:

No. Hogs.	Ave. Wt.	Dock	Price
Tulare, March 22			
84	203	....	$10.75
46	190	20	10.65
79	211	...	10.60
94	161	...	10.60
55	198	...	10.60
80	205	...	10.55

"THE BOSS" TREE PROTECTOR

We are the originators of the YUCCA PALM tree protectors and they have been on the market for 30 years. The color is light—a perfect protection against Rabbits, Grasshoppers, Heat of the Sun, Borers and Frost. It is quicker to put on than any other tree protector in the market. No strings to tie—ready for immediate use. Is open grained and allows free circulation of air. Can be readily taken off to spray the trees. Not affected by rain.

Cheap—Durable and Guaranteed to Give Satisfaction

We make all widths and sizes. Ask your Nurseryman about them or send direct to us for free sample and prices.

YUCCA MANUFACTURING CO.
1380 Willow St. Los Angeles, Cal.

Dirt or Manure

ONE MAN WITH FORDSON MOVES 12 TONS AN HOUR

LESS-MEN LOADER, special Fordson attachment, does work of 10 men, saves time, money and back-breaking labor.

Just the thing for leveling in irrigation work, for filling in, building roads, scooping sand for concrete mixers and other loading purposes.

MANURE LOADING

Manure fork and dirt scoop interchangeable. Leads a spreader in three minutes.

The LESS-MEN LOADER can be attached to Fordson or taken off in 15 minutes. Write for literature.

LESSMANN LOADER CO.
Dept. E Des Moines, Iowa

Save Money—Buy Pipe From Us

Farmers, Miners, Builders — people in every kind of business are saving money buying used or renewed pipe from us. We sell every kind of pipe. Send in a list of your requirements today and get our prices. We have saved hundreds of people 33 1-3 to 50 per cent on their pipe bills. Here's a partial list of some of the miles of pipe we have in stock for immediate delivery.

8,000 ft. 6 Inch Riveted 16 Gauge
700 ft. 8 Inch Riveted 16 Gauge
5,000 ft. 12 Inch Riveted 12 Gauge
1,000 ft. 18 Inch Riveted 12 Gauge
800 ft. 22 Inch Riveted 14 Gauge
300 ft. 24 Inch Riveted 14 Gauge
500 ft. 36 Inch Riveted 12 Gauge
10,000 ft. light wrought iron 8 inch pipe with cast iron collars.

All above pipe thoroughly overhauled and inspected and ready for immediate use.

We also have large quantity standard pipe and screw casing, pressure tested and guaranteed.

Don't delay—write for our prices on your pipe requirements today.

PACIFIC PIPE COMPANY
237 Howard St. San Francisco, Cal.

BLOOD BLOOD BLOOD

Hawaiian Fertilizer Co., Ltd.
Los Angeles Office:
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ADAMS PIPE WORKS

New and second hand pipe and casings. Riveted steel pipe, valves and fittings. Mail orders given prompt attention. Write, phone or call.

2025 Bay St., Los Angeles, Cal.

REGISTERED DUROC JERSEYS
DEFENDER
A Few Choice Gilts For Sale
JOHN JACKSA
Box 198, Route B, Hanford, Cal.

75	236	...	10.55
95	162	...	10.50
14	121	...	10.20
6	278	...	9.65
11	187	220	9.05
11	402	320	8.15

Eight and one-half cars, 44 consignors, $13,987.32.

Visalia, March 23

90	184	20	11.10
96	160	...	11.05
52	240	...	10.60
8	115	...	10.50
3	207	20	10.10
7	355	250	8.10

Four cars, 21 consignors, $5,207.88.

Hanford, March 24

30	139	...	11.80
90	170	...	11.35
69	196	80	11.10
39	211	80	11.10
11	372	240	8.60

Three cars, 33 consignors, $5,007.57.

McFarland, March 25

70	187	...	11.45
77	204	80	11.35
54	201	...	11.25
15	94	...	10.90
72	150	...	10.85
1	290	...	10.75
4	284	40	8.35
2	555	440	6.85

Four cars, 23 consignors, $6,494.86.

Total for the week 19½ cars, 121 consignors, $30,697.63.

HIDES AND PELTS

The market on hides and skins continues weak and prices unsettled. Tanneries throughout the United States are shut down or running part time, causing light demand for raw stock.

Damaged and extra grubby hides in winter condition will scarcely bring enough to pay freight on them.

The list below will show our estimate of today's values:

No. 1 heavy hides, 60 lbs. up, 3; do, medium, 45 to 60 lbs., 3; do, light, 30 to 45 lbs., 5; do, native bulls, 2; No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 5; No. 2 wet salt kip, 15 to 30 lbs., 3; No. 1 wet salt calf, trimmed, 7½; No. 2 calf, 2 per lb. less.

Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Dry Horse Hides: No. 1, large, skinned to hoof, 1.00; do, medium, 75; do, small, 50; No. 1 colt, 25@50. All cut, scarred or badly cured hides are culls, and worth proportionately less.

Wet Salted Horse Hides: No. 1, large, skinned to hoof, 2.00; No. 1, medium, skinned to hoof, 1.50; No. 1, small, skinned to hoof, 50@1.00; No. 1, colt, skinned to hoof, 25@50.

Dry Horse Hides: No. 1, large, skinned to hoof, $1.50; No. 1, medium, skinned to hoof, 1.00; No. 1, small, skinned to hoof, 50@75; No. 1, colt, skinned to hoof, 25@50. All cut, scarred or badly cured hides are culls and worth proportionately less.

Goat Skins: No. 1 large, not matted, Angora, 30 up; No. 1, medium, not matted, 15@20; No. 2, 5@10. Damaged skins and very small kids, worthless.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good, 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20;

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, 1.90@2.15 for No. 1; do, Oregon Burbanks, 2.00@2.25; New, 8@10 lb. Idaho Gems, 2.25@2.40. Sweet potatoes, nominal; Nancy Hall, 5.00@6.00 per 100 lbs.

Onions: Australian brown, 50.

Garlic: New, 7@10 lb.

VEGETABLES

Wholesale selling price:

Asparagus: Lb., 4@8.

Artichokes: Doz., 25@85.

Beets: 1.00@1.50 sk.

Carrots: 75@1.00 sk.

Cauliflower: Doz., 40@75.

Cucumbers: Hothouse, small, 4.00@4.50 box of 2½ dozen; large, 2.00@2.50 per dozen; English, 2.50@2.75 per dozen.

Cabbage: Lb., 1.

Celery: Cr., 1.50@3.00.

Eggplant: Floridas, 30@40.

Endive: 10@20 per lb.

Lettuce: L. A. cr., 1.75@2.00; Imp., 3.00@3.25.

Onions: Green, per lug, 1.25@1.50.

Peas: Large, 8@11 lb.; small 4@9; Bay, 14@15.

Parsnips: Sk., 2.00@2.25.

Peppers: Bells, Southern, 7@20 lb. for green; Florida, 30@35.

Rhubarb: Alameda, extra choice, 1.30@2.25.

Squash: Imperial Valley Summer, 1.50@2.00; Cream squash, 60@75; Hubbard and Marrowfat, 1.75@2.25 sk.

Spinach: Lb., 3@4.

Tomatoes: Mex. 3.00@3.50, L. A. lug; repacked, 4.00; do, cr., 2.75@3.00.

Turnips: Sk., 75@90.

FRESH FRUITS

Avocado: California, doz., 4.50@7.00; Tahiti, 5.00@8.00 doz.

Bananas: Lb., 9@10.

Pineapples: 4.50@6.00.

Strawberries: Imp. Valley, 4.00@5.25 cr.

Loquats: 17½@20.

CITRUS

Navel oranges, 2.00@4.75; lemons, 2.00@3.50 per box; lemonettes, 1.50@2.00; grapefruit, new crop, 2.00@3.50; tangerines, 1.50@3.50 per half orange box. @2.50 L. A. lug.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 18 lb.; Sunmaid, seeded, 36 15-oz. pkgs. 22 lb.; seedless Sultanas, 25-lb. bxs. 19 lb.; Thompson Seedless, 25-lb. bxs. 21 lb.; do, 48 15-oz. bxs. 22 lb.; 3-cr. L. M., 25-lb. bxs. 19 lb.; 2-cr., do, 18 lb.; 1-lb. clusters, 20-lb. bxs. 5.40 box.

Apricots: Fancy 25 lb. boxes, 22 lb.; extra choice, do, 19 lb.; choice, do, 17 lb.; standard, do, 15 lb.

Peaches: Blue Ribbon brand, 48 11-oz. to cs., $10 cs.; Blue Ribbon brand, 24 2-lb. bxs. to cs. 11.00; fancy, 25-lb. bxs., 17½; extra choice, 25-lb. bxs., 13½; choice, 25-lb. boxes 12½.

Pears: Fancy, 25 lb. bxs., 18; extra choice, 25 lb. bxs., 12; choice, 25 lb. bxs., 10.

Figs: Fancy black, 25 lb. boxes, 12½ lb.; extra choice, do, 9½ lb.; choice do, 8 lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4 layer, 10 lb., 2.00 box; choice 4 layer, 10 lb. boxes, 1.75 box.

Prunes: 30-40s, 25 lb. boxes, 13; 40-50s, do, 11 lb.; 50-60s, do, 11½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8 lb.; choice, do, 7 lb.

NUTS

Peanuts: Japanese, 8.

Pecans, 25.

Almonds: California Almond Growers Exchange quote:

Nonpareil	26
I. X. L.	26
Neplus	25
Drake	18
Languedoc	17
Hard Shell	12

BEANS

Below California Bean Growers Association shippers prices choice recleaned, March 14:

Pinks	5.80
Large Whites	3.70
Small Whites	3.50
Mexican Reds	3.80
Blackeyes	6.25
Red Kidneys	7.50
H. B. Limas	5.30
Bayos	8.75
Cranberries	6.75

HOPS

Cal. 1920, lb., 33@35.

RICE

Pacific Rice Growers Association prices: Fancy Cal. Japan, 4.50; choice, do, 4.25.

GRAIN

Sales grain exchange, March 29:

Wheat: Milling, 2.35@2.45; feed, 2.30@2.40.

Corn: Cal. Yellow, 1.70@1.80; White Egyptian, 2.60@2.70.

Oats: Red feed, new crop, 1.45@1.55. seed, 1.65@1.75.

Barley: Feed, 1.30@1.35; off grades, lower; shipping, 1.45@1.65.

Bran: 33.00@37.00.

Shorts: 33.00@38.00.

Mill Run: 32.00@38.00 ton.

Middlings: 42.00@45.00.

Milo: Cal. Red, 1.95@2.00; Eastern Red, 1.60@1.75.

Kafir: Eastern, 1.60@1.70.

HAY AND FEED

Alfalfa Growers of California report under date of March 28:

No. 1 Dairy	19.00
Standard Dairy	17.00

Under date of March 26 A. W. Scott Co. says:

Receipts last week somewhat lighter. Throughout the country, although shipment to all the markets has been moderate, supply has been sufficient for all requirements and there has been very little activity. Hay sentiment, however, has an undercurrent of strength. The visible supply is apparently not great, nor more than will normally be consumed this season. Those farmers still holding their hay appear firm in their conviction to sell at the present market or better or else hold their crops over until next season, believing they will do as well then, or better. This feeling causes trading to be light and all reports coming in of lots sold show them to be based on the present market.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00
Barley, ground	33.00@35.00
Barley, rolled	29.00@30.00
Bran, Red	34.00@35.00
Bran, White	36.00@38.00
Millrun	38.00@40.00
Middlings	47.00@50.00
Linseed Meal	60.00@65.00
Cocoanut Meal	26.00@27.00
Alfalfa Meal	28.00@29.00
Cottonseed Meal	40.00@46.00
Sugar Beet Pulp	40.00
Molasses, Tanks	23.00
Molasses, Barrels	26.50

Citrus Markets

Los Angeles, March 30, 1921.

Some of the finest Navels ever out of California are being shipped at the rate of 200 to 300 cars daily. Occasional sales as high as $5, but more often from 2.50 to 4.00. Navel people are fearing that Valencia men may get restive and begin shipping before Navels are cleaned up and prevent satisfactory cleanup prices. Valencias are already going forward in limited quantity.

No change in the lemon market.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 13,046 cars; lemons, 2,768; total, 15,814. To same date last season: Oranges, 12,486; lemons, 2,471; total, 14,957. From Central California to date, this season: Oranges, 4,329; lemons, 117; total, 4,446. To same date last season: Oranges, 3,536; lemons, 274; total, 3,810. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

AT THE AUCTIONS

March 23

New York: 23 or., 7 mixed, 3 lem. Nav. 3.55-4.80, Valencias 4.25-4.75, Tang. 1.70-4.65, Sweets. 3.25-3.60, Bloods, 3.25-3.60, lem. 1.75-3.85.

Boston: 15 or., 3 lem. Nav. 3.45-4.70, Bloods, 2.15-2.35, Tange. 2.70, lem. 1.10-2.95.

St. Louis: 6 or., 1 lem. Nav. 2.35-4.13, Bloods, 3.00, lem. 3.10-3.40.

Pittsburg: 11 or., 2 lem. Nav. 2.40-4.55, lem. 2.45-3.20.

Cleveland: 11 or., 1 lem. Nav. 2.90-4.20, lem. 2.85.

Philadelphia: 6 or., 1 lem. Nav. 3.65-4.55, lem. 3.10-3.65.

Cincinnati: 2 or., 1 lem. Nav. 3.50-4.15, Sweets. 3.60, St. Mikes. 3.55.

Baltimore: 1 lem. 3.15.

March 24

New York: 20 Nav., 11 mixed, 2 lem. Nav. 3.40-4.70, Val. 4.05-5.15, Bloods. 3.30-4.80, Tange. halves 1.80-4.35, Sweets. 3.10 lem. 2.90-3.80.

Boston: 13 or., 2 lem. Nav. 3.50-4.50, Bloods halves 2.00, Tange. halves 2.35, lem. 2.35-3.65.

Pittsburg: 8 or., 1 lem. Nav. 2.70-4.35, lem. 2.90-3.85.

Philadelphia: 8 or., 1 lem. Nav. 3.55-4.50, Bloods. halves 2.35, lem. 3.30-4.25.

March 25

New York: 9 Nav., 1 mixed, 3 lem. Nav. 3.50-4.55, Bloods. halves 1.95-2.15, lem. 3.25-3.90.

St. Louis: 5 or., 2 lem. Nav. 2.75-4.00, Bloods. halves 1.60, lem. 2.30-3.20.

Cleveland: 9 or., 1 lem. Nav. 3.55-4.45, lem. 2.80-3.20.

Boston: 12 or., 1 lem. Nav. 2.80-4.40, Bloods. halves 2.10, Tange. halves 1.80-1.90, lem. 2.20.

Pittsburg: 5 or., 1 lem. Nav. 2.20-3.75, lem. 1.30-2.35.

Philadelphia: 4 Nav. 3.75-4.35.

Cincinnati: 2 or., 2 lem. Nav. 3.50-3.70, lem. 3.10-3.85.

March 28

New York: 22 or., 4 mixed, 5 lem. Nav. 3.60-5.75, Bloods. halves 1.55-2.25, Tange. halves 2.30, lem. 2.65-3.40.

Cincinnati: 2 or., 1 lem. Nav. 3.50-3.80, lem. 2.45-3.15.

Cleveland: 9 or., 1 lem. Nav. 2.90-4.50, lem. 3.05-3.75.

Pittsburg: 11 or., 3 lem. Nav. 2.60-4.50, Bloods. halves 1.70, lem. 1.75-2.65.

St. Louis: 7 or., 2 lem. Nav. 3.10-4.20, lem. 2.45-3.25.

Baltimore: 1 or., 1 lem. Nav. 3.60, lem. 3.35-3.60.

Philadelphia: 12 or., 2 lem. Nav. 2.30-4.50, St. Mikes. 2.70-4.05, Sweets. 3.75-3.85, Bloods, halves 1.70-2.35, lem. 2.70-4.05.

Boston: 19 or., 3 lem. Nav. 2.75-4.10, Bloods, halves 1.00-2.00, lem. 1.10-3.15.

March 29

Boston: 17 or., 2 lem. Nav. 3.25-4.00, Tange. halves 2.45-2.90, Bloods, 3.20, lem. 1.25-2.95.

New York: 30 or., 3 mixed, 4 lem. Nav. 3.60-5.15, Bloods, 3.40-3.90, Bloods, halves 1.90-2.00, Tange. halves 2.25-3.25, lem. 2.00-4.00.

Philadelphia: 11 or., 2 lem. Nav. 1.90-4.35, Bloods, 3.05-3.45, lem. 2.45-3.75.

Pittsburg: 2 or., 1 lem. Nav. 2.90-4.05, lem. 2.05-2.40.

POULTRY QUERIES

(Continued from Page 473)

coccidiosis. You can tell by the reddish droppings if there are any cases in the flock. If there are, sour milk or buttermilk is the cure. Keep it before them and limit their grain feed.

WEATHER REPORT

San Francisco, Cal., March 26, 1921

Stations	Rainfall Wk.	Season	Norm.	Temp Max.	Min.
Eureka	1.66	43.10	37.57	56	40
Red Bluff	1.17	25.45	20.79	64	42
Sacramento	.61	15.60	16.49	66	42
San Francisco	1.29	22.10	19.10	65	46
San Jose	.18	13.81	14.25	68	38
Fresno	.38	7.23	8.04	68	41
San Luis Obispo	.26	17.35	17.53	76	38
Los Angeles	.00	9.78	13.57	76	49
San Diego	.00	4.46	8.64	68	46

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The Life of Your Tractor

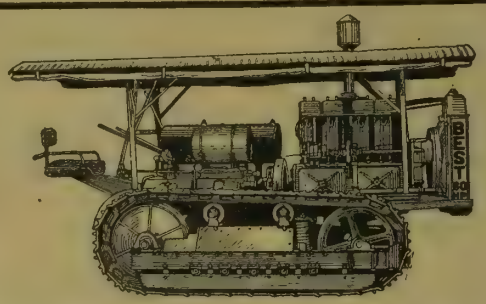
YOUR investment in machinery this year should be with an eye to the future. The new equipment you acquire should be so inherently *long-lived* that you don't need to think of replacement for years to come. Especially your tractor purchase this year should, more than ever, be along quality lines—a long-time investment.

Buy a tractor about which there it not the slightest doubt as to its long-wearing qualities. You know, Best Tractors were among the first to be built. During the many years since those old round-wheel steam days the Best has developed through the constant application of experience, into a tractor which you farmers have come to genuinely regard as a dependable, long-lived, low-running-cost machine.

There's not the slightest doubt in your mind as to Best design, materials and workmanship. All these things are expressed in the faithful service you have seen rendered by Best Tracklayer Tractors for so many years. Best is the safe tractor for you to buy this year—or any year, and this is the year in which a good tractor can help reduce the cost of crop production.

There are two models of Best Tracklayer farm tractors—the "Sixty" and the "Thirty." The "Thirty" is shown above, pulling four 12-inch bottoms 10 inches deep.

Write for our catalogs and descriptive literature and the name of our nearest dealer.



This shows in miniature the Best Tracklayer "Sixty"—the big brother to the "Thirty."

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BEST TRACKLAYER TRACTORS

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — April 9, 1921 — No. 15

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The Richest Poor Farm in the World

THE title of this article across the page above may not be capable of proof. We have no statistics as to extent or production of poor farms of this or any other county, but several of the counties of California have institutions which are rich in material return to taxpayers and are rich in example as to upkeep and cultural practices. One of these has a challenge out as to one feature of its productiveness, and that is its dairy. This county is Los Angeles, and it challenges the country to show a grade dairy with greater average production or better return considering cost of upkeep and investment in its stock.

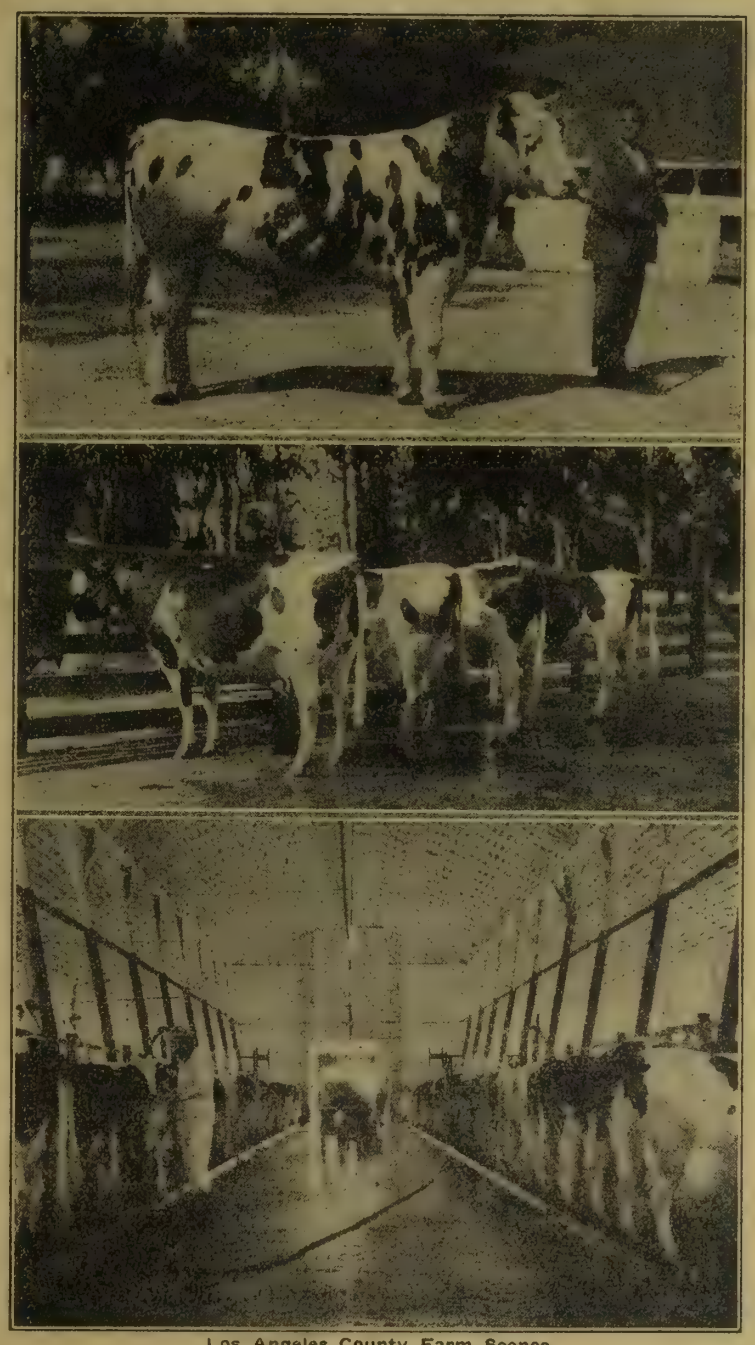
So we feel entirely justified as a Californian in coming forward with the "greatest on earth" claim and if "called" will ask some other California county to make good what we now claim for Los Angeles; the banner for the "Biggest on Earth" must be held out here by the Sunset Sea.

This dairy is proof of the wisdom of the campaign for better sires, for only a few years ago it consisted of a bunch of mongrels with a very few grades and with a production something like the average production of dairies the country over. Long before the better sires campaign started, better sires were secured for this particular herd, and an illustration on this page gives striking example of what a better sire can do or, rather, what he has done. These four full sisters are the daughters of Number 21, a cow whose highest annual production was 319 pounds, and are sired by King Jones Homestead, a registered Holstein bull. The production of the heifers so far made is shown to be materially above this in the figures given underneath the photograph. While the sire is not noted as a great animal of the Holstein breed, he was capable of endowing his daughters with high production.

But we are dwelling too much upon the livestock end of this great farm. The remainder of the livestock story will be left to Mr. Klein, whose notes follow.

The farm was purchased many years ago to provide a place for the county's indigent. Like many other municipal or state properties, greatest care was not exercised in selecting the site. About 800 acres were purchased, and some of it the richest and finest soil in the world, while other acres are heavily impreg-

(Continued on Page 487.)



Los Angeles County Farm Scenes

Photo at the top shows Superintendent Harriman with the newest addition to the dairy, King Korndyke Pontiac Mead, purchased of the Morrisses. He is the son of King Korndyke Pontiac 20th, purchased by the Burr Farm for $1,200, and De Kol of Valley Mead 2nd.

The middle photo shows four full sisters. The oldest, the second from the left, with her first calf milked only eight months when she freshened again and in that time produced 220 pounds of fat. In her second year on test she produced 462 pounds and in her third year 639 pounds. The next younger, third from the left, during her first year's test produced 446.9. She is now on her scond test, having in that time produced 355.8. The other two are twins. The first with her first calf has now been milking five months and has produced 283.4 pounds fat. The other has been on test only two months and in that time has produced 33.2.

The lower photo, taken on an ordinary milking day without being dressed up for company, shows the thorough cleanliness which obtains everywhere on the farm.

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Length: 96 inches.
Width: 50 inches.
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Weight: 3455 pounds.
Turning Circle: 12 feet.
Traction Surface: About 800 square inches.
Center to Center of Tracks: 38 inches.
Belt Pulley: Dia. 8 inches; face, 6 inches.

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Half-way methods won't "get by" this year. You need results and profit—*more* work at *cheaper* costs.

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California Cultivator

Vol. LVI, No. 15 | Los Angeles, April 9, 1921 | One Dollar Yearly

Culture of Sorghum

By Geo. W. Hendry

THE sorghums are a comparatively recent acquisition to the field crops of the United States. In 1903 there was about 2,000,000 acres planted to these crops, but by 1920 this had increased to about 6,000,000. The increasing utilization of these crops has been due to the recognition of their value in the semi-arid portions of the country where they have few equals as summer grain and forage producers. The rise of the sorghums to popularity in California has been even more rapid than in other parts of the United States. In 1899 they occupied approximately 20,000 acres. Ten years later, in 1909, they occupied 44,000 acres, and last season (1920) a total of 150,000 acres was planted to this crop. This is considerably in excess of the acreage devoted to Indian corn and is approximately equal to the acreage of rice or sugar beets in the same year. The countries which have led in sorghum production are Tulare, Imperial, Stanislaus, Kings, San Joaquin, Kern and Colusa. A considerable portion of the sorghum acreage consisted of double cropped land, sorghum following grain or grain hay as an irrigated crop. Another considerable portion of the sorghum acreage consisted of intercropped young orchards.

Soil and Climatic Requirements

Sorghums of various kinds are similar in their soil requirements and succeed best on productive soils of medium texture. They have been satisfactorily grown, however, both on sandy and adobe soils. Sandy soils are satisfactory but are more dependent upon irrigation than the other types. Adobe soils have produced very satisfactory yields of both grain and forage, but are more difficult to manage and require more careful attention in their preparation.

As regards climate the sorghums prefer the warm, dry interior districts and do not thrive in the cool coast sections or at mountain elevations. The sweet or forage sorghums, however, are better adapted to coast and mountain climates than the grain sorghums, and are more nearly like Indian corn in this respect. None of the sorghum varieties are injured by extremely high temperatures as beans frequently are, and grow to perfection in the interior districts of Southern California and in the Imperial Valley. They have the ability to yield satisfactorily with a lower percentage of moisture in the soil than many other crops and will also recover after having been stunted by a severe drouth, under circumstances which would have resulted in the failure of Indian corn. Experiments by Churchill in Oklahoma have shown that the sorghums have been the last crops to die, in experiments in which several crops, including cowpeas, corn, soy beans, small grains, etc., have been killed by a withdrawal of moisture. The drouth resisting equipment of the sorghums consists of a very extensive root system, which is capable of utilizing soil moisture to a low limit, and a leaf system which gives off moisture more slowly than many other crops, enabling the crop to make the most complete utilization of the moisture taken from the soil.

Fitting Land for Sorghum

Like other summer crops, the land may be best prepared by deep fall or winter plowing, followed by shallow spring working to prepare a seed bed. If the land is spring plowed, a shallow plowing is generally more effective in the final preparation of the carefully prepared seed bed which is required for this crop. Yields of 3,000 pounds of milo have been secured at the university farm without irrigation, but in order to do this it has been necessary to plow the land deeply early in the fall, allowing it to lie rough as plowed throughout the rainy season and to cultivate the surface after each rain from the middle of February until planting time in April. Sorghum seeds of all varieties are small, and young seedling plants are delicate and make a slow seedling growth, consequently a well prepared seed bed containing moisture within three inches of the surface is essential, and the crop cannot be grown on weedy land without considerable hand hoeing to prevent the weeds from choking out the young seedlings in their early stages of development. The most frequent cause of failure with these crops has been a failure to secure a stand, and too often the seed has been placed in a dry, cloddy seed bed which has not contained sufficient moisture to insure germination. The importance of frequent spring working preparatory to planting cannot be too strongly emphasized and the soil should be disked, cultivated, harrowed and rolled as often as is necessary to maintain moisture near the surface until the ground has become warm enough to insure the germination of the seed.

Because of their late maturity it is not generally advisable to attempt to grow the saccharine or forage varieties of sorghum following grain, but milo, because of its rapid growth, may be planted on irrigated land as late as June 15 and yet mature early enough in the fall to be harvested before the rainy season sets in. In preparing land for milo following grain it is necessary to first burn the stubble prior to making the seed bed. The land should then be irrigated either in furrows or checks and plowed to a moderate depth. A second irrigation should then be given and the seed bed finally prepared by disking and harrowing. The second irrigation is desirable to consolidate the freshly plowed land and to obliterate the air spaces in the bottom of the furrows which are so objectionable to summer growing crops during the hot weather of July and August.

Undesirable and Desirable Milo Heads

The specimen at left is objectionable in having a "gooseneck" or recurved stalk and in its loose texture. The head at right is considered preferable because of its erect head and compact texture. It is smaller, but because of its greater density is equal in weight to the larger head. The erect type of head lends itself more readily to machine harvesting.

Planting

The highest yields of both grain and forage have been obtained at the university farm by planting as early in the spring as possible. All of the sorghums require a warm, moist soil in which to sprout, and the seed will rot if planted before the soil has become thoroughly warm. There is considerable difference in the ability of the different varieties to sprout under favorable temperatures, but as a class they are more sensitive in this respect than Indian corn. In the Sacramento Valley the earliest safe date for planting usually occurs about April 15, but in the San Joaquin Valley and in Southern California it is frequently possible to plant as early as April 1. The young seedlings are sensitive to frosts and will succumb if planting is done too early.

Under average conditions the seed should be dropped from three to four inches apart in rows three to four feet apart and the plants later thinned in the rows so that they stand from eight to ten inches apart. It is generally necessary to drop the seed more closely than it is desired to have the plants ultimately stand, in order that a full stand may be insured, and to later remove the superfluous plants by hand thinning as in sugar beets. For the spacing suggested above, from three to six pounds of seed will be required to plant one acre on a perfectly prepared seed bed, but by using an accurately calibrated planter, one pound of seed would be sufficient. A two row corn planter of the ordinary type equipped with sorghum plates is the most satisfactory type of implement. Planters equipped with listers of either the disk or shovel type designed to open a shallow furrow just in front of the runner are very useful in planting seed on ground which has lost its surface moisture. By the use of planters of this type it is possible to place the seed in moist soil even though the surface soil has dried to a depth of four or five inches and yet not cover the seed more than one-half inch. Many implement dealers carry double disk listers which may be attached to ordinary corn planters. The most important thing in planting sorghum seed is to place the seed in direct contact with moist soil and to firm the soil directly over the seed immediately after planting.

In planting saccharine sorghums for forage purposes the seed may be drilled with a common drill using from 30 to 50 pounds of seed per acre. The crop may then be harvested as a hay crop or simply pastured. The sorghums are never planted in checks like corn and produce better yields when grown in cultivated rows.

Cultivation

The seedling plants of all sorghum varieties are small and make a slow early growth, consequently they are more apt to be injured by weedy ground than the more rapid growing Indian corn. If weeds become plentiful while the seedlings are just coming above the ground it is generally a good practice to harrow across the rows, using a light spike tooth harrow set with the teeth slanting backward at an angle in order to destroy young weeds. Harrowing of this kind will result in little or no injury to the sorghum stand. As soon as the rows

(Continued on Page 494.)

Agricultural News Notes of the Pacific Coast

Northern California

The Sonoma County farm bureau has voted approval of the anti-alien land law.

A few sales of hops at 15 and 16 cents are reported by Sacramento Valley growers.

May 7 has been chosen as date of the second annual picnic of the Sutter County farm bureau.

Farmers of Placer County have been conferring with the object of establishing a uniform wage scale.

The recent Holstein Guaranty Sale at Sacramento made an average of $844. The topper sold for $2,000.

An ordinance designed to guard against the importing of foul brood into Butte County has been passed

Members of the Placer County farm bureau recently inspected cold storage plant operated by the Chico farm bureau.

Northern California wool growers have organized a warehouse corporation. The president is Fred Ellenwood.

The cloudy weather of this season has made for serious increase of pear scab. Lime-sulphur has been used to treat it.

Glenn County hog breeders report greater interest in hog raising and a material increase in the hog census of that county.

Work has begun on houses of the poultry demonstration plant at Hayward. The work will be conducted by the university extension service.

Folsom state prison will hereafter maintain a pure bred Holstein dairy herd instead of grades or scrubs which have made up the herd in the past.

Glenn County farm bureau dates: Codora, April 11; Orland, 13; Plaza, 15; directors meeting at Willows, 16; Capay, 20; Larkin, 22; Grapevine, 27.

Ninety per cent of the raisin grape growers of Yolo County are reported to have signed contracts for marketing their grapes through the Associated.

Tehama County farm bureau dates: Dairyville, April 13; Antelope, 14; Bend, 15; Corning, 21; Los Molinos, 25; Liberal, 28; Bowman, 30; directors meeting, Red Bluff, 10:30 a. m., April 23.

Demonstration of construction of a household evaporator was given at the home of Mrs. T. E. Rice, Livermore, on March 29, under supervision of Miss Clark of the university extension service.

Partial returns on the annual census of the lumber production for California show a cut by 27 of the largest mills in the state of 630,225,000 board feet. The same mills cut in 1918 582,622,000 board feet.

The quarterly milk score contest held in Hayward, March 21-23, shows average score obtained in March 7.5 per cent higher than in December. The milk scored includes the principal supplies for the towns of San Leandro, Hayward, Niles, Irvington and Centerville.

Ranchers of Colusa County have organized "to fight for their homes." Francis Heiny has been retained to guide a defense association against the encroachments of certain drainage districts which the ranchers feel are jeopardizing their rights and, in fact, their title to their home lands.

Central California

Spinach packing has begun at Armona, Kings County.

Stanislaus County Farmers Union held banquet at Turlock, March 30.

San Joaquin County has planted something over 50,000 fig trees this season.

A new apple packing law has been introduced into the legislature by Assemblyman Cleveland.

The Earlimart farm center of Fresno County will enter a float in the Raisin Day parade at Fresno.

Some San Joaquin County grape planters have found profit in 18 inch sub-soiling before planting of vines.

Tulare County farm bureau's marketing department has made sales of fat calves to the advantage of the growers.

The Eastern Sierra Livestock Association was organized at Bishop, Inyo County, March 19, with W. R. Ford as president.

J. A. Rollins of Tulare has been appointed manager of the third annual Tulare County Livestock and Agricultural Show to open September 12.

A dairymen's banquet was held April 6 at Hanford on the occasion of presenting prizes to winners in the cow testing contest which ended March 31.

The Tulare County Cattlemen's Association called a mass meeting at Porterville last Saturday to protest assessments on grazing land in the hills.

The incipient strike in the Modesto plant of the Milk Producers of Central California has been smoothed over and the directors report "business as usual."

Horticultural Commissioner Dixon of Inyo County reports 42,407 trees and vines shipped into Owens Valley this planting season. Pears lead, with grapes a close second.

The dairymen in the Merced section have decided to organize and build a creamery to handle the output of that section. The creamery will be built at either Atwater or Merced.

A number of Merced people attended the conference of the State Automobile Association in San Francisco recently on the subject of improvement of roads in the Yosemite Valley.

The campaign to encourage bulk handling of grain is continuing though its endorsement by the farm bureau is not at all acceptable to some whose interests call for continuation of the old sack method.

Two hundred dairymen of the San Joaquin Valley Milk Producers Association attended the annual meeting at Fresno, March 31. The election of officers was postponed on account of the lack of a quorum.

The schools of Barstow, Biola, Vinland, Dakota, Sunset, Hawkeye, Empire, Dunkard, Kerman, Kerman intermediate and Kerman high will take part in a May festival to be held at the Kerman Union High School, May 6.

Central California barley growers are now complaining over marketing conditions and calling attention to the fact that Mediterranean grown barley is now being shipped to this country at prices which would compel California growers to sell at $1.10 in order to compete.

Southern California

Lima beans took an advance of one cent last week.

Palo Verde's 1921 cotton crop totaled 16,000 bales.

Banning apricot orchardists are busy thinning a heavy crop.

Orange County dairymen are conducting a silo building campaign.

Onion growers of Coachella Valley have adopted the federal grading rules.

The pods of the carob or St. John's bread are declared to be excellent for home brew.

New Yorkers of Southern California will picnic today at Sycamore Park, Los Angeles.

The 1920 walnut crop held by the California Walnut Growers Association has been cleaned up.

The Arlington farm bureau is conducting a drive for membership in the newly organized poultry department.

Westmoreland, Imperial Valley, estimates its lettuce shipments at 125 carloads. The season is practically ended.

The Carlsbad Vegetable Growers Association, San Diego County, has been incorporated with 54 growers members.

The Lankershim Laconic reports prospects for short apricot crop in the San Fernando Valley of Los Angeles County.

Twenty tons of beans have just been sent to starving peoples of the Near East through the Santa Paula chamber of commerce.

A new monthly shipping service to the Orient has been established. The first steamer in this service leaves Los Angeles April 17.

Horticultural Commissioner Waite of Imperial Valley says that peas are proving one of the most profitable crops in that section.

The Beekeepers Association of Orange County has voted to affiliate with, or rather to become a department of, the county farm bureau.

Nineteen courses in vocational agricultural training will be given by the state university in its summer session at Chaffey Junior College at Ontario, June 20-July 30.

The Mohave Valley Fruit Growers Association, recently organized at Victorville, has adopted by-laws and is ready for campaign to protect fruit growers interests.

Leroy Smith of Garden Grove, Orange County, is winner of first prize in the pig club contest. He will be given a trip to the university farm school at Davis this fall.

The Ontario shipment of oranges in baskets has arrived in the market and is reported as selling very satisfactorily. In the carload were 504 baskets each containing 50 pounds of fruit.

Horticultural Commissioner Brosius of Riverside reports planting of deciduous fruits and grapes this season far ahead of 1920's record. Pears are the leader, plums and prunes, second.

Imperial Valley's shipment of cantaloupes last year totaled 8,907 cars, and from the planting and present condition of the fields it is thought the coming season's output will be even greater and of higher quality. Last year's first single crate shipment was made on May 9 and the first carlot shipment on May 23.

The Coast and General

The 15th annual yearbook of the International Farm Congress is being issued.

Winter rye crops are extensively planted in Washington for spring hog pasture.

A 64,000 bushel sale of wheat was made last week at Walla Walla, Washington, for $1.40.

Sheep men of Arizona predict that this year's lamb crop will be considerably below normal.

Ice harvesters of the Northwest will hold their annual convention this year at Yakima, Washington.

Building contractors in Phoenix estimate that building costs are 20 per cent less than the costs one year ago.

Railroads are still claiming that operating costs prevent lowering of freight rates on any agricultural products.

Spinach growers of Oregon are planting larger acreage and will dehydrate practically all the product of that state.

The Arizona Reclamation Association at a recent session elected E. W. Michael of Phoenix president, and C. O. Case, Phoenix, secretary.

Warm weather in some eastern fruit sections has caused much unseasonable blossoming of fruit trees and late frosts did some damage.

Representatives of the principal grain growing states met in Chicago, April 6 to consider American farm bureau recommendations in the matter of grain marketing.

Farmers and stockmen in Yavapai County, Arizona, through the cooperation of representatives of the U. S. biological survey are making a systematic warfare on prairie dogs.

The third International Mining Convention was held at Portland, Oregon, April 5-9. Fifteen hundred delegates attended from Northwestern states, British Columbia and Alaska.

W. B. Cloyd, president of the Yuma Valley Produce Growers Association, and one of the pioneers in growing Hairy Peruvian alfalfa, states that it is a mistaken idea that alfalfa cannot be safely planted in March and April. He backs his statement up by the experience of Yuma Valley farmers, and the campaign for alfalfa will doubtless encourage a heavier planting of late alfalfa.

A new plan for teaching vocational agriculture is being tried out in schools at Chandler, Arizona. Under this plan teachers of agriculture in the vocational schools have grouped boys over 14, not according to school grades, but according to age and the interest of the individual in agriculture. The plan works so well that it will probably be tried by other agricultural vocational teachers in different towns of the state.

Senator Hugh Campbell, president of the Arizona Wool Growers Association, stated recently that the losses of Arizona sheepmen last year would total $1,000,000. One of the reasons for heavy losses is lack of feed along the runways or trails between the northern summer ranges and the lower valley winter feeding grounds. Lower rates are being asked for, along the Santa Fe railroad in order that the sheep may be shipped instead of driven.

The Best is None Too Good for Us

By A. Layman

INVESTIGATIONS by the department of agriculture during the past few years have established the fact that surroundings of homes in cities are as a rule far more healthful than in rural sections. This has been quite a distinct shock to those of us who are believers in the ideal conditions which should be demanded by every rural home. City sanitation is an absolute necessity and sanitary surroundings must be maintained for every home whether the owner so wills or not. About the rural home the will of its owner is supreme and he is so often engrossed with the production of sufficient crops to feed his family that too often he forgets and cares not for his own in matters of simple sanitation.

Too many of us have seen the immediate surroundings of homes maintained in a condition of filth that is simply astounding. At times this is due to thoughtlessness, but probably more often to the mistaken idea that it is an impossibility to create right conditions about stables, outhouses, and even about the kitchen door. Fortunately this state of affairs is gradually changing for the better; practically every farmer is understanding that the health of his family, often their lives, are endangered by insanitary conditions.

In laying out a farm it is too often the plan to arrange the fertile fields for various crops and devote the left-over portion to the house and other buildings. Naturally this is business, but the first thought of the urban dweller is as to his surroundings and the general situation which makes for ideal home conditions. The farmer should demand for himself and his family equal consideration. The one big object in buying the farm and raising products is that the family may have sufficient food and comforts, but their lives must be preserved if there is to be any use for the money that is secured. And that can only be through sanitary surroundings of the home. After all, we live but once, and the years pass swiftly and more swiftly; the time to make a real home is now.

There are four things—fundamentals—to consider in the making of every home; pure supply of water; pumping, storage and distribution of water; durable and simple plumbing system; and finally, and most important of all from the health standpoint, disposal of the farm sewage.

Water Supply

A pure water supply is one of the most important factors in farm life today, as typhoid fever, dysentery and other disorders may be carried by impure waters. Farm water supplies are very subject to pollution. Of 79 typical water supplies in Minnesota, investigation showed that 20 were good and 59 polluted. Twenty-five of those polluted were bad only because of poor surface protection, and could easily have been made safe. Practically all the surface supplies were polluted. During these investigations 23 of the farms examined showed a record of typhoid fever.

Surface water supplies should not be used for household purposes, or for washing milk cans. They should not even be used for laundry purposes unless no other supply is available. Rain water from the roof is often polluted by dust, leaves and the droppings from birds. Any person who drinks water from surface supplies endangers his health if such supplies are not adequately protected and then purified.

The problem of water supply is a long one and worthy of much more attention than it is possible to give at this moment, but be sure that the well, or source of supply, is carefully safeguarded.

Storage and Distribution

Hand operated pumping systems are applicable where small quantities are required for house service only, but in case water is wanted for stock also the use of a windmill, engine, electric motor, or hydraulic ram is necessary. If a windmill is used the storage should be large enough for at least three days' supply, to provide water in case of calm weather. Where the other sources of power are used the storage capacity need not exceed one day's supply. The following table gives approximate quantities of water required per day:

Approximate quantities of water required per day:

	Gallons.
Each member of the family for all purposes will require	25-40
Each cow will require	12
Each horse will require	10
Each hog will require	2½
Each sheep will require	2

The water consumption will vary from day to day and with the seasons. Fire protection should also be considered, and in determining the size of tank the maximum amount likely to be required should be provided. For a family of six persons a 200 gallon supply should be sufficient if the water is used in the house only. On a farm where water is supplied to a family of six persons, 10 horses, 12 cows, 25 hogs and 15 sheep, the daily storage supply should be at least 500 gallons, with whatever additional amount, if any, the farmer deems necessary for fire protection.

Plumbing System

Bear in mind, there is plumbing and plumbing, but get the finest you can. It lasts forever, or at least as long as the most of us will wish for, so a little extra cost at the start may be permitted. But, assuming that a real, for-sure plumber may not be within reach of the pocketbook, here is a suggestion so simple as to be almost laughable, which comes from a publication of the U. S. public health service. It is called Supplement No. 7 of the Public Health Report and is entitled "A Shower Bath for Country Homes." This "plumbing" consists of a rope, a pulley, a hook in the ceiling, the ordinary five gallon coal oil tin can, a stopcock, a rose from the old sprinkler and a galvanized iron tub. Such "plumbing" appliances are crude; not especially sightly or attractive, but they cost little and make for health and contentment on the farm.

But don't stop with these crude appliances. The Mexican labor settlement at San Dimas, described in a recent Cultivator, has in each cottage a shower with concrete floor and sides, with drainage into cesspool. Surely our families are entitled to equal comfort.

Sewage Disposal

One thing should be wiped off the earth, and that is the old time privy vault. It is not even sanitary to discuss it, so we will evade it by referring to the fact that problems of plumbing for rural homes have been thoroughly worked out and suggest that cesspool and septic tank afford a system which is infinitely superior to the old method. Why not secure at once the services of the plumber who will install bath, toilet, lavatory, and hot and cold water and that without excessive cost? Plumbing costs are coming down and by the time the plans have been laid for the addition which will hold the bathroom, reasonable prices will be secured.

The sewer plumbing serves as a drain for the water plumbing. The drainage system should be so constructed as to carry away completely everything emptied into it, and it should be constantly vented, frequently and thoroughly flushed, and have each of its openings into the house securely guarded. All drains, soil pipe and waste pipe should be water tight and air tight. All plumbing should be tested by filling with water or smoke to detect leaks.

Where septic tank is installed the process of sewage disposal is partly mechanical and partly bacterial, consisting of a preliminary septic tank treatment and of final treatment by application to a natural soil by surface or subsurface di tribution, or to a specially prepared filter. The septic tank although air tight and supposedly water tight, should be located as far from the house and the well or spring as convenience and local surroundings will permit, thus reducing the danger of pollution or nuisance in case of leakage or improper operation of the system.

Contrary to the usual opinion, small sewage systems require some watching and care. It is well to study the system and watch the action in the entire plant for any signs of clogging or water-logging. If the sewage is applied continuously to the final disposal system and in such quantities that the system is kept saturated, the filter or disposal area becomes water logged and "sewage sick," and ceases to be effective.

A grease trap acts as a separator of grease and sewage from the kitchen sink or dairy room. If grease is allowed to enter the sewer it accumulates and eventually clogs the system.

Costs of material and labor vary considerably with time and locality, but with the help of a reliable plumber one can work out a simple and economical solution for his problem of sanitation.

Sanitation means better health and greater happiness and besides greater efficiency. Greater efficiency means more wealth. Note the photograph given on third page of this issue of the milking barn on Los Angeles County farm at Honda. The gutters back of the cows are arranged with a slope so that a hose with water under pressure does the stable cleaning in a fraction of the time required by old methods. After flushing the stables the waste is caught by the sluices and carried to alfalfa fields, where it fertilizes and irrigates rather than breeds flies.

Many a farmer with a thinker in operation has appliances not referred to here, but may be these suggestions will start others thinking.

Try it. It pays.

Farmer Needs a Tractor

By C. L. Butler

Prevailing conditions emphasize more than ever before the necessity of the producer employing every agent possible with which to farm more profitably. He must use the tools which will guarantee the greatest economy, the best work, the largest crop yield.

Despite the fact that the economic condition of most coast farmers is better than in many other localities, with a falling market, too many of them are pessimistic in their view of the future. As a matter of fact no farmer can afford to stop expenditures for necessary equipment for in up-to-date appliances and better business methods will come his immediate success, and failure to appreciate this necessity will mean certain loss to him.

Every farmer who operates 20 acres or more, almost without exception, should use a farm tractor; with it he will be able to immediately get more production at a lower cost for the reason that the tractor, by giving a greater amount of power in a single unit will eliminate the necessity for additional manual labor where horses and smaller units are used. In fact, in many places even smaller than 20 acres, where the farmer is sufficiently enterprising, he can after his own work is so quickly finished make good profit with his tractor in contract work for neighbors.

With the tractor less time will be required in producing crops from a given area, and time and labor are the two principal items in producing any crop. Further economy is assured with the tractor in the increasing yield which will inevitably follow from the better work that will be done.

Admitting the proven economy of the tractor and its better work, its possession immediately puts the farmer on a more businesslike basis. As a writer in a recent article in the Chilton Tractor Journal says: "He is immediately independent; less subject to weather conditions; less dependent on his neighbors; does his work with greater precision and certainty; is no longer a slave to menial labor; can use his brains more and his muscles less; a much greater proportion of his efforts are profitable; non-productive work is reduced to the minimum; without increased overhead he can extend his operations."

All these advantages of the tractor are absolutely indisputable, and that tractor farming is prevailing throughout the entire country is definitely demonstrated by the wonderful increase of the numbers used between the years 1915 and 1920. In the former year only about 22,000 tractors were in service, while in 1920 there were more than 200,000, a more rapid rate of increase than was made by the automobile in a corresponding number of early years.

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and LIVESTOCK and DAIRY JOURNAL

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

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J. W. Mills — J. B. Neff
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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

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EDITORIALETTES

That "Richest Poor Farm in the World" article speaks for itself, yet we may be pardoned for calling attention to it and to some of the lessons which an open eyed farmer may secure from reading it. Still better would be a visit to the farm a score of miles from the city of Los Angeles. Rather than refer to the many lessons taught by that farm, we will speak of only one, that is the proof it gives of the wisdom of the better sires campaign. The campaign started in the county farm dairy long before the "Better Sires" slogan was put forth by the department of agriculture, a campaign which was inspired by business common sense, about the time Superintendent Wm. R. Harriman took charge of the work under direction of the board of supervisors of the county. It has been so successful in the increase of the products of the 100 cow dairy that the farm now issues a challenge to any other herd of similar size to make a better showing either as to increase in production or net return.

* * *

For the first time since the beginning of the war there is developing a surplus of milk, and the department of agriculture is making investigation of this situation which it announces is in part due to the "flush" season which is just now beginning. It behooves the milk producers to stick together and make proper distribution and possibly prepare for manufacturing plants which will prevent a surplus being thrown into daily consumption.

* * *

Californias' good roads are more inviting than ever. This year they will be the "Open Road" to the foothills, the meadows of the higher mountains, and to the seashore.

* * *

Prof. J. W. Gilmore is now on his way to Chile to investigate as to agricultural conditions and aid the agricultural college of that country during the coming year. It is the custom of large universities to exchange professors, and by request of the University of Chile Prof. Gilmore has been sent from the University of California for this year's service. His headquarters will be at Valparaiso. He will return to California at the end of the year with many ideas regarding Southern hemisphere agricultural practices, and he hopes in addition to be able to find grasses which will adapt themselves to California pastures.

* * *

Pomona has voted emphatically for her "blue law," closing entertainments for pay on Sundays. The movies are consequently blue. Other folks should "worry." The movies have themselves to blame for being characterized as "The World's Worst Failure," as they were by a writer in an Eastern magazine. The vampire stuff and the "sex problems" which have largely succeeded the cowboy inanity have begun to awaken mothers to the fact that the movies may be educational, but too often in the wrong direction, and Pomona is to be commended for reducing the show at least one day during the week. Too bad, for the movies have possibilities for good which are incalculable.

THE QUARANTINE

Not content with the efforts of this country to prevent introduction of new pests which will levy further tribute on agriculture, many Eastern importers are continuing their fight against the federal quarantine service. This is not only unfortunate; it is almost vicious; and the producers of the country should insist that these importers cease their efforts to heckle and embarrass Mr. Marlatt and his corps of assistants.

SOME WEATHER

Last week we made note of the severe weather which had blackened flowers and ruined crops in a great portion of the Middle West. This week the Pacific Coast states from San Diego to Cape Flattery have taken their turn. A flurry of snow or of rain has visited many sections, followed by an extremely hard blow, and the wind by severe frost. Perhaps the most freakish weather was in portions of the Imperial Valley where the newspapers reported a heavy covering of snow. The frost fell heaviest on portions of the San Joaquin Valley. One report wired from Fresno states: "The most damage was reported from a belt east and south of the city of Fresno, about 20 miles long and nearly ten miles in width. In some places in this belt fruit growers reported to the raisin company that from 70 to 90 per cent of the crop was destroyed." According to the same report President Giffen of the Associated says that it is as yet altogether too early to make any estimate of the damage.

WALNUTS

California will grow 70,000,000 pounds of walnuts next year if present prospects are not affected by later unfortunate weather conditions. Owing to the walnut growers being wise in almost unanimously supporting a cooperative association, last year's big output has been disposed of and warehouses are bare of holdover crop. Manager Thorpe and Sales Manager Webber are recently home from a trip east where they succeeded in closing out the old crop. Every possible avenue of distribution was used. Even windows of drug stores, racket stores, five cent stores, big departments, and, of course, groceries, featured and made much of walnuts. This was made possible by the selling of this great crop through the same management which controls advertising and distribution and use of local sales forces.

The whole effort of the association now is to produce a higher grade product in 1921. The association's field force is urging irrigation, spraying, dusting, most thorough cultivation, every step which means a bigger and better crop.

The walnut growers were among the first to realize the necessity of reduction in price if a big crop was to be moved, and the first price named was only about 65 per cent that of 1919. Later a half cent advance was made and only a few weeks ago another advance of a half cent.

The result is that the growers have received more than 20 cents per pound, have their money and are spending it.

EAT FRUIT

Last season's output of walnuts has been cleaned up. The raisin output is provided for. Prune growers are feeling content that program is now under way which practically assures cleaning up the holdover prunes. But many other fruits are still clogging the shelves of retailers, filling the warehouses of wholesalers and even producers. Especially is this true of canned goods. Fruits were put in tins at a time when sugar cost nearly four times as much as it does today. Many grocers still have these cans on their shelves, bought at a price which paid for both sugar and fruit. Some of them still insist on selling such fruits for the full price. As a result the consuming public has refused to buy.

Many canners have united and provided a fund which is being used in nationally circulated magazines to urge greater consumption of wholesome, healthful, delicious California canned fruit. They have likewise made material reductions, of which Eastern dealers are taking advantage, and stocks are being reduced. But if warehouses and canneries are to be emptied so as to permit of normal activities during the canning season of 1921 a vastly greater impetus must be given to the entire movement. The chamber of commerce of Ontario, location of one of the largest cooperative canneries in the state, believes in taking a hand and encouraging greater consumption amongst the people of that community. In addition, it is passing on the campaign to other chambers of commerce and to other communities, suggesting that they join in concerted action to help move this fruit. This, like the other movements, is insufficient, largely because of lack of working capital, but in connection with the other movements it may prove wonderfully helpful.

B. W. Spencer, secretary of the chamber, is taking the matter up with other chambers and urging that it be brought to the attention of all papers and of all grocers who are advertising and endeavoring to secure increased trade. The first idea was to make a canned fruit week drive, but the canneries and others, having outlined their campaign and even appropriated the money for certain lines of work, found it impossible to unite in such a drive. Mr. Spencer, however, is continuing his effort, and in his letter to chambers of commerce calls attention to the big stocks of fruits in hand and to the fact that the growers, and consequently all interests of the state, will suffer seriously unless this holdover crop is practically all consumed before the new crop ripens. In addition, chambers of commerce, farm bureaus or any other of the organized forces for advancing the interests of producers are being used.

Altogether: "Let's eat a can of California fruit."

RAISIN CAMPAIGN A SUCCESS

As we go to press our regular Central California contributor sends in statement that the raisin campaign is a huge success. It arrives too late to get more than the once over on this page, so we summarize: "Ninety-two per cent of the raisin growers of the state have signed the contract." The campaign started on February 8. No time limit was set, though the hope was expressed that 60 days would cover the entire period. By Saturday night, April 2, the 92 per cent mark was reached, and while the campaign was seven days shorter than the previous one, the loyalty of the growers and the punch given by the effort of the department of justice to do this great industry an injustice aided in the whirlwind finish. The gain in signers of the new over signers of the old contract was 1,137; the number of contracts signed, 12,131, covering 12,914 ranches; additional contracts on 4,834 acres of black grapes.

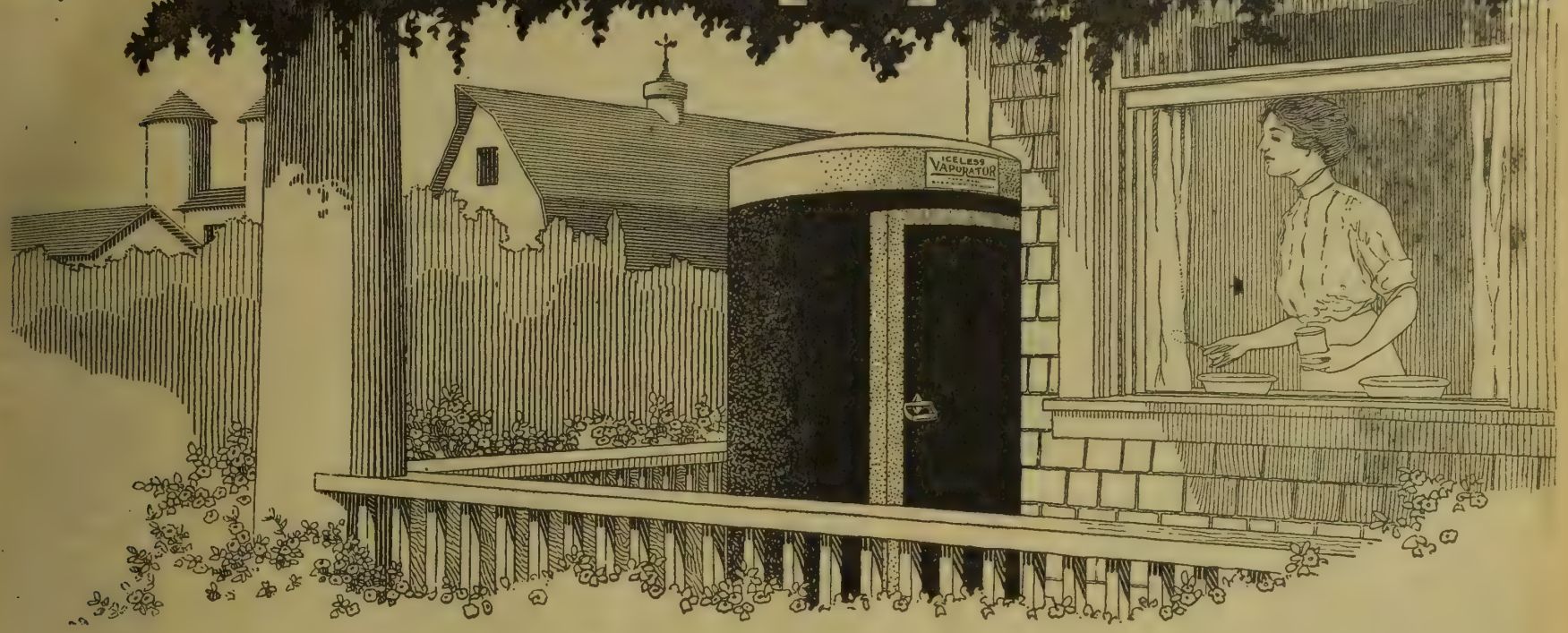
While the active campaign is now ended, the raisin growers still wishing to cooperate may sign until April 16. The company now offers the privilege of cancellation to every signer who will make affidavit stating that he was coerced or intimidated into signing or that he was led to sign through misrepresentation.

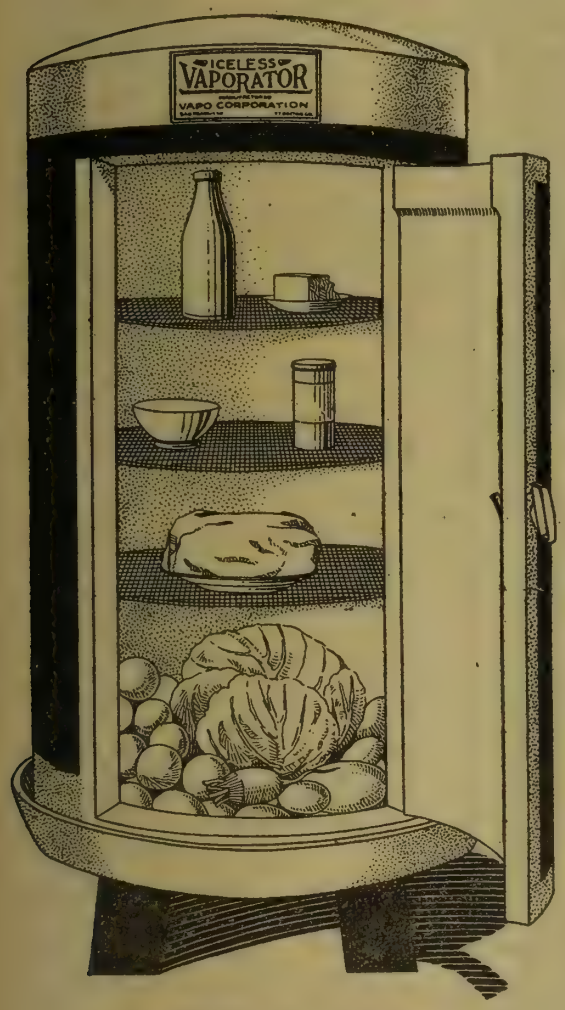
GIFFEN SAYS:

President Wylie M. Giffen issues the following statement:

"We consider this campaign a great achievement, but it is not the achievement of an indiivdual, nor is it the achievement of any group of individuals—it is the achievement of an entire community and simply illustrates again the thing we have often said, that an organization of this kind can only live as it continues to merit the confidence of the community in which it operates. From this point of view this has been the most successful campaign we have ever had, as without a single exception every community, every newspaper, every civic organization, ladies clubs, the growers committees and literally thousands of individual workers from every calling in life have done their part. So many have done noteworthy work that it would be impossible to pick out for honorable mention any individual or any single organization. So much has been done, and the spirit has been so fine that it is impossible for us to express our appreciation, but so that those who have worked may not have worked in vain we here and now dedicate our lives anew to the task that lies before us. Yesterday it was the ambition of our lives to bring this campaign to a successful conclusion, but already the ambition of yesterday is but the stepping stone for the ambition of today—to make the success of yesterday the beginning of a new and better life for the Associated Raisin Company. No organization has ever been paid a finer tribute than has been paid to ours in the last few weeks by the universal support given our campaign. Yesterday the crowning ambition of our lives was to succeed—today it is the higher and better ambition, to be worthy of your confidence that your work may not go unrewarded."

The last word in modern Farm Equipment





The Iceless Vaporator stands 5 feet high. Diameter, 28 inches.

Food Chamber is 43 inches high. Diameter of Food Chamber is 24 inches (so you see what a goodly quantity of food stuffs finds place in the Iceless Vaporator).

The dimensions of the door accommodate milk pans of the largest size.

The constant circulation of air is achieved by such cautious screening of openings that the Iceless Vaporator is proof against ants, insects, anything that either creeps, crawls or flies, and is also dirt-proof.

$90.00

All these wise provisions are set forth in the booklet *"Refrigeration Without Ice"* which we shall hasten to mail to you if you will send us your address.

TO DEALERS

There will be one Iceless Vaporator dealer in each town. Behind him will be put a forceful advertising campaign. Write for agency.

The ICELESS VAPORATOR brings the convenience of the city ice box to the farm.

Place the ICELESS VAPORATOR on your back porch, or under a tree in your back yard. Every two or three days fill the tank with water. Evaporation does the rest. It's always cool inside. No ice to worry about.

The ICELESS VAPORATOR is made of a composition which is virtually a stone sponge. The outer wall absorbs the water until thoroughly saturated. Evaporation then takes place.

The inside of the ICELESS VAPORATOR is cool and dry. Easily cleaned. No corners to catch the dirt. The galvanized wire shelves are sanitary and permit circulation.

The food is preserved at an even temperature, thus keeping it fresh and sweet.

Once installed, the ICELESS VAPORATOR becomes a lifetime friend.

Ask your dealer about the ICELESS VAPORATOR, or write us direct.

ICELESS VAPORATOR
TRADE MARK
MANUFACTURED BY
VAPO CORPORATION
SAN FRANCISCO STOCKTON CALIF.

995 Market Street, San Francisco

Walnut Selling Campaign

CALIFORNIA'S 1920 walnut crop, second largest in the history of the industry, is sold out slick and clean. This was learned when the California Walnut Growers Association began mailing out to the growers their checks for the final payment on first pool shipments.

That the association has scored a real sales triumph in disposing of its gigantic crop is evident to those who know that immense quantities of other California food products still remain unsold in the principal markets of the country.

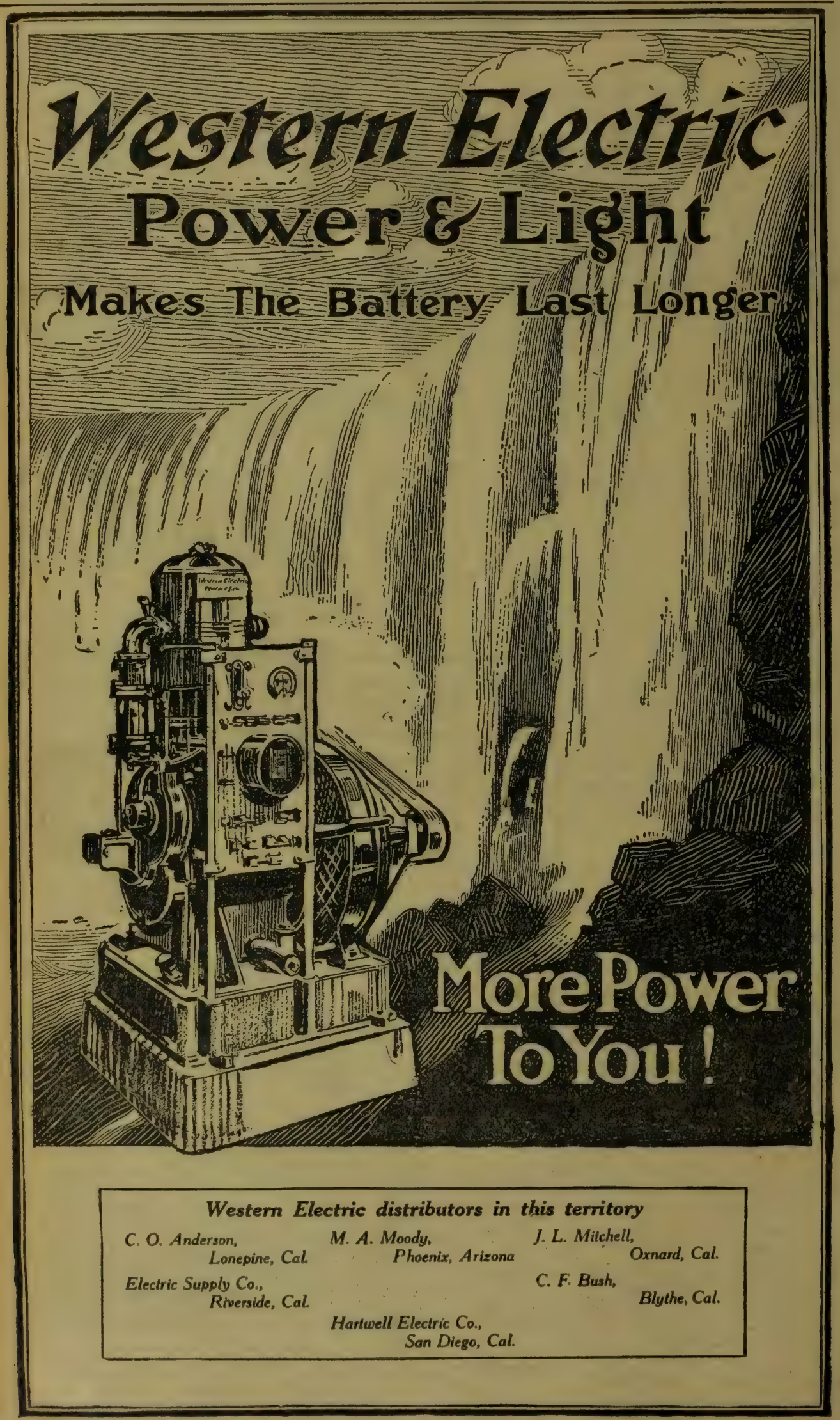
C. Thorpe, general manager of the association, credits the accomplishment to even distribution of the product, persistent sales efforts, warehousing to keep walnuts within reach of jobbers who were financially unable to place heavy orders, and fair prices which retained the confidence of the consumer.

The association announced a cut of 30 per cent in its opening prices last fall, being the first distributor of a nationally used food product to slash prices sharply in an effort to get back to pre-war conditions. It was confronted by the handicap of a heavy carryover from the 1919 crop and hindered by almost ruinous competition from cheap imported walnuts, but the high quality standard was maintained and the California walnut met with such favor that during the closing weeks of the season the demand strengthened and the growers were able to clean up the crop completely at prices substantially stronger than those which were named at the beginning of the season.

Some unusual sales angles were injected into the walnut selling campaign this year. A furniture store in Los Angeles displayed walnuts in its show windows for several days, while a lingerie shop was selling walnuts as a sideline. The five and ten cent stores took a flyer in walnuts for the first time and one establishment reported sales ranging between $400 and $700 a day for many weeks. This led the buyer for a chain of Eastern racket stores to try out California walnuts and his stores disposed of 2,500 bags of them, expressing a willingness to take another 1,000 bags, but being unable to obtain them.

Realizing that markets were in a badly demoralized condition, General Manager Thorpe met the emergency resultant from hand-to-mouth buying by shipping walnuts to warehouses in all parts of the country, where they could be drawn out by dealers as fast as on-hand stocks could be sold. This kept the public supplied with walnuts constantly, maintained even distribution and gave the association the full benefit of consumer appetite which was created by its advertising campaign.

General Manager Thorpe and Sales Manager Webber spent nearly two months in the East, after the holidays, stimulating walnut sales by personal contact with the trade. Spending nearly a month in New York City, they succeeded in disposing of 1,500,000 pounds of walnuts in the one market. As they worked their way westward they assisted the association's agents in cleaning up walnut stocks in all the leading cities. Shortly after they reached home it was announced that the crop had been completely sold out.



Western Electric distributors in this territory

C. O. Anderson, Lonepine, Cal.
M. A. Moody, Phoenix, Arizona
J. L. Mitchell, Oxnard, Cal.
Electric Supply Co., Riverside, Cal.
C. F. Bush, Blythe, Cal.
Hartwell Electric Co., San Diego, Cal.

THE FARM BUREAU IN ARIZONA

By M. E. Bemis

For several years there have been more or less scattered organizations of farmers that have generally been affiliated with the national organization of farmers which about one year ago held its first annual convention under the name of "The American Farm Bureau Federation." These farmers' organizations, many of them, were the successors of the old farm improvement associations.

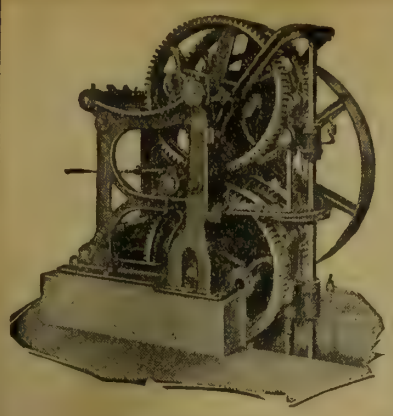
There have been several of these in the northern part of the state and in the Gila Valley and a few in the Salt River Valley. Considering the big things which the national organization is accomplishing, it appeared surprising that there was so little interest taken in these organizations.

President C. S. Brown of the state organization attended the second annual convention of the national organization and persuaded President Howard of the national association to send organizers to Arizona to perfect the organization.

At the annual meeting of the state organization which was held at Tucson in January a representative of the national organization was present and the delegates were so much impressed with the necessity of forming local association in every community and a strong state association that a committee for organization was appointed and the request for national aid in organizing sought. At this meeting after some discussion the annual dues were raised to $10.

During March, S. Fred Cummings of Iowa, a national organizer, has been devoting his time to working with President Brown in Maricopa County. The result is that local organizations have been formed in nearly every community and more than 1,000 members secured. This is by far the largest membership of any farmers' organization here, and it is predicted that this organization will prove a powerful influence for bettering the condition of the farmers of the state.

In addition to working with the national organization it is expected that a local exchange will be built up which will be of material help. The movement has met with the hearty cooperation of chambers of commerce and business men, all of whom feel that the success of the farmer means success and prosperity to all, and



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Duplex Plunger
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Printed Matter for the Asking
The Pomona Mfg. Co.
POMONA, CAL.
Also Manufacturers of
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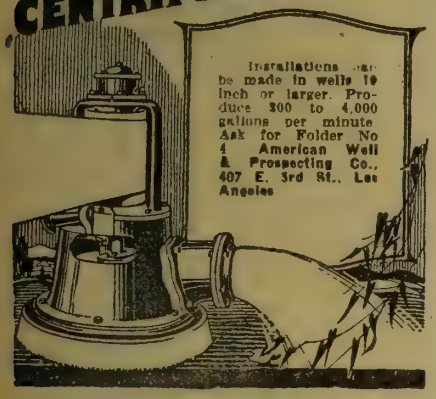
JOHNSTON TURBINE CENTRIFUGAL PUMPS


Installations can be made in wells 10 inch or larger. Produce 300 to 4,000 gallons per minute. Ask for Folder No 4 American Well & Prospecting Co., 407 E. 3rd St., Los Angeles

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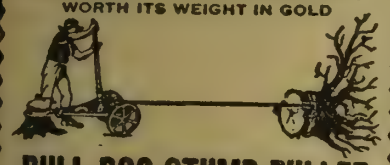

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Pulls in few minutes largest, smallest, low cut, green, rotten, deep-rooted stumps or trees, in swamp or on hills. Made of tough steel. Weighs only 163 lbs. Lasts a life time. Plenty of strong cable. Root Hook FREE. *You alone* can yank out big stumps quickly and cheaply. *Free Trial.*
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recognize that under existing conditions the farmer receives too small a proportion of the dollar that the consumer pays.

ONION GROWERS WILL USE U. S. GRADES

THE shippers and growers of Bermuda onions in the Coachella Valley at a meeting on March 29 adopted the U. S. grades for use this coming season. They also decided to use the state shipping point inspection service on every car. This action ties the deal up very definitely with the state and federal authorities and indicates a big step in advance for the industry as a whole.

Shippers of California perishable products have contended for several years, and with good reason, that they should be entitled to an authoritative inspection at shipping point such as is available to receivers at destination through the U. S. bureau of markets. Repeated efforts of shippers in this direction finally resulted last summer in the reorganization of the office of standardization of the state department of agriculture, cooperating with the U. S. bureau of markets, and obtaining the services of F. W. Read, L. J. Weishaar and H. H. Warner who had been for several years federal inspectors at destination, and all of whom had had considerable commercial experience with the trade. These men have succeeded in organizing, under Mr. Read's direction, the only state shipping point inspection service in the country, cooperating with the U. S. bureau of markets.

This inspection is made only at the request of the shipper or Eastern buyer, carrier or some party having a legitimate interest in the product. A food products inspection certificate, practically identical in form with that used by the federal government in the receiving markets, is issued to the applicant on every car inspected. Statements on these certificates cover, in addition to manifest and method of loading, a detailed description of the quality and condition of the products examined. The attorney general of the state has ruled that statements on these certificates are receivable as prima facie evidence in all courts in the state. At the present time this shipping point inspection certificate is the best legal evidence the shipper can secure in support of railroad claims or forcing the buyer to accept cars on the original f. o. b. purchase price even though they may arrive on a declining market.

Although the service is comparatively new some 5,000 cars of fruits and vegetables have been inspected at the request of shippers in all parts of the state, and as the trade becomes more familiar with the nature of the work the service is being used more extensively.

The transcontinental railroads are watching the success of the work very closely and traffic interests for the shippers say that claims receive preferred attention by carriers where the state shipping point inspection certificate can be introduced into evidence. In some cases, the carriers themselves have requested inspection on cars loaded with products which they felt might be the subject of later claims.

The inspectors in this service are carefully chosen and are men who, without exception, have had commercial experience either in the produce business or as growers. They are carefully trained by the same methods as employed in the federal food products inspection service and through the cooperative arrangement with the U. S. bureau of markets, the same terms and methods of describing the products are used by both the state inspectors at shipping point and the federal inspectors at destination.

During the period of the onion shipments from the Valley an office will be located at Coachella and a force of inspectors working under the direction of H. H. Warner, district supervising inspector, will provide the same thorough going inspection in the fields and at the packing sheds that has been available to shippers of other products within the state for the past nine months.

PRIZE PRODUCTS come from Pedigreed Seeds!

Take the chance out of planting. Morse's Seeds insure good crops because they are of pedigreed quality, bred to produce true to type. Trying to save a few cents on seeds may lose you several dollars on the crop.

Try Morse's Siberian Radish
The acme of quality

Morse's Vegetable and Flower Seeds are sold in packets by all good stores. Send to us for new catalog.

C. C. MORSE & CO.
729 Front Street, San Francisco

Seeds in any amount from a packet to a carload. Write to us for quantity prices

Morse's
PEDIGREED
SEEDS

TEAGUE TREES

Ask the man who has planted them and he will tell you that Teague Trees are unequaled in growth and productiveness.

They are the best that can be produced.

If you intend planting CITRUS TREES it will pay you to come and see our stock and let us figure on your requirements while we still have a good assortment to select from, as the supply of good trees is limited.

Avocados, Feijoas and other Tropical fruit trees in all of the recommended varieties.

Send for our new descriptive price list and tell us what you intend to plant.

The R. M. Teague Nurseries
Box A San Dimas, California
Founded in 1889 by R. M Teague

LA HABRA HEIGHTS--3600 Acres

Ideal for avocado, citrus and winter vegetable growing; protected from wind and frost, good water, beautiful homesites, and Hacienda Country Club in this property. Adjoining and higher than La Habra and East Whittier Districts. Any acreage desired. Prices and terms reasonable.

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QUARANTINE ON CITRUS

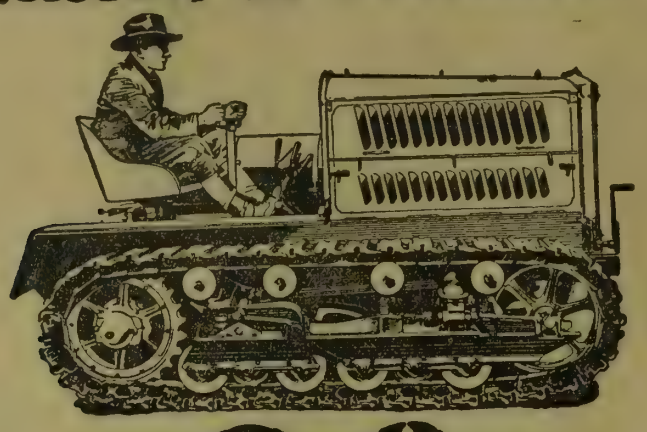
A case of unusual interest to orchardists and nurserymen is now on trial before Judge Rogers of the superior court of Ventura County. R. M. Teague of San Dimas is seeking an injunction to restrain Horticultural Commissioner Call from interfering with delivery in Ventura County of a shipment of 513 citrus trees, claimed to be free from any and all pests or diseases known to infest citrus stock.

The trial opened on March 25 with Mr. Erskine, manager of a packing house in the Fillmore district, on the stand. He exhibited lemons infested with red scale and told of six or eight orchards in the Bardsdale district infested with said scale, though not seriously. Commissioner Call testified he knew of red scale in orchards of the Fillmore district but did not believe it existed in any other district of Ventura County. He issued a quarantine against the Teague shipment on March 9, without having inspected same, on the ground that a previous quarantine lies against the San Dimas district and that he has (reading of state law) "reasonable cause to presume" that said section is infested with red scale.

Former Commissioner Brock was examined at length regarding infestation of red scale in various parts of the county during the eight years of his holding the office. Mr. Steele, foreman on the Teague nurseries, testified as to what part of said nurseries shipment came from; treatment given trees before shipment; absence of red scale, so far as he knew; double fumigation, by Teague, of an orchard near by where a few infested trees were found by the local horticultural inspector, the whole orchard being afterward fumigated by owner. At this point the case was postponed to April 1.

On the latter date the testimony of both sides was completed and did not differ in character from that herein quoted. The case will be submitted on briefs and Judge Rogers is expected to announce his decision about a week hence.

A Tractor that meets every requirement of orchard work



CATERPILLAR
Reg. U.S. Pat. Off.

5-TON ORCHARD TRACTOR

Here, in the famous 5-Ton "Caterpillar" Tractor, is an orchard tractor that solves your particular power problems—fully meets your special needs. It has power—big power and that's your foremost essential. With the 5-Ton you can plow or subsoil deep, finish up your work quickly, keep a safe distance away from the trees.

And the 5-Ton's power is compact power—the tractor is narrow, low-down, has clean, smooth lines, with nothing projecting to knock off fruit or catch low-hanging limbs. "Caterpillar" 5-Ton Tractors' wide range of speeds —1½, 3 and 5¾ miles per hour —gives it splendid versatility, makes it adaptable to a wide range of work. The 5-Ton turns short, pivoting on either track.

Most important of all are the factors of long life, low upkeep cost, low operating expense, in which the "Caterpillar" 5-Ton Tractor holds a position of superiority not even approached by any other orchard tractor—a position established by its achievements, on two continents, in every kind of work, under every conceivable condition.

There's only one Caterpillar Holt builds it

Investigate this Tractor now. Every day that you wait delays your profiting by this Tractor's ability to decrease your orchard costs.

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GARDEN SEED

That Give Satisfaction

For a Good Many Years Our Seeds Have Been Giving

RESULTS

to Critical Growers. *Send Us a Trial Order*

Send for "Hints on Gardening" It's Free

MORRIS & SNOW SEED CO.

439 South Main Street — Los Angeles, Cal.

IMPERIAL VALLEY COTTON

Those who do not know the amount of cotton that comes into San Pedro from Imperial Valley and Arizona are amazed when they take a walk about the cotton warehouse in the outer harbor and see about two city blocks of the cotton bales waiting to be compressed before shipping out.

There are 9,000 bales there at the present time, insured for a million dollars. Strange to say, a large shipment of this cotton is to go to South Carolina, which is one of the largest cotton growing states in the South.

Imperial Valley Cotton
Ready for the compress on the wharf at San Pedro Harbor.

The bales of cotton when compressed are reduced over one-half, so that after compression two bales occupy the space of one. A large shipment of cotton was recently sent to Japan by the Japanese steamer Chicago Maru.—Delphia Phillips.

AVOCADO WINDBREAKS

Avocados make a good evergreen windbreak, grow very rapidly for a fruit tree, do not rob surrounding soil as do eucalyptus and peppers, and may prove of considerable commercial value. When you eat any one of the many named varieties, save the seed, plant it and successive seeds. Place the trees in the row ten feet apart. It may be that fruits will prove few and poor, but you still have the windbreak. All may prove to have a "home" value, all may have commercial value. Some may prove to have fruits better than the named parent; if so, you have made a very profitable investment. In using avocados for windbreaks you get at least an effective one and therein cannot lose; the plantation may prove the most valuable, for the space occupied, that the ranch holds. When young the trees are more tender than oranges, but when of several years growth are hardier.

LAKE COUNTY PLANTING

Horticultural Commissioner Fred G. Stokes of Lake County writes that the orchard trees planted in that county this season aggregate 77,748 and grapevines 6,000. The trees are divided into the following varieties: Bartlett pears, 52,122; prunes, 20,994; almonds, 2,988; apricots, 500; walnuts, 394; miscellaneous, 750.

THE RICHEST POOR FARM

(Continued from Cover Page.)

nated with alakli. The best of it was planted to alfalfa and to silage, garden and other crops. Other portions were liberally underdranied, work which is still continuing and bringing additional acres under higher productivity.

One result of this improvement through draining and the bettering of its general management is shown by the fact that in 1913 and 1914 the total return to the county from the farm was $20,785. The almost spectacular rise in the value of the products of the farm is shown by these figures: 1914-15, $23,341; 1915-16, $59,261; 1916, 17, $92,072; 1917-18, $115,562; 1918-19, $131,792; 1919-20, $149,322.

On the other hand, covering the same period, the net costs per capita for the inmates of the institution, covering feeding, care and clothing, are: 1913-14, $.838; 1914-15, $.599; 1915-16, $.381; 1916-17, $.3365; 1917-18, $.3703; 1918-19, $.43; 1919-20, $.5025.

The chart or "curve" visualizing these figures emphasizes the fact that the war had an influence on the H. C. L. of county charges as well as the rest of us, for the bottom was reached in 1917 when the daily cost was reduced to $.33 2/3. From that time there was a gradual increase until January 1 of this year, when it reached slightly over $.50. Food price reductions are expected to bring this back ultimately to a lower level.

Highest tribute is due to William R. Harriman, superintendent of the farm, for this increase in revenue and decrease in costs since he took charge of the farm in 1913.

The management of this county farm, the county hospital, the Olive View Sanitarium, the outdoor relief and the county cemetery are all under the department of charity which is directed by the board of supervisors through a committee of the board, together with a corps of superintendents. During much of the satisfactory growth of the farm Supervisor Dodge was chairman of this committee. For some time now Supervisor Bean has been chairman and is showing great interest in the efficiency of its work. The supervisors of Los Angeles County are Messrs. Dodge, Bean, Cogswell, McLellan and Woodley.

By Jack Klein

Los Angeles County Farm has the distinction of owning the greatest producing herd of 100 cows in the world. During the past year an average of 101 cows were in milk and produced 1,329,277 pounds of milk. The 101 cows averaged 38.5 pounds of butter fat per month per cow. This production has never been equalled in any herd. The greater part of these cows are very high grade Holsteins but the farm is slowly acquiring a herd of pure breds.

Three of the grades exceeded 736 pounds of butter fat and the best one made over 800 pounds. The best 20 cows averaged 15,680.8 pounds of milk. One grade cow has in four years produced over 35 tons of milk. During 1920 the farm was awarded six first prizes and nine second prizes in the contest carried on by the Los Angeles County cow testing association, and the herd has twice won the $25 monthly prize offered by the California Cultivator in the state dairy cow competition.

The herd at present numbers 192 grades and 78 purebred animals. Of the pure breds Whittier Pontiac Netherland 4th is one of the best known as she won $36.50 from the Holstein-Friesian Association which was just ten per cent of her original cost. Sunland Peerless Tulip Korndyke recently finished a seven day record of 28.6 pounds of butter and Henrietta Luecke Colantha has made 385 pounds of butter in six months as a junior two year old.

This herd is an excellent example of the use of pure bred bulls on grade cows. The original sire was King Jones Homestead, a double grandson of Fobes Tritoma Mutual De Kol, who was used almost entirely on the grade cows. His daughters averaged nearly 25 pounds more fat as two year olds than their dams did as aged cows. He had one daughter who made 18,000 pounds of milk and 627 pounds of butter when only two on two time dairy milking.

King Segis De Kol Mead 3d has been used on the old bull's daughters

(Continued on Page 499.)

Why Pay Fuel Bills?

¾ of Your Hot Water Free!

Yes, for eight months in the year, nature will furnish you all the hot water (*hot* not warm) you can use and not a cent to pay.

And on the sunny days of the other four months the water will be heated enough so that little artificial heat is necessary.

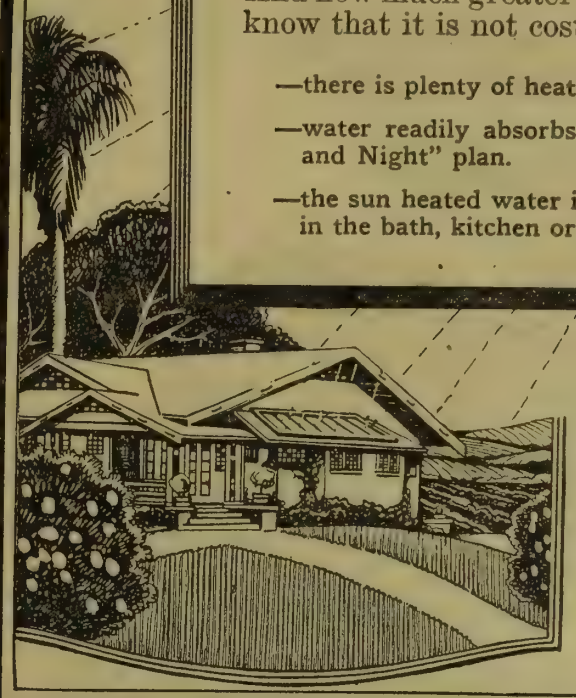
Imagine the pleasure and satisfaction in being able to turn on the hot water faucet in your bath tub, or at any other fixture in the house and draw hot water anv time.

And how much greater the satisfaction when you know that it is not costing you a single cent.

—there is plenty of heat in the sun.

—water readily absorbs this heat under the "Day and Night" plan.

—the sun heated water is then stored ready for use in the bath, kitchen or laundry.



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Day & Night Solar Heater Co.
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The American Beauty Dust Sprayer

For Orchard, Field and Vineyard
100% Efficient

The fastest, most thorough and economical dust sprayer ever built.

The standard of efficiency in sulphuring vines.

Unequaled in the control of Red Spider.

Our Nicotine-Sulphur Dust is instant death to Thrips, Leaf-Hopper, Aphis and similar insects.

Concentrated application saves half the material.

We invite correspondence.

The California Sprayer Co.
6001-11 Pasadena Ave. Los Angeles

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Avocado Seeds

Have a seed of avocado. Does it need any particular soil? In planting should the meat be left on the seed? What depth should it be planted? Do the trees have to be budded?—Subscriber, Buena Park.

Avocados are not at all particular as to soil. The seed is best washed clean of meat or flesh. Plant small end of seed upward, so that top of seed is but lightly covered with soil. No good fruits can be assured without budding and some seedling trees never bear in California. We would not think of giving space to a seedling tree unless it was from a high class fruit and we were curious to know what it would produce when of fruiting age.

Girdling to Induce Bearing

Many inquiries are being made at this time of the year regarding the pollination of various plums and almonds. It is altogether too late this year to do any grafting, but if one will girdle several, but not all, of the main branches of the non-bearing trees it will induce them to set fruit when they would not otherwise. One should remove a ring of bark about three-sixteenths of an inch wide by cutting in with a sharp knife. About one-third or one-fourth of the main branches should not be girdled. Work should be done while trees are in bloom or very shortly thereafter. Branches not girdled will not set fruit but should be left to keep roots in good condition. Girdling will leave no permanent injury and will have to be done every year until pollinators are put in. University of California bulletins recommend Wickson as the best pollinator for Asiatic varieties.—Chas. S. Knowlton.

Pruning and Spraying Oranges

What is the best time to prune orange and lemon trees and what spray is best to use and when?—Subscriber, Los Angeles.

It is rather difficult to answer such a general question for there are some dozens of different pests affecting the trees, and the wash which will effectively control one is of little or maybe of no value in controlling another of the pests. If it is fungous trouble a spray may be used which would be of no value whatever on an insect, therefore the first determination is what pest is affecting the trees. If it is black, red or purple scale fumigate some time after the fruit is, say, half or two-thirds grown and before pruning time. If it is red spider or thrips spray now with lime-sulphur, either dry or wet. If it is the citricola scale fumigate between the first of July and the middle of August. If it is Fuller's rose beetle, which is sometimes serious enough to be treated, control by banding the tree with Tanglefoot or other sticky band. If it is mealy bug get from the state insectary a colony of cryptolaemus or fumigate double strength. If it is orange aphis spray with tobacco extract or kerosene emulsion. The list of fungous troubles is almost as long, and it would be best to study the trees to determine which spray would prove effective.

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TIMKEN Tapered ROLLER BEARINGS

Rotation Best Remedy

In this locality we can raise a crop of milo after a crop of barley has been taken off but if the ground is sowed to barley again in the fall the crop is very light. What is the limiting element in the soil which causes the light crop? After barley has been taken off could the ground be irrigated and sowed to barley and vetch and make a crop of hay or pasture in time to seed to barley in January, or does vetch do well in the valley? Soil is sandy silt. — Subscriber, Madera County.

This is simply a question of learning the old, old lesson of rotation and in addition the further lesson that the soil, as well as the human, needs a rest, at least unless fertilized and stimulated to a point of perpetual work by expensive fertilization methods. Again, it is very probable that the following of barley with one of the sorghum grains may simply exhaust soil moisture. With the amount of rainfall in Madera County it must be borne in mind that storage from one season to the next is safest where one is working the soil to the limit. However, with the irrigation which is possible in this case this would not be a limiting factor. Instead of vetch perhaps one would find profit in growing melilotus indica, the ordinary sweet clover, pasturing it lightly and then plowing under. Of course this prevents continuous use for crops but it does put the soil in excellent condition so that greater crops may pay for the soil rest.

Mistletoe

What can be done to keep mistletoe off the fruit trees? It's getting on my pomegranates. — Subscriber, Porterville.

This is a question we will pass on to our subscribers. Mistletoe is proving a serious pest in some sections, especially in some portions of Tulare County. Is there a spray that will prevent germination of the seed or is cutting out the only remedy?

Seedling Olives

Will olive seedlings bear the same or as good fruit as the fruit from which the seed was taken? Would it be advisable to plant cuttings or seed? —Subscriber, Hemet.

No, the olive seedlings will not come true to the parent tree and presumably most of the seedlings would yield a fruit inferior to that of the parent. Of course it is best and practically the invariable practice to grow olive trees from the small herbaceous or even the large woody cuttings 10 or 12 inches long and perhaps one-fourth to one-half inch in diameter. The fruit on these cuttings will usually

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Number of Citrus Fruit to Box

How many lemons are there to a box and how many oranges? What is considered a good yield of oranges or lemons per tree? Are orange and lemon blossoms self fertilizing?—Subscriber, Hemet.

The number of lemons per box will vary from 180 to 560. The standard pack for oranges as used by the trade of California includes the following sizes: 80, 96, 112, 126, 150, 176, 192, 200, 216, 288, 324. Pomelo or grapefruit are usually packed in four sizes: 36, 48, 80 and 96. A good yield of a fully matured orange tree may be said to range from six to 12 boxes. A large seedling tree will, however, sometimes bear twice that amount while a poorly cared for tree may yield half the lower figure given. The same range prevails with lemons, depending upon conditions. The bearing of a tree is like the work of a man—it all depends. Citrus trees have perfect flowers and are self fertilizing.

Protein in Beans

What is the percentage of protein to fat in Blackeye beans?—Subscriber, Hemet.

We are unable to find any publication showing analysis of Blackeye beans. However, Navy beans, cow peas, field peas and other leguminous seed run very similar as to the amount of nutrients. The Navy bean for instance shows crude protein, 18.8; carbohydrates, 51.3; fat, .8; with a nutritive ratio of 1:2.8. Cow peas: crude protein, 19.4; carbohydrates, 54.5; fat, 1.1; nutritive ratio, 1:2.9. The horse bean, however, has more protein, the following being digestible nutrients: crude protein, 22.8; carbohydrates, 49.1; fat, .7; nutritive ratio, 1:2.2.

Not Bearing

I have a pear tree and an apple tree that were full of blossoms last year but did not produce any fruit. This year they are doing the same. The blossoms look fine and tree shows no signs of scale. Having had the place only one year I cannot say if they are of good stock or not. Please advise cause and what to do for same—Subscriber.

It is impossible to judge as to the cause of barrenness without some knowledge of the age of the tree, weather at the time they were in bloom, as to whether they were winter pruned and other conditions which might have some effect on the setting of the fruit. It is possible that this year there may be full crop, but watch closely the conditions and if possible get behavior of trees in former years. Another year application of nitrate of soda or other quick nitrogen bearing fertilizer, ringing the branches of the trees or other artificial treatment might prove beneficial.

Siphoning from Well

I have a well on a hillside from which I would like to siphon the water into a reservoir which I plan to build a few feet below the level of the water in the well. I have tried the siphon through about 200 feet of three-fourths inch pipe. It runs all right for a while and then gradually diminishes and finally stops altogether. Why does it not keep on running? If you have any information or know of some one who can post me it will be appreciated.—Subscriber, Arroyo Grande.

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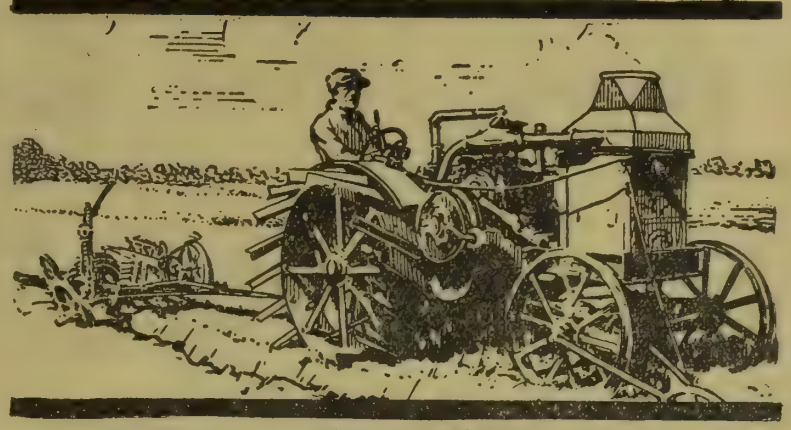

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trouble may be caused by leaks in the pipe through joints not perfectly tight or through airholes. J. B. Neff gives suggestion that perhaps it may be caused by "swamp" or natural gas in the gravel bed from which the water flows. It is quite often the case that wells supplying very good water still are troubled with gas that may even collect in sufficient quantities to be ignited by a match. Water from such a well would of course soon put a siphon out of commission. A suggestion to overcome this difficulty would be to use a large metal plate at the bottom of the well, placing the end of the siphon just a little above the center of the plate. As the water rises around the edges of this plate the gas is allowed to escape upward and the gas-free water which would gather in the center would doubtless keep the siphon running much longer than at present. Another method, and perhaps a simpler one, is to tie over the end of the siphon a good sized tin can so that the water flowing over the edges of the can and into the siphon would be freed of the gas before entering the siphon.

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Cost of the Pests

Answering our inquiry as to the cost of economic poisons to the orchardists of California, Prof. George P. Gray, now of the state department of agriculture, refers to his statement in the monthly bulletin for March, 1919, in which he said: "Two and one-half millions of dollars was the estimated cost of economic poisons used in California in 1916. This estimate was based upon reports from 28 county horticultural commissioners, representing about 71 per cent of the bearing acreage of fruit in the state. The cost for the season of 1917-1918 is estimated at nearly three millions of dollars. This estimate is based upon the more nearly complete returns of 41 commissioners compiled in the following report."

Sneezing Rabbit

I have a buck rabbit and he sneezes all the time and at times he seems to choke. People have told me he has the snuffles. Can you suggest a cure for it?—Subscriber, Hynes.

A sneezing rabbit does not have the snuffles any more than a sneezing person has pneumonia or quick consumption, though a neglected cold in either case may bring on either disastrous end. Your rabbit may be sneezing because of a cold or dust in hay or grain or depleted vitality and inherent weakness or accumulation of filth in hutch or on ground under it. Treat colds and prevent them with open air and sunshine as the main thing, assisted by a few drops of this mixture in nostrils daily: 1 ounce olive oil, 10 drops creolin, 3 drops eucalyptus oil. Mix and shake well before using. We would also suggest the purchasing of a good rabbit book and a reading up on this subject in all its phases.—W. D. W.

Figs Not Bearing

I have two white fig trees in my back yard, located about 60 feet apart. The smaller tree, which is near the house and partly sheltered by one wing, produces a fine crop. The other is considerably larger and usually sets a fine crop which practically all drops before they get as large as a marble. I understand insects of some sort, or other figs, can be obtained to make them mature. Is this true, and if so where can same be obtained?—Subscriber, Sacramento.

It is possible this is the Smyrna tree which calls for the pollen being introduced into the blossoms from capri or other trees, and to accomplish this the capri figs which have been colonized with the blastophaga should be secured. Many fig growers at Fresno make a business of supplying these figs to the trade. They may probably be secured during the months of May and June.

Gypsum Application

Answering question of subscriber at Thermal as to the best method of applying gypsum, quantity, season, etc., Dr. R. R. Snowden writes: "The usual time for applying is in the fall, if there is a choice of seasons, but no one should wait until fall if the gypsum is needed and obtainable. It should always be in moderately fine powder, spread broadcast over the land and plowed in. If the soil is in need of gypsum it would be well to apply two tons to the acre the first season, then one ton to the acre for a few seasons, and after that 500 pounds to the acre per season would be sufficient."

Arsenate on Green Corn

I saw by your paper last summer to use a little dry arsenate of lead on the tips of the ears when the silk begins to show. Would it be perfectly safe to use the corn fodder for feed after using that?—Subscriber, Chula Vista.

Yes; the small quantity which is sufficient for the worms would not affect the feeding value of the fodder. Of course one could powder on so much as to possibly endanger stock but not with a reasonable amount. Put the dry arsenate in small duster or blower and puff only a very small quantity above the forming ears of corn as soon as silk begins to show. Where one has no duster with small bellows, by being careful he may use sack of coarsely woven muslin or cheesecloth and dust very lightly over the forming corn.

Poison for Cutworms

What is best kind of poison to mix up for cutworms and how close should one spread it if cutworms are bad?—Subscriber, Chula Vista.

For cutworm poison see page 453 of the Cultivator of April 2.

Garden Tractors

I wish owners of garden tractors would give to those of us who are small tract owners their estimate of the value of garden tractors in doing the work on 2½ to 5 acres of garden or even of orchard.—Subscriber, Chula Vista.

We will be glad to hear from subscribers who have had experience with these little labor savers.

HARMONIOUS PLANTING

In developing rural gardens do not make the mistake of copying city gardens. Make the most of the fortunate opportunity to harmonize your grounds with the natural or wild landscape surrounding. Use native trees, shrubs and lowly plants liberally and in zones. Do not mix them. Have all of one kind in one place or zone, but do not have each plantation severely outlined or all of one size or shape. If you have two species of ceanothus or mountain lilac, one of white flowers, the other of blue, have a mass of each, different in shape and size, and allow them to merge, not stop abruptly facing each other, like a pair of fighting roosters. Allow a few plants of each to run by the general outline of each so they are figuratively "spliced." In nature you find them so disposed.

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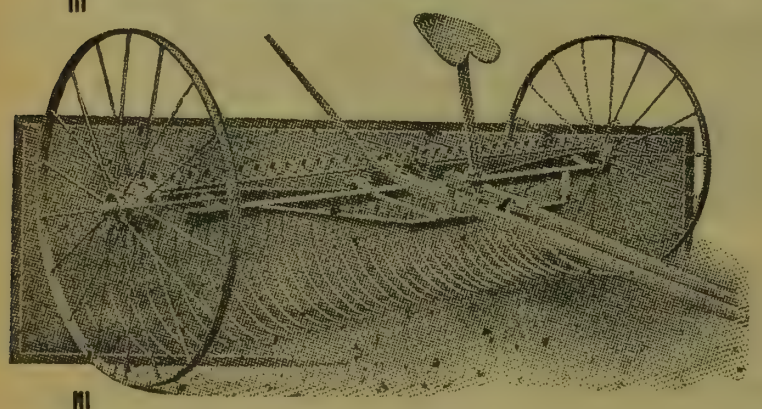

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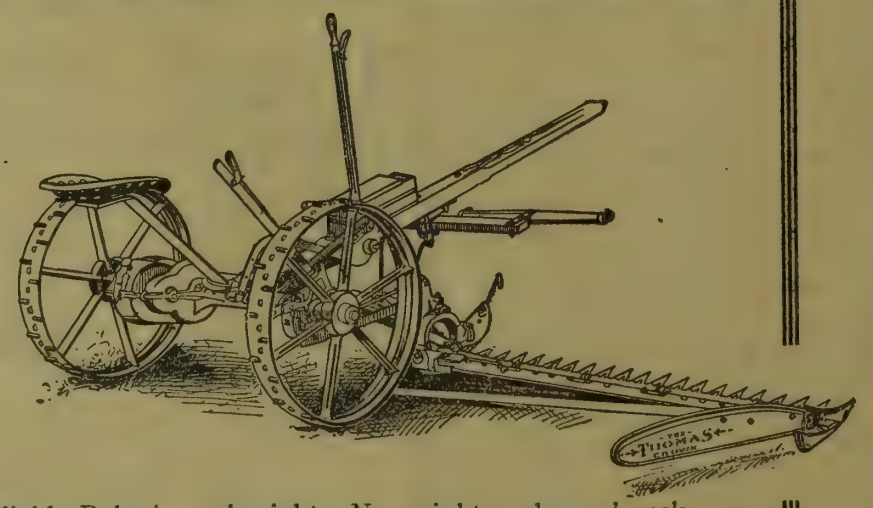

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Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Joint Deed

Husband and wife have a joint deed for their ranch. The wife has paid in four times as much as the husband. Can the wife make a will for her share of the property to whomsoever she pleases? If she cannot what should she be entitled to will? Is it necessary for a will to be made when there is a joint deed? — Subscriber, Anaheim.

The property being held in joint tenancy with right of survivorship, it does not matter as to the proportions of the payment. Upon the death of either the whole of the property goes to the survivor. No will of the decedent would affect this property be cause the survivor had title prior to the will.

Collecting Wages

I did work for a man who gave me two notes which are now a year overdue. He claimed he had his crop and land mortgaged, also his stock and auto. Could I attach the property and get judgment?—Subscriber, San Diego.

In case of attachment on personal property, you would be obliged to put up the amount of prior mortgages. However, you could attach the real estate and sell under execution subject to the mortgage now there.

Contract With Agent

I have a lease on property and a contract written on a separate paper whereby I am given option to buy the property on certain terms. This is signed by the agent who acts for a relative. Is the contract lawful? — Subscriber, Lancaster.

Unless the authority of the agent to make the contract is in writing, executed by the owner, the contract is not binding upon the owner. If it was signed by the owner, even though not acknowledged, it could be acknowledged by the holder of the option, then recorded, and it would effectually cloud the title.

Property of Second Wife

A man purchases ranch on contract. Has children by a first wife. The second wife has put some money into the ranch but has nothing to show for it. What should be done to protect her? Subscriber, Madera.

If the husband should acknowledge in writing the contribution of the wife from her separate funds, in case of his death she would be entitled to make her claim to repayment of the money as against the estate.

Wife's Interest in Estate

A ranch stands in name of wife who operates it. The husband has a half interest in a business which occupies his time. If the husband dies without will, can the wife hold the ranch? What claim has she in the husband's half interest in the business? There are no children.—Subscriber, Los Angeles.

Since the property stands in the wife's name the presumption of law arises that it is her separate property. As such, of course, it would not be subject to administration on the husband's death. As to the half interest which the husband has in other business, upon his death without will one-half interest in his interest would go to the surviving wife and the other one-half to his next of kin.

Distribution of Estate

A man owns a ranch for which he paid a small portion of its present value. He has eight children, marries a second time, and by that marriage has one child. To what share of the property is the wife entitled in case of the husband's death? What share would the respective children receive? In case the second wife had children at the time of her second marriage, would they be entitled to any of the property? — Subscriber, Anaheim.

At the time of the second marriage this was the sole separate property of the husband. Increase in the value of the ranch would be increase in the value of his separate property and would not constitute community property. Therefore the second wife would have no interest in this ranch as community property. In case the husband died without will the property would descend as his separate property; that is to say, the second wife would receive one-third and the remainder in equal shares would descend to the nine children, being the eight children of the first marriage and one child of the second marriage, as the law provides that children of half blood inherit equally with the whole blood. The children of the second wife by a former husband would have no interest in the property.

Home Butchering

Is there any state or federal pure food inspection to interfere with the butchering of my own hogs and selling nams and bacon direct by parcel post?—Subscriber, Dyerville.

There seems to be no state law compelling inspection of meat butchered by farmers. The federal pure food law expressly provides that none of its provisions shall be construed to apply to any cattle, sheep, or swine slaughtered by any farmer upon his farm transported in interstate commerce unless the carcasses come to a packing or canning establishment and are there intended for interstate transportation.

Settling Small Estate

A man dies without will, leaving solely real estate of the value of $500. This has been a number of years since. No administration has been had on the estate. What is necessary for the widow to do in order to acquire or convey property? — Subscriber, Hemet.

In case the estate of the deceas d person does not exceed $1.500 in value and a widow or minor child survives, it may by a verified petition of the administrator appointed in the matter of said estate or the widow or guardian of the children be shown to the court that the estate does not exceed the sum specified and the court thereupon issues an order to show cause

(Continued on Page 503.)

MILLINERY MEETINGS

Miss Etta A. Pinnell, millinery expert of the state university, will spend the month of April in Shasta County making demonstrations and has arranged the following dates for the respective farm centers:

Inwood, April 9; Redding, 11; Happy Valley, 12; Cottonwood and Balls Ferry, 13; Bella Vista, 14; Clear Creek and Latona, 16; Anderson, 18; Igo-Ono, 19; Fall River-McArthur, 20-25; Churn Creek, 26; Palo Cedro, 27; Millville, 28.

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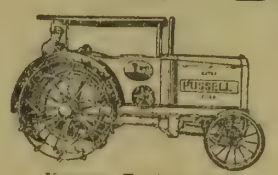

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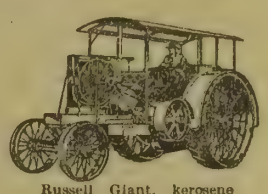

Russell Giant, kerosene tractor, 30-60 horsepower.

Made in six sizes from the 20x34 for individual farm use to the big 36x60, all alike in design and good features.

Pedigreed by 80 Years of Development

"My Russell 15-30 tractor pulls 3, 14-in. plows in alfalfa and bluegrass sod and 4, 14-in. plows in stubble from 6 to 9 in. deep, and I use it to run my 24x43 Russell Thresher. The combination can not be beaten".—C. F. MELLENBRUCH, Fairview, Kan.

"I use my 12-24 Russell tractor to pull 3, 14-in. moldboard plows 6 in. deep and in 10 hours I burn 20 gallons kerosene; I run a 30 horsepower dynamo with it night and day, and use it to move houses and barns. It is the most powerful little tractor I ever used, has not cost me one cent for repairs and is "my horses and mules".—F.A.BARROWS, Hooker, Okla.

"My Russell Giant pulls 11, 14-in. plows 6 in. deep in sod and the 20-35 pulls 6 disc plow in low land; and on high gear it pulls 2, 16-hole drills easily. Have used them since 1918; they can't be beat; the cost of repairs is negligible and I now use no horses at all".—D. DAVIDSON, Solomon, Kan.

"Have had our Russell 12-24 tractor since 1917 and use it to pull 3 plows 6 to 8 in. deep, also to run 20x34 Russell Separator and pull 8-ft. tandem disc and clod crusher. Total cost for repairs $75. In 11 hours running it uses 3 gallons gasoline, 20 gallons kerosene and 2 gallons engine oil. It is reliable and dependable".—FENWICK BROS., Waverly, Ky.

RUSSELL TRACTORS---First made in 1875; every feature tried out and proven true in service; built with hand-made quality of workmanship to the Russell Standard of "not how many, but HOW GOOD."

RUSSELL THRESHERS --- With the big, easy-running, 15-bar Cylinder, the High-finger Grate and the distributing beater. No other thresher has these features---and none other can equal the Russell for saving and cleaning ALL THE GRAIN.

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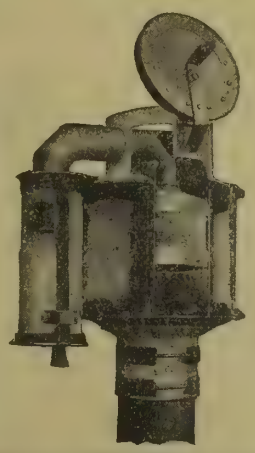
The World's Best is Our Confident Claim for the United States Spark Arrester



Sold from coast to coast. Tested under most severe conditions, GUARANTEED and sold on 10 days trial since 1907, and has always given SATISFACTION. It is cheaper to get our SPARK ARRESTER than it is to PAY for the DAMAGES A FIRE would do. GUARANTEED that it will not let out sparks that would start fires and that it will NOT bother the draft or firing. Made for any size steam engine, threshing, donkey and logging locomotives.

Write us today for further information, prices and terms.

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From one of our best test fields, resulting from three years' selection, starting with carefully bred California acclimatized seed. We rogue for less spreading type of plant, permitting close planting; for productiveness and for larger bolls which open wider, fluff more and pick easily; also and especially for early maturity and for lint length and strength. We receive premium for uniformity lint length, strength and color. Seed cotton from which these seed selected ginned over 32% More net income per acre growing this type Durango than any other kind or type of cotton known to us. Our seed purchased in carload lots by Cotton Associations. We ship to Arizona, New Mexico and East. Inspected and approved by Government officials, State Entomologists and Quarantine officers. Ask any of them. By the bag, approximately sixty pounds, five cents per pound, f. o. b. Westhaven. Check must accompany order. No more carload lots. Telegraph for ton prices. BOSTON LAND COMPANY, Westhaven, Fresno County, California.

Household Department

TAXPAYER'S ULTIMATUM

Our taxes are now altogether too high,
Much higher than we can afford;
"Cut down the expenses" should be the new cry
Of each official and board.
The state legislators should make it their creed
To veto each appropriation—
Except in the case of the money we need
Down here at Alfalfaville station.

We taxpayers think that a very strong curb
Should be put upon all politicians,
Extravagant spending we fear will disturb
Our unsettled business conditions.
The knife should be used without favor or fear
On every clause in the budget—
But as for the sum we are asking down here,
No statesman, we think, would begrudge it.

We're strong for retrenchment—remembering, though,
The danger of cutting too deeply;
Economy always—provided, you know,
The practice of thrift toward a neighboring town
Will meet with our warm approbation,
But woe to the man who attempts to cut down
The funds for Alfalfaville station!
—Spokane Spokesman Review.

AT THE EDGE OF HILOTOWN

By Clara Peterson

BARON DOLPHUS, who lived in Hilotown, had a little girl named Ellareen. She was forever running away, down the hilly lawn, across the dusty road which was just at the edge of town, and then out into the country or toward the city as fast as her little legs would go.

For several weeks the baron had been intending to go out on the lake road and buy a watch dog for Ellareen, but something had always prevented. For one thing it was very hot weather and the baron was quite too plump to like to travel, especially on his horse's back; he was extremely likely to go slipety slip all of a sudden and have to be boosted up by someone with a great deal of muscle.

There was a rather shaggy old mastiff named Gyp who lived way around the house in Ellareen's back yard. She peeped at him sometimes through the stable fence, and Gyp would walk over so she could pull his hair and laugh. He would have liked nothing better than to watch Ellareen forever and ever, but he was only a tramp dog and, while the baron allowed Ranga, the cook, to toss the dog bones and left-overs, he would never in the world have thought Gyp blue-blooded enough to mind baby Dolphus.

You see, the baron was quite proud and pompous. It was all because he was related by marriage to the Duke of Denheim. There had been quite a stir in the baron's house for some time and Ellareen had run away more than ever, for who was coming to visit, arriving a week from Wednesday, but the Duke himself. The Duke had never seen Hilotown, for it was a tedious journey overland. Baron Dolphus didn't care much what his noble relative thought of the city, but he wanted his own estate to look just right, and he wanted especially to have plenty to eat, for more than almost anything else the two chubby gentlemen liked to sit down to a groaning table.

So everybody had been out cutting grass to make the lawns look smooth and restful, or mending walks or washing windows. Everybody but Ranga, that is. Poor Ranga had seven times as much work as all the rest for he had to feed the household and in between prepare for the Duke. The baron himself had come down to the dark kitchen on Tuesday and handed to the cook a parchment naming the viands which were to be all ready in eight days; 2 roast pigs, 12 goose-liver pies, 7 roast ducks, 45 glasses of currant jelly, 20 glasses of quince jam, 50 loaves of raisin bread, 37 fruit cakes.

And so on, down to the bottom of the page.

The wonderful Wednesday came at last. Everyone in the big rambling house got up early for once; even the two little pages opened their eyes at 6 o'clock instead of 9.

Ranga got up at 4:30, for the pigs and ducks had come from the butcher the night before and were ready to be stuffed and roasted. He was so busy all morning in the fiery kitchen that poor old Gyp didn't get even a crust of bread, but sat out in the shade of a gooseberry bush and tried to wait patiently.

Every time there was a minute to spare Ranga would open the pantry door and peep in, then he would rub his hands together and his fat red face would beam with pride. There were strings of sausages hanging from the ceiling, and crackly joints of beef to be sliced cold, and platters of orange sweetmeats, and great stone jars of bread and cake, with the lower shelves all ready to hold the roasted fowls and the little pigs when they should come from the ovens.

By 12 o'clock the dining-room girl was busy laying the table with the silver plate, and everybody was bobbing around excitedly. The baron himself sat in a great chair on the veranda and his scarlet velvet suit sparkled in the sun. Little Ellareen was playing happily with her corn-cob doll and the baron beamed at her fondly; he thought she looked extremely beautiful and distinguished in her blue and yellow striped dress, but as a matter of fact she was only a roly poly three-year-old with a turned up nose and fuzzy hair the color of the yellow stripes.

"Zounds!" exclaimed the baron suddenly, bouncing up and peering down into the country. "They are coming! I see a flash of purple on the road."

In three or four minutes a horseman in a gleaming white and purple suit emerged from the maple trees. His quivering black horse ascended the path and stopped directly before the veranda, and the messenger, dismounting, bowed very low.

"His Royal Highness, the Duke of Denheim, begs to announce that he will not arrive until 3 or 4 or 5 o'colck. Feeling slightly sleepy in the warm air, His Highness found it necessary to have his couch erected and he is now slumbering thereon."

(Continued next week.)

Is your sink 36 inches high? Most kitchen sinks are so low that they cause endless discomfort and back strain. "Standard" kitchen sinks have adjustable legs, so that they can be set from 32 to 36 inches high, as desired. Measure height of sink from top of rim to floor.

Write today for copy of catalogue "Standard" Plumbing Fixtures for the Farm." It is illustrated in colors, shows many styles of sinks, complete bathrooms and fixtures, model kitchen and laundry.

Standard Sanitary Mfg. Co., Pittsburgh

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HINTS FROM HOUSEKEEPERS

India Relish

In the Cultivator of March 19 I noticed query for India Relish. I have one I consider unusually good and am sending it to you:

Two quarts green tomatoes, one quart white onions, one head cauliflower, six green peppers, two red peppers (with seeds removed), one teacup salt, one quart cold water. Chop and let stand in salt water over night, scald all together in morning and let drain.

Dressing—One cup sifted flour, six tablespoons ground mustard, two cups sugar, one tablespoon tumeric. Mix together to make a paste. Scald three quarts vinegar and mix together till it thickens, then cook all ingredients five minutes. When cold add one-half ounce celery seed, one-half ounce mustard seed and can cold.—Mrs. C. G. Wetherille, Fallbrook.

Angel Food—Butterscotch Pie

Following are two good recipes I use often:

Angel Food with Three Eggs—One cup sugar, 1 1/3 cups flour, ½ teaspoon cream of tartar, 3 teaspoons baking powder (slightly rounding), 1/3 teaspoon salt, 2/3 cup scalded milk, 1 teaspoon vanilla or almond. Last fold in carefully beaten whites of three eggs (beaten stiff). Mix and sift first five ingredients five or six times, add milk very slowly while still hot, beating continually; add vanilla; mix well and fold in whites of eggs. Turn into ungreased angel cake tin and bake in very slow oven about 45 minutes. Remove from oven. Turn pan upside down on plate and allow to stand until cold. Cover top and sides with the following:

Icing—1½ cups powdered sugar, 2 tablespoons hot milk, ½ teaspoon butter, ½ teaspoon vanilla or almond. A few drops of food coloring ("raspberry red") makes a very dainty cake. This cake is also very desirable for children's birthday cake as it won't be too rich for children.

Butterscotch Pie — Line a pie tin with pie crust and bake in quick oven while making filling. Place in a saucepan three level tablespoons butter, 1 cup brown sugar. Heat slowly and cook three minutes. Then add 4 level tablespoons corn starch, mix well, add to cooked sugar and stir constantly till thickened smooth, about three minutes. Take from fire and add 2 well beaten yolks of eggs, pour mixture in prepared crust. Six or 8 drops of maple flavor is a good addition to filling. Make frosting of the 2 whites and 2 or 3 tablespoons powdered sugar and brown slightly in hot oven.—Mrs. Ronald Smith, Lindsay.

HOUSEHOLD QUERIES

Puff Paste

Can anyone send me a recipe for cream puffs, just the pastry. I have a good filling. I will give it if anyone wishes to make it. Take thick sweet cream, whip very stiff, add sugar enough to make very sweet. Fill in puffs.—Subscriber, San Joaquin.

To one-fourth cup butter add one-half cup hot water, and when boiling add one-half cup flour and beat vigorously. As soon as the ingredients are well blended remove from the fire and add 2 eggs, unbeaten, one at a time, beating the mixture thoroughly until smooth. Drop by spoonfuls onto a buttered pan, one and a half inches apart, and shape with the handle of the spoon until circular, piling the mixture slightly in the center. Bake 30 minutes in moderate oven. When done remove from the oven and when

The Cultivator Patterns

BE SURE TO SEND SIZE

3527. Ladies' Dress.—Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size requires 6¼ yards of 44 inch material. The width of the skirt with plaits extended is about 2¾ yards. Price 10 cents.

3550. Girl's School Dress. Cut in four sizes: 6, 8, 10, and 12 years. A 10 year size will require 4⅛ yards of 27 inch material. Price 10 cents.

3187. An "Easy To Make" Apron. Cut in four sizes:, Small, 32-34; medium, 36-38; large, 40-42; and extra large, 44-46 inches bust measure. A medium size will require 5 yards of 36 inch material. Price 10 cents.

3545. A Pretty Negligee. Cut in four sizes: Small, 34-36; Medium, 38-40; Large, 42-44; Extra Large, 46-48 inches bust measure. A Medium size will require 3⅝ yards of 44 inch material if cut without center back seams, if cut with seams, 4 yards of 36 inch material will be required. Price 10 cents.

3544-3541. Ladies' Costume. Blouse 3544 cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 3½ yards of 27 inch material. Skirt 3541 cut in six sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. It may be cut with or without a centre front seam. Without the centre front seam a 26 inch size requires 2⅝ yards of 48 inch material; if cut crosswise of the goods, and 2¼ yards if cut lengthwise and of 54 inch material. Cut with centre front and back seam and straight at the front edge it will require 2¼ yards of 54 inch material. With bias edges 2¾ yards will be required. The width of the skirt at the foot is 2⅜ yards. TWO separate patterns, 10 cents FOR EACH pattern.

3092. Girls' Dress. Cut in four sizes: 6, 8, 10 and 12 years. Size 10 requires 3¾ yards of 44 inch material. Price 10 cents.

3537. Ladies' "Work" or Home Dress. Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 5⅜ yards of 36 inch material. The width at the foot is about 2¾ yards. Price 10 cents.

3557. Ladies' Coat. Cut in six sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. A 38 inch size will require 2¾ yards of 40 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cent) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEKS; we guarantee safe delivery of all patterns. Address

PATTERN DEPARTMENT
California Cultivator
Los Angeles

cool make slit in side of each puff, large enough to admit the cream filling. If puffs are removed from the oven before they are thoroughly done they will fall. If in doubt, take one from the oven, and if it retains its shape, it is done. This recipe makes nine small puffs.

Cream Filling.—Where one cannot afford thick cream or does not wish so rich a filling, here is a good custard filling: In a double boiler heat 1 cup milk. While heating mix one-half cup sugar, 2½ tablespoons flour, ⅛ teaspoon salt well together, then add to 1 egg slightly beaten. Gradually pour on the heated milk, return to double boiler and cook 15 minutes, stirring constantly until the mixture has thickened. When cool add ½ teaspoon vanilla and put into the puffs.

Canning Pimientos

Will you kindly give me information how to can pimiento peppers?—Subscriber, Placerville.

Use only perfectly sound peppers. To remove seeds cut around stem of each with slender paring knife and remove inside portions. To peel place in hot oven from six to ten minutes until skin blisters and cracks, watching carefully to see that they do not burn. Remove skin with slender paring knife. Flatten peppers and pack in horizontal layers in jars, adding no salt nor water. Put on top, place in water bath (home made canner of wash boiler or kettle). Bring water to boiling point in canner, boil 20 minutes for pints, 30 minutes for quarts. Irregular or broken peppers may be cut in strips or chopped and canned in same way.

An exceedingly valuable publication, Circular 160, "Peppers," has just been issued by the U. S. department of agriculture, containing instructions on planting, canning and preparing peppers for the table. This may be secured free by simple request to Department of Agriculture, Washington, or possibly your county farm adviser has a number for distribution.

Grease Stains

As I have had many valuable helps and hints from your household columns will some one tell me how to remove greasy spots, such as butter on colored silk fabrics, without leaving circles or having to dip the whole garment?—Subscriber, Lindsay.

For removing butter stains on colored silk use French chalk. Lay stained silk on flat surface and rub chalk thoroughly into stained material but gently so as not to pull fibers of cloth. As soon as it becomes gummy shake or brush off lightly and repeat process until bulk of grease is removed. Then apply another thick layer and let stand over night or longer if necessary. This removes all grease and leaves no circle. It is necessary to renew the chalk until every bit of the grease is removed and the chalk comes out dry and white. If not convenient to let stain stand over night, place blotting paper or clean soft cloth over the chalk and apply warm (not hot) iron for several minutes. Sometimes the use of warm iron is necessary in order to melt the solid fat before it can be absorbed by the chalk. If after butter stain is removed the chalk remaining seems to dull the fabric, it may be rubbed and shaken lightly or hung in the wind to blow out or it may even be necessary to wipe out lightly with clean cloth wrung almost dry out of clean warm water, beginning with circular motion outside of the stained area, working carefully into center. Where one wishes to use gasoline, benzine or ether, employ this same method, approaching the stained area with circular motion from the outside unstained part to insure against rings. This presupposes, of course, clean material; if the whole garment has been worn and is slightly soiled the cleaned area is bound to show up against the rest of the garment. French chalk is one of the cleanest and most convenient cleaners to keep on hand. In the form of little cones it is almost instantly applied. If possible rub it on spot while still fresh. The grease will come out very easily. This works best on woolen or silken fabrics, but may even be used on cotton and linen, but it is always necessary to take out the last of the chalk with dampened cloth as described above.

Bring Me A City!

Heeding no barrier of river, mountain, forest or desert; unmindful of distance; the telephone has spread its network of communication to the farthest outposts of our country.

The ranchman, a score of miles from his nearest neighbor, a hundred miles from the nearest town, may sit in the solitude of his prairie home and, at will, order the far-distant city brought to him. And the telephone obeys his command.

Time and space become of small account when, through desire or necessity, you would call across a continent.

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You take the telephone as much for granted as you do the wonder of the changing seasons. You accept as a matter of course the company's ability to keep all the parts of this great nation in constant contact.

By so doing you offer a fine tribute to the Bell organization which has created this "Long Distance" service—a service no other country has attempted to equal.

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AND ASSOCIATED COMPANIES

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And all directed toward Better Service

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You know it. It is the "Red Crown" sign on garages and service stations. It is the sign of quality in gasoline—the sign of an all-refinery gasoline with a continuous chain of boiling points—insuring ready starting, rapid acceleration and maximum power.

Before you fill—look for the "Red Crown" sign.

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(California)

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PROMPT DELIVERY
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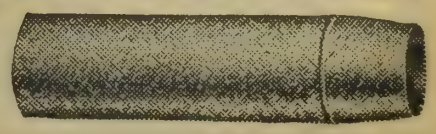

Watching for the ring around the moon

WHEN a crop is dependent on the availability of water in a certain period of time, sky-gazing for the ring-around-the-moon rain omen is not a happy pastime.

The modern, direct motor drive pump has done more than anything else to banish this superstition of past ages away from the farm.

A Byron Jackson centrifugal will do more than make a ring around the moon for you. It will produce water whenever and in whatever quantities you may need.

—and don't forget the Byron Jackson service

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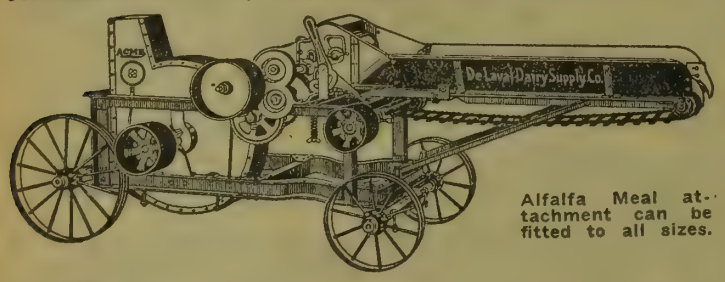
408 Sharon Building, SAN FRANCISCO
Wherever water is to be lifted

The ACME Cutter

Combined Silo Filler, Hay Chopper and Alfalfa Meal Machine



Alfalfa Meal attachment can be fitted to all sizes.

Save 10% to 30% of Your Feed

The saving of feed by cutting it up with an Acme Cutter has been demonstrated by many Pacific Coast Dairymen to be more than enough to pay for the cutter in one season.

It is the habit of stock, whenever given an abundance of feed, to pick out and eat only the finer and more palatable portions; nosing out and wasting weeds, and foxtail and the stemmy part.

This loss ranges from 10% to 30%, the amount depending upon the quality of the hay and the method of feeding.

Chopped Hay, with careful handling, will keep five cows, while the same weight of loose or bulk hay will only keep four. Waste is eliminated by chopping your hay.

Men who dairy on a business basis find that chopped feed is the surest way to utilize to the fullest extent the feed value of the entire hay crop.

The durable steel framed Acme will earn its cost every season chopping hay and at the same time provide you with a Silo Filler of superior cutting ability and an Alfalfa Meal Machine.

A FEW SPECIAL FEATURES OF ACME CONSTRUCTION

All steel triple frame construction.
Center hung blower fitted with six arm blower fan that will not clog.
Big range of pulley sizes permits change in speed of cutter head and blower to suit length of cut and height of silo. All gears are well guarded.
Soft steel shear pins through fly wheel and pulley prevent accidents to machine or operator. Reverse lever with gears enclosed in housing. No rachet to stick at critical moment.
Immediate deliveries.

Don't Buy a Cutter Until You Know All About The Acme
CATALOG FREE UPON REQUEST

O. J. WEBER CO.
Creamery and Dairy Machinery and Supplies.
759 South Los Angeles St. Los Angeles, Cal.

CULTURE OF SORGHUMS

(Continued from Page 479.)

may be seen distinctly across the field row, cultivation should commence, and a six shovel cultivator equipped with shields and set to penetrate the ground from four to five inches has been found to be the most desirable type of implement. The later cultivations should be shallower, and more effective work may be done by substituting spear head sweeps for the cultivator teeth. The plants in the row should be thinned when they have reached a height of about three to four inches and the weeds in the rows, inaccessible to the cultivator, may be destroyed at the same time. If a rain occurs subsequent to planting, resulting in a crusted soil, either a light harrow or a corrugated roller may be used to advantage.

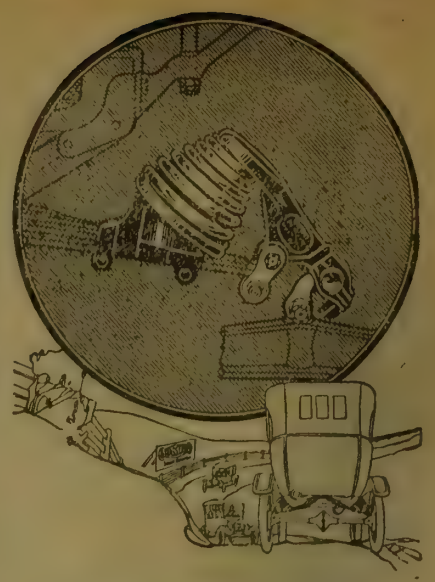
Irrigation

In seasons of abundant winter rainfall, especially on soils of a retentive character, very satisfactory yields of both grain and for ge have been produced without irrigation, but if irrigation is available the yield may always be increased from 30 to 50 per cent by properly timed irrigations. The crop is benefited most by irrigations just prior to and during he ing, and irrigations subsequent to that time have been found to be less effective. Late irrigation often has the effect of stimulating a late vegetative growth and retarding maturity, making it difficult to head and thrash the crop before the rainy season sets in. Irrigations subsequent to heading always have the effect of causing the plant to develop lateral stalks or rattoons which bear late ripening heads and interfere with harvesting operations. In 1919 there was a considerable rainfall in September in the Sacramento Valley which had the effect of delaying maturity of grain sorghum crops and preventing curing prior to harvest. In that year the milo crop at the university farm was a complete failure because it failed to ripen in season to harvest. Late irrigations (after the seed is formed) have produced similar effects.

Harvesting

Of the three methods of harvesting the grain, the system of picking by hand is most common. One man and a wagon can generally harvest one acre a day in this way. The heads are thrown into a wagon as cut and then spread in a thin layer to dry for thrashing. A good plan is to place the heads in a layer about one foot in depth on straw, and thrash when they have dried sufficiently. The heads together with the straw may be fed into the thrashing machine. A grain separator of the ordinary type may be used for this purpose, but in order to avoid the cracking of the kernels about one-half of the concave teeth should be removed and the speed of the cylinder reduced by about one-third. The milo crop at the university farm in 1920 contained slightly too much moisture when thrashed and showed indications of heating in the sacks. We had just finished our run of fruit in the evaporating plant and were able to save the milo crop by spreading it out on the fruit trays and running it through the drying chamber and resacking.

The "row corn binder" is well adapted to harvesting grain sorghums and provides a much cheaper and quicker method. The crop is tied in bundles of convenient size, which are set up in cocks until the grain has been thoroughly dried. The bundles may then be hauled to the thrasher and the seed separated by simply pushing the head end of the bundles into the cylinder, or in case the crop is light the entire bundle may be run through the machine. The third method of harvesting grain sorghums is by means of a header. Crops of uniform height may be headed by the use of the common grain header and the heads dried preparatory to thrashing, as suggested above for the hand method. Non-uniform crops cannot be handled in this way because of the difficulty of adjusting the height of the cutter bar to pick up all of the heads. One row headers which may be attached to a wagon and driven by a sprocket from the rear wheel are now coming into use in the Kafir corn districts of Kansas, Nebraska, Oklahoma and Texas. These ma-



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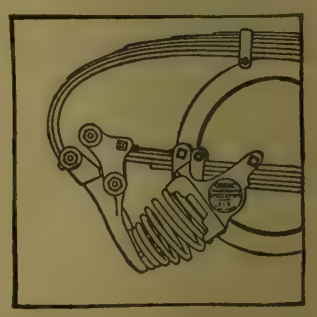

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chines are very efficient and economical and have not as yet been used in California for the reason that Kafir corn cannot be satisfactorily grown here, and milo and Egyptian corn, because of their non-uniformity and goosenecked characteristics, cannot be handled by machinery of this type. A new type of grain sorghum called Yolo maize has recently been developed at the university farm, which produces well under California conditions, is uniform in height and carries all of its heads in an erect position. It is also dwarf in stature and stands four feet in height at maturity. It is thought that this new variety of grain sorghum will lend itself well to being harvested with one row header. Demonstrations will be made at the university farm this season to determine that point. The expense of harvesting has been the principal objection to the most extensive growing of grain sorghums in this state, and the purpose of the experiment station in developing this new variety has been to give the farmers a grain sorghum which may be harvested at small expense by the use of machinery.

Sweet sorghums grown for silage should be harvested when the seed has hardened; if cut before that time the sweet juice is apt to sour and impair its feeding value. When cutting for fodder the best quality may be secured by cutting earlier, while the kernels are in the milk. At this stage of development there is less fiber in the stalks and less waste in feeding. When placed in a silo, however, sorghums may have almost reached complete maturity and yet make silage of the best quality. Large late maturing varieties of saccharine sorghum, such as Honey, Red Amber and Orange, if planted from April 15 to May 1 should be ready for use early in October and should yield from 20 to 25 tons of green silage per acre on good land with irrigation. Indian corn under similar conditions may be expected to yield from 12 to 18 tons of green silage per acre, and experiments at the university farm have shown that these two crops are nearly equal in feeding value. The grain sorghums such as milo, feterita and Egyptian corn are inferior for silage purposes both from the standpoint of yield and quality. They generally yield from eight to ten tons of green silage per acre and are coarse, pithy and less palatable to livestock.

Sorghums or Sudan grass which is broadcasted or drilled and harvested as a hay crop should be cut in the (blossom) early milk. At this stage of development they will yield the finest quality of hay and will provide a larger second growth than if harvested at a later stage of development.

Book Review

CORN BOOK

"Corn Book for Young Folk," by Charles B. Williams, dean of agriculture, North Carolina college of agriculture, and Daniel H. Hill, ex-president North Carolina state college of agriculture, published by Ginn and Company, 15 Ashburton Place, Boston. $1.20.

California corn fields produce more corn per acre than do the fields in the regular "corn states." However, conditions are not all to the liking of Indian corn or maize and we know of no "corn club" as is common in high schools of the middle eastern corn states and more recently the more southern or formerly known as cotton states. Yet the book has value for corn growers of California. It is put up as a text book, and yet, as all producers should continue to use text books, the form of this publication is not in any way objectionable. The book consists of 19 chapters touching upon the importance of corn crop, with many historical notes and illustrations, climate, races of corn, growing plants, markings of good seed ears, selecting, storing and testing of seed. soils, cultivation, harvesting, storing and a liberal discussion of corn silage. From the preface we quote:

"If a young farmer can be led to acquire skill in growing one crop, he will unquestionably apply the principles that brought success in the one crop to all his other crops. The authors of this book, therefore, think it best not to confuse the mind of a beginner by a discussion of all the standard crops, but rather to teach the general principles of crop growing through their application to a specific crop. The fundamental principles, like seed selection, the preparation of a seed bed, tillage, rotation of crops and control of moisture, are prectically the same for all crops. The essential differences, like methods of planting or harvesting, are easily acquired. Corn was selected because it is almost universally grown in our country."

STEER VS. BEEF PRICES

Despite the fact that the average price paid for good beef steers on the Chicago market from March 5 to 19 declined from $9.95 to $9.70 per hundred pounds, figures compiled by the bureau of markets of the United States department of agriculture show that during the same period the average price of good steer beef at three large Eastern markets advanced from $16.47 to $17.63. Similar compilations show that from March 5 to 19 the average price paid for medium beef steers dropped from $9.20 to $8.93, whereas during the same period the average wholesale price of medium steer beef increased from $15.43 to $16.65.

During the period covered the price of heavy steer hides declined about two cents per pound, which would justify either a decline of 13 cents per hundred pounds on live steers or an advance of approximately 25½ cents per hundred pounds on dressed meat.

Dont Send a Penny

These Work and Outdoor Shoes are such wonderful values that we will gladly send them to you by mail, no money down. You will find them so well-made and such a big money-saving bargain that you will surely keep them. No need to pay higher prices when you can buy direct from us.

Mens and boys Brown Elk Hide Soft Chrome Leather

SCOUT SHOES $2.98

Extremely popular for work out doors and on the ranch. A special purchase allows us to sell them at this remarkable price. We Pay Postage

The best shoe of its kind—we have sold thousands of pairs. These shoes are worn by men who want a light weight, strong work or sport shoe that is soft and durable. They are made of the finest quality genuine chrome tanned elk leather, over a roomy last. Half bellows, dirt excluding tongues, extra heavy flexible Elk soles and strong leather heel. Choice of brown or black color. Just slip them on and see if they are not the most comfortable, most wonderful shoes you ever wore. Pay only $2.98 for shoes on arrival. If, after careful examination, you don't find them all you expect, send them back and we will return your money. PRINT carefully your name and address, and be sure to state size and width you want. Order by No. C 1408. Give size and width.

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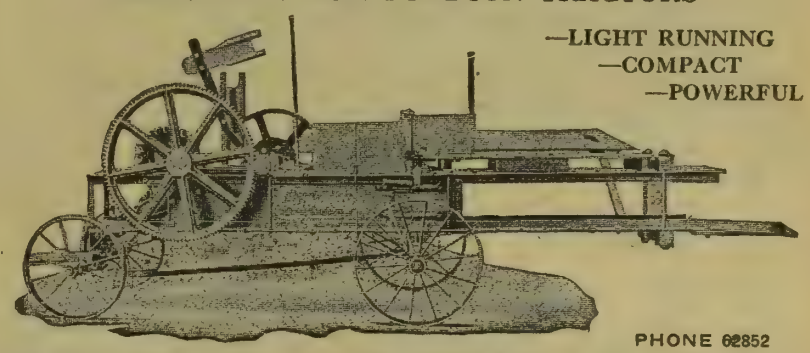

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W. L. Haag and Son, Hanford, Cal.

Eastman Ranch Poland Chinas

Herd headed by Buster Bob, Grand Champion at the strong Los Angeles Livestock Show. He is the largest junior yearling in the state and is siring some great pigs. Young stock for sale at all times. Satisfaction assured.

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Herd headed by Giant Prospect and Mc's Challenger. My sow herd is composed of a great lot of choice matrons including Polandale Betty, first prize junior yearling at Sacramento. Correspondence solicited.

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DISPERSAL SALE

60 Registered Holsteins 60

Owned by

R. F. Guerin, Visalia, Cal.

Thursday, April 14, 1921

It will be remembered that Mr. Guerin sold all of his milk cows at public auction in April, 1918, retaining only his young heifers.

The present herd is made up largely of those heifers, every animal in the sale except one being under 4 years old. The sale includes

22 DAUGHTERS OF SIR VEEMAN KORNDYKE PONTIAC, the great 30 lb. son of Sir Veeman Hengerveld. One of his daughters, owned by Earl Graham, Compton, made 759 lbs. butter and 20,270 lbs. milk in one year as a junior 2 year old, and now fresh as a junior 3 year old has made 33.06 lbs. butter from 666.6 lbs. milk in 7 days, milking 115 lbs. in one day.

23 DAUGHTERS OF KING SADIE VALE IDYL SEGIS, who is by a son of King Korndyke Sadie Vale and out of K P Idyl Segis, a 35 lb. 4 year old daughter of King of the Pontiacs. Most of these are out of daughters of Sir Veeman Korndyke Pontiac.

A NUMBER OF THESE HEIFERS are out of high record dams, up to over 31 lbs. butter in 7 days.

A WONDERFUL YOUNG BULL

KING TOLA PONTIAC KORNDYKE, sired by the $12,000.00 bull King Korndyke Pontiac 20th and out of K P Tola, 36.15 lb. daughter of King of the Pontiacs that is now completing a yearly record at Burr Farm that seems certain to exceed 1000 lbs. butter.

KING SADIE VALE IDYL SEGIS

the 35 pound son of King Korndyke Sadie Vale 27th, now heading the herd, and he is only 3 years old, with a lot of good young daughters in this sale.

YOUNG BULLS FOR DAIRYMEN

The sale also includes a number of young bulls, about ready for service that will no doubt go at dairymen's prices.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and individual certificates furnished.

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. Geo. W. Bell, Tulare

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

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ROBERT N. CLAPP
PROPRIETOR

HOLSTEIN-FRIESIAN — CATTLE

Nuevo, Riverside County, Cal.

Registered Holstein Females
FOR SALE

My recent purchases of registered Holstein females have overcrowded my yards and I beg to announce that I must dispose of a number of yearling and two year old heifers, both open and bred to freshen before fall.

These are wonderful individuals, strong in the blood of King Segis, and are a wonderful buy for any breeder who has the room to carry them. I feel you will find them priced to suit you.

They Will Grow Into Money for You

Come out and see them. Correspondence promptly answered.

I want to impress every breeder that every animal I sell is tuberculin tested, guaranteed to be a breeder and I stand squarely back of each individual sold. Breeding Holstein-Friesian Cattle is my sole occupation and every transaction must be satisfactory to the buyer or the transaction is not complete.

Sycamore Acres is located at Nuevo, twenty-two miles Southeast of Riverside and five miles East of Perris. Fine roads all the way.

Holstein Bull Calves For Sale Very Reasonable

Sired by Sir Veeman Korndyke Pontiac and out of yearly record cows. Write for prices, photo and pedigree.

BURR FARM

Box 220, Route 2. East 26th and Downey Road, Los Angeles

King Segis Pontiac Jannek

A proven sire of show winners and high producers is available for service to high class Holstein cows.

SANTA MONICA DAIRY CO.

Farm is on Washington Blvd.
2 miles east of Venice.

Santa Monica

Humboldt County's Dairy Industry

Humboldt County, though not the leading county in the state in the total amount of dairy products produced, is nevertheless probably the foremost county in the dairy industry of the state today. This is true particularly from the standpoint of quality, variety of products produced, and the production per acre; only a very small portion of the county's area being devoted to dairying.

A brief survey of the dairy industry in this county brings to light considerable food for thought on some very interesting points.

The rapid development of the Swiss cheese industry is one of the newest advances made by the county in the dairy manufacturing line and is attracting attention from all parts of the globe. In quality and excellence it is placed on par with the imported variety. This cheese holds the unique distinction of being the only Swiss cheese in the world made from pasteurized milk.

The largest single Swiss cheese factory in the country is also to be found in Humboldt County, and probably the largest Swiss cheese curing room in the world.

The only butter cutting and wrapping machines of the kind in existence are in use in two creameries in Humboldt County, cutting and wrapping quarter pound squares of butter accurately and efficiently.

Practically every dairy product and by-product known is or has been manufactured in Humboldt, some 11 different products in all now being produced.

There are 6,175 cows in the county under test in two cooperating cow testing associations, employing four testers who devote their entire time to this work. Reports submitted by the testers for last year's work show the average production per cow in the associations to be 332 pounds fat.

There are 53,958 acres (estimated), and this contains all marsh and some hill lands, devoted to dairying in Humboldt, and 23,229 (estimated) dairy cows. This 53,958 acres devoted to dairying and 23,229 cows produced for the year ending June 30, 1920, 6,377,517 pounds butter, over 1,000,000 pounds cheese, and enormous amounts of milk sugar, condensed and evaporated milk, skim milk powder, casein, etc., with a total value of all of $7,632,116. the amount received for the finished products by the manufacturer.

Deduction from this would show that approximately 23,000 dairy cows and approximately 54,000 acres of dairy land, coupled with nine modern, up to date, well managed and efficient factories of dairy products brought into Humboldt County last year a total of $7,632,116, a mark in concentrated production of wealth hard to equal.—Hugh G. Asselstine.

Importance of Mineral Mixtures for Swine

It has long been noted that livestock grown in certain sections are outstanding in quality and size of bone development compared to animals produced in other sections, and it is common knowledge that mineral elements in soil and water bear an intimate relation to bone development. Of late, scientists have been giving considerable attention to the mineral requirements of livestock. Quite recently the following article appeared in the Poland China Journal. The authors, John M. Evard and Milton H. Knudson, are regarded highly in the field of animal nutrition. In the hope that our readers may be benefited by their suggestions, we reproduce the article herewith:

There isn't any question that the proper kind of mineral mixtures for swine may be supplied with benefit to swine as well as to the swine owner. The big question nowadays is that of making up the right kind of mixture. In recent years leading investigators in the field of technical and fundamental nutrition, investigators such as Hart, McCollum, Osborne, Mendel, Forbes, Steenbock and others have shown us that the deficiencies in the way of mineral elements are usually covered in our ordinary rations by the addition of calcium, sodium, chlorine and phosphorus. The above elements are supplied in different forms, but usually the calcium is furnished in the form of pure lime, sodium and chlorine in the form of common salt, and phosphorus as bone meal (which also carries calcium), or as di- and tricalcium phosphates, precipitated by-products usually from gelatin manufacture. In ordinary practice it would seem that straight bone meal and salt should carry all of these necessary elements. Some of these experimentalists have shown clearly that the rations otherwise inadequate were made entirely apparently adequate by the addition of pure lime (calcium carbonate) and salt additions to a ration that was otherwise complete with the exception of its inadequacy in minerals.

Of course, this does not mean that other elements are not essential to the organism, but it does indicate that the other elements are usually carried in the ordinary grain rations and hence do not need to be supplied. However, there is considerable question in regard to these matters and common practice would seem to indicate that a more liberal allowance of the various elements would be most acceptable under the circumstances in that the results secured therefrom are better from the standpoint of economical meat production.

Then, too, it has not been demonstrated as yet that the mere addition of the more common elements, such as calcium, sodium, chlorine and phosphorus, is sufficient for optimum nutrition. In other words, there is considerable fragmentary evidence which indicates that other elements may be supplied with profit because of their stimulating and general nutritional virtues. At any rate, more complete mixtures seem to fill the bill better than those composed of only a few elements, and hence it may be advisable in practice to supply a mixture which provides not only the main elements but also others, including not only the mineral elements themselves but materials that have been for countless decades used in swine husbandry, minerals such as charcoal, for instance.

Specifically speaking, the animals must get all of the following organic elements if they would live and thrive: nitrogen, carbon, oxygen, hydrogen (these four are carried by the major organic portions of the ration, as in the proteins, carbohydrates and fats); the main mineral elements are calcium, phosphorus, potassium, sulphur, sodium, chlorine, magnesium, iron, iodine, fluorine, silicon, manganese and aluminum. These elements exist in combination with each other and are termed "salts." They are named in order of the quantities present in the body, there being more calcium than any of the others, with phosphorus running second in amount. It has only been recently that we have appreciated the iodine requirements, the absence of which element in the brood sow's ration, for instance, is at least one of the causes of hairless pigs. Fluorine is found in small amounts but is considered as essential. Silicon is always present but there is some question about its indispensability. Manganese and aluminum may be normal constituents of the animal body and hence we suppose that they may be necessary in the ration, although that is problematic. Arsenic and copper are found in some lower forms of organism and sometimes have been noted in higher forms in very small amounts, but generally speaking they are not considered as essential, and yet considerable mystery still surrounds them.

It is worthy of mention that some of our mineral compounds offered to swine men contain these two ingredients, the arsenic being present in these mixtures usually as arsenic trioxide and the copper in the common form of copper sulphate. If these elements are indispensable for the lower forms it might be that they would perform a useful function in higher forms, even though not found in the body itself. One can analyze a water

wheel or a turbine and not find much water, but water is nevertheless indispensable in making these work. We have known for a good many years that arsenic when fed to animals produced a sleek coat and furthermore tends to enliven extraordinarily. Horsemen have taken advantage of this and so have swinemen. Arsenic fed to rats in very small amounts produces a very velvety and lustrous coat covering, it being outstanding because of this specific development.

Chemists have been handicapped to date by the lack of proper technical methods for the determination of many elements, and hence it is entirely possible that some of these elements present in minute amounts have been missed or overlooked, that is, slipped by undetected. Hence it can be readily seen that the whole matter of mineral nutrition with swine is a complex one and that from the standpoint of practice there is much to be learned, and hence the reason that we of the Iowa station are devoting considerable time to the investigations covering this phase of proper nutrition.

We are suggesting some mixtures which have been used with the idea of putting something definite and tangible before our people. These mixtures are well compounded and represent an application of our knowledge to date. Later we will have more to offer, but for the present we suggest the mixtures described below:

Simple Mixture. Equal parts by weight of lime and salt, or of wood ashes and salt. Primarily the first named carries calcium, sodium and chlorine, but no phosphorus or other elements excepting small traces as they accidentally occur. The second mixture, of course, carries the same as the first, but there is added to it some potassium carbonate and other elements as carried in wood ashes.

A Simple but More Complete Mixture. Equal parts by weight of lime, salt and bone meal. Bone black may be substituted for bone meal and it has the added advantage of carrying animal charcoal. Bone flour is a special by-product from the packing houses and is usually available if bone meal is wished. A mixture of di- and tri-calcium phosphates, a by-product of gelatine manufacture, may be used to replace the bone meal.

A Fairly Complete Mixture. This mixture carries most of the essential elements. Salt, common, flake form, 30 pounds; bone meal, finely ground, or bone flour, 25 pounds; commercial kainit, or potassium chloride, 12 pounds; sulphur, flowers of, 10 pounds; limestone, finely ground or air slacked lime, 10 pounds; glauber salts or sodium sulphate, 5.7 pounds; epsom salts, or magnesium sulphate, 5 pounds; copperas, or iron sulphate, 2 pounds; potassium iodine, .3 pounds; total, 100 pounds.

In order to encourage the consumption of the above mineral mixtures when self fed free choice style, it is a good plan to mix them with a 60 per cent protein meat meal tankage, from 5 to 60 pounds of tankage to the 100 pounds of the above mineral mixtures, regulating the consumption by the amount of tankage mixed with the mixture. Generally speaking, we would advise that approximately one pound of mineral mixture per hog per month be fed. In other words, if one has 100 pigs they should eat 100 pounds of the mineral mixture per month, this in addition to the tankage mixed with it, which is at the rate of approximately one-fourth pound per pig per week. If the pigs do not consume this much, add a little more tankage, then allow the mixture free choice style as before. One can also mix these minerals with the ordinary feeds, in which case we would suggest that the mineral itself be not mixed with every feed, but just one feed per day, the amount allowed being approximately about one pound per pig per month. Allow the mixtures free choice style for the best results.

The animal husbandry section of the Iowa experiment station has found that mineral nutrition problems are rather difficult to interpret experimentally, but we are proceeding to the collection of data which in the long run we feel will be of practical importance to the swine industry, particularly in that we are hoping to apply a good deal of fundamental information that we now have access to through recent discoveries.

For the Prevention of

ANTHRAX

Of all livestock diseases, anthrax is one of the most fatal.
For the preventive and curative treatment of anthrax we offer

ANTHRAXOIDS
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For immunizing cattle, horses, sheep and mules.

Anthraxoids are Anthrax Spore Vaccine in pill form. Each Anthraxoid is a dose ready to be injected under the skin of the animal.

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A serum to be used when animals show symptoms of anthrax.

Anthraxoids-Antianthrax Serum
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Double vaccination with serum and vaccine. Used when anthrax is established or suspected to be in a herd.

Write for free booklet on the Prevention of Anthrax.

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ANIMAL INDUSTRY DEPARTMENT OF
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Cattle Owners!

Save Your Calves

We will send you absolutely free valuable information on

Abortion in Cows

We will tell you how this disease can positively be prevented and overcome — why two treatments a few days apart are sufficient and how you can apply it yourself at small expense.

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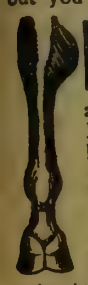

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Twenty thousand Indiana Silos on the Pacific Coast prove their success. Manufactured of No. 1 Fir staves. Air-tight tongue and groove joints. Patented door frame made up at factory. Compression cam lock doors. No hinges. Roof supplied with door section finished. Three men can erect an Indiana in three days. No carpenter needed. Money-back guarantee.

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Germain's Sudan Grass is PROVEN — it thrives where other crops fail. Of inestimable value in arid and semi-arid districts—producing from four to six cuttings of highly nutritious hay. Grows in any soil—from sand to clay.

Plant the GENUINE—the proven strain. Your dealer sells Germain's—ask for it by name.

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→ buy from your dealer!

GUERNSEY DISPERSAL

55 Registered Cows, Heifers and Bulls 55

HOLLOW HILL FARM

Owned by G. W. Wilder

Colton, Cal.

Thursday, April 28, 1921

REUBEN KING OF HOLLOW HILL FARM, by Cora's Glen and out of Rebecca of Sunnyview, 647.86 lbs. butterfat, 11,730.1 lbs. milk, Class BB Junior Champion 1920 California State Fair, Grand Champion Arizona State Fair. One of the many good bulls in this sale.

THE FEMALES include both imported and American bred indiyiduals, with official records of 735, 589, 473, 538, 647, 495 pounds butterfat, besides some 2 year olds with over 400 pounds, out of richly bred dams, some with excellent records, sired by equally well bred bulls of high record ancestry.

THE BULLS include sons of 735, 647, 676, 538, 478, 418, 421 pound dams and by such sires as King of Hollow Hill, Effie's King of Hollow Hill Farm, and Cora's Glen. Show ring winners and many of them ready for service. They present an opportunity for selection and purchase never before offered by the breed in the west.

Every animal over six months old tuberculin tested and sold subject to retest by the buyer; every animal guaranteed to be a breeder according to catalog terms.

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Col. Ben A. Rhoades
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California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

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All the water you want at small cost if you have one of these Bean Direct-connected Outfits at work. The Bean Water-sealed Stuffing Box prevents loss of priming, reduces friction, and increases efficiency. Mail the coupon.

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Send me your new Pump Catalog.
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Italian Vineyard Company Big Type Berkshires

Some dandy young boars for herd headers. The choicest breeding and ready for service.

Every one tuberculin tested and cholera immune.

Alex. M. Wilson, Supt. Guasti, Cal.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
April 14, R. F. Guerin, Tulare.
April 21-22, Santa Anita Rancho.
April 20-21, Toyon Farm Association, Los Altos.
April 26, Santa Anita Rancho, Santa Anita.
May 11, Victory Herd, Carruthers.

W. M. Caruthers of Live Oak reports the sale of a young Shorthorn bull to William Day of San Francisco. The calf is said to be a very promising son of Hallwood Villager.

John A. Bunting, secretary of the Pacific Coast Hereford Breeders' Association, has recently selected three Hereford bulls from the W. J. Bemmerly herd, Woodland, and one from the H. H. Gable herd, Esparto, for shipment to Mexico. Bunting believes that during the next few years that the Hereford breeders of this state will be favored with a great deal of Mexican trade.

The Pacheco Cattle Company, Hollister, has sold 23 head of unregistered Shorthorn females and a registered bull to Mr. Mathews of Stockton.

In the second annual Brentwood sale of Holsteins held at Philadelphia, March 29-31, 166 head of bulls and females were sold for a total of $212,635, an average of $1,280. The top of the sale was $27,100 at which price the three year old bull Pietertje Prospect Colantha, son of the world's record cow, Segis Pietertje Prospect, changed hands. This bull was bred and sold by the Carnation Stock Farms, Seattle. He was sired by Dutchland Governor Sir Colantha. Only one California herd was represented in the sale. The Bridgford Holstein Company of Patterson consigned, Prilly Adirondac Dairy Maid, the yearling daughter of Adirondac Wietske Dairy Maid, who holds the fourth highest milk rerord of the breed. The sire of the heifer is King Segis Alcartra Prilly, the popular Bridgford herd sire. The heifer sold for $4,500 which was the second highest price paid for a female at Brentwood.

California Holstein breeders who own daughters of Dutchland Governor Sir Colantha, sire of the $27,100 bull in the recent Brentwood sale, have reason to congratulate themselves. H. H. Sisson of Willets owns Cantata Domino Sir Skylark 3d; the Bridgford Holstein Company of Patterson owns Gerben Colantha Parthenea and T. J. Gist and Son of Tulare, own Carnation Segis Colantha. Messrs. Gist are developing a bull from their daughter of Dutchland Governor Sir Colantha that is sired by Carnation King Sylvia.

Edward Cebrian, manager of the Caledonia herd of Shorthorns, has announced a draft sale to be held at the farms near West Sacramento, May 26. The sale will consist of around 40 females and ten bulls and will include a goodly number of Scotch cattle. It is stated that practically all the females will carry the services of Imp. Caledonia, Gainford Matchless or Pine Grove King. The sale will be managed by C. L. Hughes of the California Breeders' Sales and Pedigree Company.

G. F. Lee, Oroville, recently purchased a young Berkshire boar and two sows from the Jas. Mills Orchard Company, Hamilton City. The sows were bred to Penrith Lustre, a son of Penrith Champion, the 1917 grand champion ov r the entire Northwest circuit of livestock shows.

A

38.40 Lb.

Five-Year-Old Granddaughter of

Pontiac Korndyke

the highest 7 days record cow ever sold at public auction west of the Rocky Mountains, is one of the features of the

Complete Dispersal
The Victory Herd

70 Registered Holsteins

Hillcrest Ranch
Carruthers, Cal.

Wednesday, May 11, 1921

This sale is necessary to dissolve the partnership existing between H. E. Spires and J. M. Crawford, and presents a very desirable herd of cattle of attractive breeding. Included in the offering are

24 GRANDDAUGHTERS OF KING SEGIS PONTIAC COUNT, the famous bull owned by Senator Hackney in Minnesota.

SIR PIEBE SEGIS PONTIAC, sire of above heifers, will sell. He is by King Segis Pontiac Count and out of a good yearly record dam.

KING PONTIAC ALCARTRA PRILLY, the junior herd sire, also sells. He is by the Bridgford three times grand champion King Segis Alcartra Prilly and out of a 36 lb. daughter of Spring Farm King Pontiac that has finished a year with over 26,000 lbs. milk and almost 1000 lbs. butter.

Guaranteed breeders and tuberculin tested.

Write for catalog.

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

Auctioneers:
Col. Ben A. Rhoades, Los Angeles.
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ALL RISKS ELIMINATED

Nothing left to chance when you buy one of our Holstein bull calves. Every one guaranteed free of tuberculosis. Every one guaranteed to be a breeder. Every one from an official tested dam, A. R. O.-A. R. S. O., yearly semi-official and cow testing association records. (All made under normal dairy conditions in string with 100 others.) Sires from the most popular high producing strains in California. Offered at Bargain Prices. Phone, Downey 42

LOS ANGELES COUNTY FARM Hondo, California

Johnson's Defender Jr.

Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

H. C. WITHEROW Live Oak, Cal.

FERNDALE COW TEST

The Ferndale Cow Testing Association has completed the annual test and filed its annual report. The test commenced March 1, 1920, and ended February 28 this year.

The association started with 126 members, ranging from two cows to 150. The total number of cows signed up was 4,546.

Twenty herds, or members comprising 532 cows, did not finish the year, having either sold their dairies or discontinued testing. 4,014 cows finished their records with an average lactation period of about nine and one-half months, averaging 334.03 pounds butterfat per cow.

Seventeen herds averaged from 400 to 495.76 pounds fat per cow. Nineteen herds averaged from 350 to 400 pounds. Thirty-eight herds averaged from 300 to 350 pounds. Twenty-three herds averaged from 250 to 300 pounds. Six herds averaged from 213 to 250 pounds. This last class was composed of all new members, having tested for their first year.

The highest herd belongs to Nate Hauck, with 18 cows averaging 495.76 pounds per cow.

Peugh Brothers, Elk River, two cows, averaged 493.26 pounds per cow.

Chris Diedricksen, eight cows, 479.80 pounds per cow.

Willsie Elliott, six cows, 464.37 pounds per cow.

Rasmus Martin, two cows, 432.70 pounds per cow.

John Enos, 20 cows, 430.90 pounds per cow.

Chris Lorenzen, ten cows, 428.70 pounds per cow.

J. W. Coppini, 13 cows, 426.20 pounds per cow.

Giles Briggs, 14 cows, 425.90 pounds per cow.

S. B. Morrison, 22 cows, 421.90 pounds per cow.

Wilbur West, 12 cows, 421.70 pounds per cow.

Antone Enos, five cows, 419.80 pounds per cow.

J. A. Genzoli, 42 cows, 419.77 pounds per cow.

Frank Early, 413.20 pounds per cow.

Peter Iversen, 16 cows, 403 pounds per cow.

Jesse Petersen, 41 cows, 400.30 pounds per cow.

L. J. Lindrum, 43 cows, 400.30 pounds per cow.

The highest cow belonged to Nate Hauck, "Speck," which produced 728.95 pounds fat. Seventeen cows produced 728.95 pounds fat; 17 cows produced over 600 pounds fat; 98 cows produced over 500 pounds; 628 cows produced over 400 pounds; 1,541 cows produced over 300 pounds.

The association has now started on its thirteenth year of successful operation. The directors are Harry Harbers, president; J. A. Genzoli, vice president; L. J. Lindrum, G. E. Trigg, William Dauphiny, Bert Gries, Hite Robinson, Antone Enos and J. W. Coppini, secretary and manager.

THE RICHEST POOR FARM

(Continued from Page 487.)

with marked results, and a wonderful lot of heifers has been obtained.

Under the superintendence of W. R. Harriman a number of fine pure breds have been obtained from the Southern California and Arizona breeders and at the recent Guaranty Sale. Also two fine young bulls have been added.

One is Duke Uneeda Banostine from the Reno herd at Phoenix. He is by Duke Banostine Butterboy, a half brother to the great Duchess Skylark Ormsby, and is out of Uneeda Biscuit, who has a record of 27.94 pounds of butter in seven days and is the dam of three A. R. O. daughters.

The other is King Korndyke Pontiac Mead. In this bull the ideal line breeding is observed. He is by King Korndyke Pontiac 20th, the $12,000 Burr Farm bull, who was mated to his grandam, De Kol of Valley Mead 2d, one of the greatest cows in the West, who has a record of 27.01 pounds of butter in seven days and 1,011.71 pounds for the year. The dam of his sire, who is also the daughter of his dam — this is Irish — is Miss Valley Mead De Kol Walker, with the wonderful three year old record of 1,113.57. He was purchased from Morris & Sons of Woodland and combines the great blood lines of the Morris breeding.

(Continued on Page 503.)

"NICKS" THAT ARE PROVEN

It is not a boast, but a matter of fact, that no other herd in the world contains as many proven high record families of long distance producers as can be found in this herd.

Beyond that important fact is one that is even more important—these great families have very fortunately proven to "nick" especially well with each other, and their successful blending has already been abundantly proven not only in our own herd but in many other leading herds where bulls of these "nicks" have been used.

SEGIS PONTIAC ABBEKERK

Sire: SEGIS PONTIAC DE KOL BURKE, son of the former world's record cow Riverside Sadie De Kol Burke, 1085.12 lbs. butter from 28826.4 lbs. milk in one year. He is transmitting unusual production to his daughters and through his sons. He is sire of Miss Aaggie Acme Burke, 1034.66 lbs. butter from 24338.8 lbs. milk in one year as a first calf junior 2 year old, world's milk record in class when made, 35.38 lbs. butter from 726.4 lbs. milk in 7 days as a junior 4 year old, and she is the dam of the $41,000.00 bull King Korndyke Pontiac Acme. Another of his daughters made 932.43 lbs. butter in one year as a senior 2 year old, her son selling for $11,000.00 as a yearling. One of his daughters also sold for $11,200.00 as a yearling.
Dam: CHANGELING TIDY ABBEKERK GEM, 35.05 lbs. butter from 639 lbs. milk in 7 days at 6 yrs., 34.74 lbs. butter in 7 days at 5 yrs., 767.36 lbs. butter from 19,389.9 lbs. milk in one year at 4½ yrs. She was one of the greatest producers in our herd and her 4 year old yearly record is no index to her real production as a mature cow, when we were unfortunately not able to test her for a year. She is by the century sire Changeling Butter Boy and out of a 31.70 lb. daughter of the century sire Tidy Abbekerk Prince.
The three nearest dams of SEGIS PONTIAC ABBEKERK each milked from 607.6 to 920.8 lbs. in 7 days. His three nearest dams average

Butter 7 days	33.01
Milk	722.50
Butter 30 days	130.91
Milk	2947.70

His full brother heads the largest herd in South America, and all of his half brothers that have daughters in milk are transmitting the very large production of their ancestors. We have every confidence that the daughters of this bull will prove great producers, and this confidence is made stronger by the promise of his heifers, some of which are now at breeding age.
SEGIS PONTIAC ABBEKERK heads the high class herd of high record and highly bred females owned by

R. L. HOLMES
MODESTO, CAL.

Because of this proven successful combination of the blood of such great females as De Kol of Valley Mead, Aralia De Kol, Aaggie Acme of Riverside, Riverside Sadie De Kol Burke, and Miss Valley Mead De Kol Walker, breeders who have used at the head of their herds bulls bred in one of these lines or combinations can come back to this herd at any time and find another bull whose blood has already been proven to "nick" with the blood already in their herds.

Thus may be carried on successful line breeding, without the dangers of too close inbreeding, and the fact that we are producing and selling such bulls removes the breeder from the danger of the other extreme, a violent outcross.

We have sold outstanding bulls for prices ranging from $5000.00 to $50,000.00, prices well within the value of some of the exceptional matings we have been able to make, but our main effort always has been and always will be to produce dependable bulls of high yearly record backing and sell them at prices the average breeder and dairyman can pay and gain large profits by their use.

Our prices for such bulls have always been considered very conservative. Ask your neighbor who owns one.

Strong demand keeps our bulls of service age sold out practically all of the time, and if you want to put one of our profit makers at the head of your herd it is best to write us or visit our herd well in advance of the time you will need him.

A. W. Morris & Sons Corporation
Woodland, California

Herd Bulls
Harris Standard 2d
Beau Blanchard 76

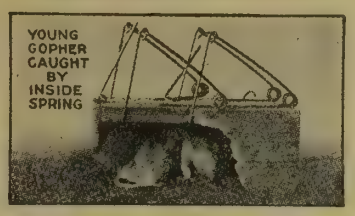
Nevada Hereford Ranch
J. H. Cazier & Sons
Wells, Nevada

A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

SIERRA VISTA HEREFORDS
One of the largest herds in the West. Built on a Repeater and Fairfax foundation. At present we have to offer 24 choice young bulls ready for service.
Sierra Vista Vineyard Co. Minturn Madera County Cal.
On Highway 2 Miles North of Chowchilla

DOUBLE CATCH GOPHER TRAP

Catches Gophers Any Size or Age



Price 75c Postpaid
Farmers say that this trap is worth a dozen of any other make. Money returned if not satisfied. Illustrated circulars free.
E. J. CHUBBUCK COMPANY, Dept. A
731 Market St., San Francisco, Calif.

Use Hereford Bulls
The Hereford is the range bull without a peer.

My Herefords have size, bone, constitution and are notably thick fleshed. Visit my ranch and get my prices. Send for free literature.

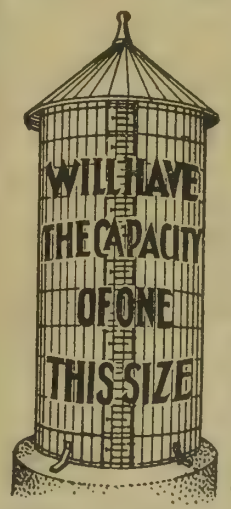
Mission Hereford Farm
John A. Bunting
Mission San Jose Cal.

DIAMOND G HEREFORDS
A few choice young bulls, big, heavy-boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.
H. H. Gable Esparto, Cal.

The Cushman Silage Packer
is a Roller set in a suitable frame on which is mounted the standard Cushman engine—4 H.P. size.

One man in the silo handles the distributing spout and controls the engine.

This lessens the number of men required and packs the silage evenly, eliminating all gas pockets. It will increase capacity of your present silo at least one-third more.



Those who have used them claim that they pay for themselves in a season.

This is no experiment. The engine may be used for other work on the farm also.

The famous 4 H. P. engine used is the one so popular for use on grain and corn binders, manure spreaders, potato diggers. It can be used for pumping, wood sawing, spraying, grinding, making electric lights. It cannot be equalled for power in the blacksmith or machine shop.

Ask your dealer, or write for information to
Cushman Motor Works, Stockton

Plant Winter Rhubarb and BERRIES for PROFIT
We can supply plants—all sorts for large fields. Plant also peaches, plums, prunes, pears, figs, apples, apricots, asparagus, artichokes, etc., for your own table and pleasure. We have a good assortment of fruits of all sorts. Write for price list. J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Cal.

To Stop Loss of Milk, Keep It Cold

MILK of ordinary quality held at 75 degrees Fahrenheit, a temperature not uncommon in the summer months, soured in 36 hours, while the same quality of milk held at 55 degrees kept sweet for 80 hours, and at 40 degrees for 180 hours. These results were obtained in an experiment carried on by the dairy division, United States department of agriculture, to determine the effect of temperature on milk, and the results explain in a large measure why milk which has not been cooled on the farm—and kept cold—often is sour when it arrives at its destination.

In one section a survey held during the summer months to determine the temperature at which milk is received at railroad stations for shipment to market showed the average temperature of morning's milk to be about 60 degrees, and in some cases it was as high as 80. These temperatures are much too high to permit milk to be shipped a considerable distance without souring, specialists say. It was found that some mornings milk was rushed from the farm to the station insufficiently cooled. Milk produced the evening before showed an average temperature about five degrees lower than that of morning's milk, and in some instances was as low as 40. A large part of the annual loss from sour milk is due to shipping milk at too high a temperature.

The best and qpickest way to cool milk to 50 degrees, according to department specialists, is over a surface cooler. Use the coldest water available and then set the cans of milk in a well insulated tank filled with water below 40. A ten gallon can of milk precooled with water at 55 and set in a tank of ice water at 37 was cooled to 50 in 20 minutes.

The use of a surface cooler is especially necessary when the time between milking and shipping is short. If warm milk is run over a surface cooler and then set in a tank of water cooled with ice to 40 or below, it should not be difficult to cool milk to 50 within an hour after it leaves the cow. Because precooling with a surface cooler is not practiced and ice is not put into the cooling tank before the milk, much milk reaches the shipping station in summer at so high a temperature that it sours on the way to the city.

On many farms the water used for cooling milk comes from the general storage tank or from a spring. The temperature of such water when it reaches the cooling tank is much higher than when it leaves the well or spring. Well or spring water that has a temperature of from 50 to 55 degrees Fahrenheit frequently is warmed up to 70 or 75 before it reaches the cooling tank. Under such conditions more ice and a longer time are necessary for cooling.

When milk is not precooled and ice is not added to the tank until after the milk is placed in it, with the water supply at 70, 60, 55 or 50 degrees Fahrenheit the time needed to cool ten gallons of milk to 50 is, for these temperatures, respectively, about two hours and 25 minutes, one hour and 45 minutes, one hour and 30 minutes, and one hour and 20 minutes. The time required to cool milk to 50 degrees Fahrenheit by such methods is too long, especially when morning's milk must be delivered at the railroad station within a short time after milking.

The effect of not putting ice into the cooling tank until after the milk is placed there is strikingly shown by tests. When ten-gallon lots of milk, after being precooled with water at 70, 60, 55 and 50 degrees Fahrenheit, were placed in water at the same respective temperatures and ice was added to the tank, it required two hours and 10 minutes, one hour and 15 minutes, 43 minutes and 20 minutes, respectively, to cool the lots to 50 degrees Fahrenheit. The precooling of a ten-gallon can of milk with a surface cooler, using water at 70, saved approximately 11 pounds of ice. With water at 60, 16 pounds of ice were saved; with water at 55, 19 pounds of ice were saved; and with water at 50, 22 pounds of ice were saved.

In order to keep sweet, milk should be protected at all times from high temperatures. A large percentage of the milk supply for cities is delivered at the railroad station by producers, although some is hauled direct to the city. Even under the best conditions, milk that is transported during hot weather is usually several degrees warmer by the time it has reached the railroad station. On the railroad it is held from a few hours to all day, and unless shipped in cars especially equipped to maintain low temperatures there is a further rise in temperature. That is the case when milk is shipped in baggage cars or in milk cars not provided with ice. To make sure that milk reaches the city consumer in the very best condition it should not only be promptly cooled to 50 degrees Fahrenheit or below on the farm, but also should be protected during shipment, the specialists say.

To illustrate the importance of protecting milk in transit during hot weather, four ten-gallon cans of milk cooled to 44 degrees Fahrenheit were hauled a distance of 13 miles from a farm to the railroad station. Can No. 1 was an insulated type, No. 2 was an ordinary can covered with a one inch felt jacket, No. 3 was covered with a half inch felt jacket, and No. 4 was an ordinary unprotected can. During the trip, with the air temperature at 80, the milk in the insulated can rose one degree in temperature, the milk in the cans protected with jackets rose six degrees, and the milk in the unprotected can rose 20 degrees. The cans were then shipped by rail in an ordinary baggage car for more than 1,000 miles at an average air temperature of about 80, in order to study the effect on the milk. In the unprotected can the milk had reached a temperature of 60 in two hours, or after it had traveled about ten miles from the farm (before reaching the railroad); the milk in the can covered with the half-inch jacket reached 60 only after 11¼ hours, or about 268 miles of travel; the can covered with the one-inch jacket traveled for 13 hours, or about 332 miles, before reaching 60; and the milk in the insulated can did not reach 60 until after 25 hours, or 650 miles of travel. By the use of a half-inch jacket it was possible to ship an individual can of milk 26 times as far as in the ordinary can before the temperature rose to 60. The one-inch jacket increased the distance to 33 times and the insulated can to 65 times that of the ordinary can.

Milk sours very rapidly at temperatures above 60 degrees Fahrenheit, and therefore should be kept below that temperature, and preferably below 50, until used.

Dispersal of the Great Toyon Herd

135 REGISTERED HOLSTEINS 135

110 FEMALES 25 BULLS

Toyon Farm, Los Altos, Cal. April 20-21, 1921

Founded upon animals of the most approved breeding, at the large investment that such animals command, the famous herd at Toyon Farm was developed under careful management and has produced a number of world's record producers in the yearly division.

It will be remembered that in November, 1920, about 100 cows were sold out of this herd at Sacramento, and that Toyon Farm has been represented in all of the Guaranty Sales in California, as well as the National Sale at St. Paul. In the latter sale they sold one of the $10,000.00 females in that sale. In this offering the bulk of the cattle, both male and female, are young animals out of the great cows sold out of the herd, and sired by outstanding bulls, and include daughters of

Sir Korndyke Ormsby Piebe

who is out of Queen Piebe Ormsby Mercedes, a daughter of Sir Pietertje Ormsby Mercedes, with 1136.01 lbs. butter in one year, 4913.39 lbs. butter in 5 years, highest in world for age. All of these heifers are out of half sisters to Cascade Fleta Johanna, the great heifer that made over 30,000 lbs. milk in one year as a 4 year old.

Sir Aaggie Mead

who is by Sir Aaggie De Kol Acme, and out of Aralia De Kol Mead with a strictly official record of 1215 lbs. butter in one year, she by King Mead of Riverside and out of the 1142 lb. cow Aralia De Kol, the first cow to make over 28,000 lbs. milk in one year.

Sir Pietertje Ormsby Mercedes 43d

a son of Sir Pietertje Ormsby Mercedes, out of Aaggie Wayne Peep, 1250.35 lbs. butter in one year, 4992.03 lbs. butter in 5 years, second highest in world.

Sir Pietertje Ormsby Canary

also by Sir Pietertje Ormsby Mercedes, and out of an 864 lb. yearly record 3 year old daughter of a 1009 lb. cow.

Sir Bessie Fobes Tritomia

a son of Fobes Tritomia Mutual De Kol and the famous three times 33 pound cow Jessie Fobes Bessie Homestead, who topped the Detroit National Sale.

Mutual Fobes Longfield De Kol

proven 30 pound son of Fobes Tritomia Mutual De Kol.

Chimacum Spring Farm King Pontiac

whose daughters are making splendid yearly records as 2 year olds.

Dutchland Colantha Emperor

a 30 pound son of the famous Colantha Johanna Lad.

Johanna Bonheur Champion

a proven son of Colantha Johanna Champion and the great show and producing cow Johanna Bonheur.

Other Sires of Great Merit

such as Sir Ormsby Burke Segis, King Korndyke Pontiac 20th, Korndyke Queen De Kol's Prince, Sir Johanna Ruth Fayne, and North Star Happy Bonheur.

The Dams of These Females

sired by such bulls as those listed above a large number of the females in this sale are out of dams with both short and long time records, ranging up to over 1000 lbs. butter in one year, over 30,000 lbs. milk in one year, and over 30 lbs. butter in 7 days.

Bred to Outstanding Bulls

added to their great pedigrees, good type, and good health, is the valuable services carried by the large number of cows and heifers now in calf. Most of these are bred to Sir Pietertje Ormsby Canary, Sir Pietertje Ormsby Mercedes 43d, or Sir Aaggie Mead.

An Unusually Attractive List of Bulls

A SON OF SIR PIETERTJE ORMSBY CANARY, out of a daughter of Sir Pietertje Ormsby Mercedes. A rare opportunity to buy a choice young individual intensely bred in the blood of this great sire.

A SON OF SIR PIETERTJE ORMSBY CANARY, out of a 1008 lb. yearly record daughter of Sir Ormsby Burke Segis, second dam a 795 lb. yearly record granddaughter of Paul Clyde.

A SON OF SIR PIETERTJE ORMSBY MERCEDES 43d, out of a granddaughter of Sir Johanna Ruth Fayne with 782 lbs. butter in 313 days.

A SON OF SIR PIETERTJE ORMSBY MERCEDES 43d out of a heifer with 570.27 lbs. butter in 295 days as a junior 2 year old, second dam a 30 lb. granddaughter of Colantha Johanna Lad with 1129 lbs. butter in one year.

SONS OF SIR AAGGIE MEAD, out of dams with most substantial breeding and records.

SONS OF SIR BESSIE FOBES TRITOMIA, out of richly bred dams, many with good records.

This is the Only Herd in California Under Federal Supervision

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested by a Federal veterinarian and sold subject to retest by the buyer.

TOYON FARM is about 20 miles Northwest of San Jose, about 8 miles southeast of Palo Alto.

HEADQUARTERS OF SALE will be Hotel Montgomery, San Jose, and you should make reservation early as this hotel is usually full.

Management

California Breeders Sales and Pedigree Company

C. L. Hughes, Sales Manager, Sacramento, Cal.

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

VALUE OF BARLEY FOR SWINE FEEDING

The Wisconsin experiment station has carried on extensive feeding tests with barley and has the following to say concerning its value as a hog feed:

"The fact is that good quality barley so closely approaches corn in feeding value, pound for pound, for swine is of tremendous importance to farmers. Not only is the feeding value higher than that of oats, especially for fattening animals, but barley also produces on the average 19 per cent more pounds of grain an acre than does oats. Many farmers would profit by growing barley on some of the land that they now devote to oats."

"The Badger authorities maintain that it pays to grind barley for swine rather than soak it. Their experiments proved that soaked whole barley was worth only 60 cents a bushel for feed compared with a value of 89 cents for the ground barley. The ground barley is also especially well adapted for self feeding, as it is palatable and the pigs thrive on it.

"As is well known, barley is considerably richer in protein than is corn, hence less protein-rich supplement is required to balance the ration. Ground barley and tankage mixed form an ideal self feeder ration. The Wisconsin people say that their experience has led them to conclude that the following proportions

are about right to use in a mixture of ground barley and tankage for pigs of various ages:

"For pigs weighing up to 50 pounds, 11 to 14 per cent tankage, the rest ground barley; 50 to 75 pounds, 8 to 11 per cent tankage; 75 to 100 pounds, 6 to 8 per cent tankage; 100 to 150 pounds, 4 to 6 per cent tankage; 150 to 200 pounds, 3 to 4 per cent tankage; 200 to 250 pounds, 2 to 3 per cent tankage."

ROSE OF THE RANCHO

Rose of the Rancho 100798, Guernsey cow owned by the Brant Rancho, Owensmouth, has recently completed a record that placed her seventh in class F of the Advanced Register. She began her record at the age of two and one-half years and her year's work amounted to 14,731.2 pounds of milk and 707.27 pounds of butter fat.

This is the second daughter of the Brant Rancho herd sire, Newgrove King of Briarbank 27362, to qualify for the Advanced Register. The first was Elsie of the Rancho 89755, that held tenth place in class DD. Newgrove King of Briarbank 27362, therefore, enters the Advanced Register with two Class Leader daughters.

Newgrove King of Briarbank 27362 was a first prize winner wherever shown for the Brant Rancho, and his sire and dam were grand champions at the Michigan State Fair and winners at the National Dairy Show in 1911. His dam Imp. Newgrove Queen 23647, is one of the best daughters of Imp. Masher's Sequel 11462, with 639.33 pounds of butter fat.

Another California High Producer.
Rose of the Rancho, property of Brant Rancho, and her milker, Lester Kearney.

The dams of both Elsie of the Rancho 89755 and Rose of the Rancho 100798 are in the Advanced Register. Elsie of the Rancho 89755 exceeded the record of her dam by 71.09 pounds of butter fat and Rose of the Rancho 100798 exceeded her dam by 389.89 pounds of butter fat, an average increase of 68.9 per cent.

Rose of the Rancho 100798 ranks third among all two year old Guernseys in milk production, being exceeded by Nugget's Primrose 48835 and Katherine's Trixie 100396. She was a persistent milker, giving over 1,000 pounds during each of her 12 months. Her maximum was in January, her second month, when she produced 1,025.6 pounds. On the last day of her test she produced 33.6 pounds of milk, testing 5.78 per cent. Her butter fat production for full months varied from 51 pounds in August to 68.45 pounds in March.

PURE BRED FEMALE STOCK

According to figures announced by the United States department of agriculture, livestock owners in the United States show a tendency toward pure bred female animals as well as toward pure bred sires. In fact, the use of well bred sires appears to increase the use of good females. During the period October 1, 1919, to March 31, 1920, the quality of female stock kept in herds and flocks headed by pure bred sires was 48.3 per cent pure bred and 2.5 per cent scrub. The remaining number were grades or crossbreds Later figures covering the period October 1, 1919, to December 31, 1920, show that the number of pure bred females kept under corresponding conditions had increased to 55.9 per cent and scrubs had fallen to 2.1.

These figures are based on a knowledge of the breeding of nearly 400,000 head of animals and poultry. In the opinion of department livestock specialists the more general use of pure breds of both sexes on farms in the United States is increasing. In about a year, it appears, the increase in the use of pure bred females by pure bred sire users has been at least 7 per cent.

A Water Users Association has been formed in the Florence Valley of Arizona and officers are to be elected today (April 9). Members are the landowners under the acreage to be irrigated from the diversion dam which the government is expected to build shortly.

FREE BOOKLETS ON

FARM SANITATION

The following booklets tell how to prevent disease among livestock and poultry and give directions for using

Kreso Dip No. 1

(STANDARDIZED)

PARASITICIDE AND DISINFECTANT

which is specially adapted for use on all

Livestock and Poultry

BOOKLETS

No. 151—FARM SANITATION. Describes and tells how to prevent diseases common to livestock.

No. 157—DOG BOOKLET. Tells how to rid the dog of fleas and to help prevent disease

No 160—HOG BOOKLET. Covers the common hog diseases.

No. 185—HOG WALLOWS. Gives complete directions for the construction of a concrete hog wallow.

No. 163—POULTRY. How to get rid of lice and mites, also to prevent disease.

Kreso Dip No. 1 is sold in original packages at all drug stores.

ANIMAL INDUSTRY DEPARTMENT OF

PARKE, DAVIS & CO.

DETROIT, MICH.

JERSEYS

Venadera Herd

Offers some excellent young bulls ready for service. Sired by Japs Perfection Owl. Out of cows with Register of Merit records. Also a few heifer calves.

GUY H. MILLER
Route 1 - Modesto, Cal.

Young Jersey Bulls

FOR SALE

One at the head of your herd will pay big dividends on his cost. Write to

W. J. Hackett
Modesto Cal.

TIM ANSPACH
Livestock Auctioneer
30th & R Streets Sacramento, Cal
Write or Wire for Sales Dates

For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

D. G. Cummins & Son
Route 1 Visalia, Cal.

First Individual Public Sale

60 REGISTERED HOLSTEINS 60

Santa Anita Rancho

OWNED BY ANITA M. BALDWIN

SANTA ANITA, CAL.

Tuesday, April 26, 1921

A large number of high record cows and daughters of high record cows of splendid breeding in this sale are bred to the $41,000.00 bull KING KORNDYKE PONTIAC ACME, one of the very greatest young bulls the breed has yet produced.

Seldom does the opportunity present itself to buyers to select from so many high record, richly bred females as will appear in this sale, which includes all of the high record cows at Santa Anita Rancho, among them

A 35 POUND COW that milked 112 pounds in one day. Bred to King Korndyke Pontiac Acme.

A 34 POUND granddaughter of King of the Pontiacs, now on yearly test.

SUNDRIE SUNBEAM GIRL, the famous cow that made 1033 lbs. butter from 28.905.9 lbs. milk in one year after dropping triplets. She recently freshened again, has increased her 7 days record. and is now milking over 100 lbs. per day.

A 22 POUND JUNIOR 3 YEAR OLD daughter of Sundrie Sunbeam Girl, heavy with calf to Prince Walker Cornucopia.

27 AND 24 POUND DAUGHTERS of the 1117 pound yearly record cow Mosetta Mutual Paul Johanna, both on yearly test.

A 27 POUND DAUGHTER of Johanna McKinley Segis. Now on yearly test and will finish the day after sale with right around 1000 lbs. butter.

MANY OTHERS with records up to over 26 pounds butter in 7 days, including a splendid lot of 2 and 3 year olds.

Two Herd Bulls Will Sell

MERCI LAD KORNDYKE BURKE, by De Kol Hengerveld Burke and out of Winnie Korndyke Cornucopia De Kol, the first cow to make over 1200 lbs. butter in one year in California. He was Grand Champion bull at 1920 California State Fair, and has a fine list of A. R. O. daughters with records up to over 30 lbs. butter and 600 lbs. milk in 7 days for a junior 4 year old.

PRINCE WALKER CORNUCOPIA, the highest record son of Prince Gelsche Walker. his dam being Alba Sadie Cornucopia Creetia, twice over 34 lbs. butter in 7 days. best record 36.18, and she made 866.28 lbs. butter in one year at a previous freshening. He is a first class individual and qualified to go to the head of any herd.

A CHOICE LOT OF YOUNG BULLS will appear in the offering, all sired by Prince Walker Cornucopia and out of dams of most popular breeding.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer.

Catalog Free on Request

Auctioneer:
Col. Ben A. Rhoades
Los Angeles

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Calif.

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Baby Chicks — We have the following varieties of Thoroughbred Baby Chicks every week: White Leghorns, Anconas, R. I. Reds, Fancy Dark R. I. Reds and Barred Rocks. We use only well selected eggs from rigidly culled flocks. BY SPECIAL DELIVERY. This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition, and in the shortest length of time. You should send for price list and put your orders in now. Orange County Hatchery, Harold C. Hebard, Prop., Santa Ana, California.

Petaluma Hatchery — Established 1902. Capacity 30,000 chicks a week. White Leghorn chicks from heavy laying free range stock after April 15th, $15.00 per 100, $140.00 per 1000. During May and June $14.00 per 100, $130.00 per 1000. Brown Leghorns $1.00 per hundred more than White Leghorns. We positively guarantee safe arrival and full count of good strong chicks and no questions asked. L. W. Clark, Proprietor, 615 Main Street, Petaluma, California.

Eggs, Chicks Reduced Remainder of Season. Our early maturing, heavy winter laying, 180-290 egg Leghorns, Anconas, Reds, Rocks, Minorcas (ducks, turkeys) often clear customers $5.00. 140,000 electrically hatched. "My pullets laid at 4½ months, cleared $1.00 each January." "Get more winter eggs from 60 your hens than from 200 formerly." Write (rarely home). Profitable Poultry, 19 North Fair Oaks, Pasadena.

S. C. White Leghorn Baby Chicks from heaviest laying (Hoganized) stock. Safe delivery live vigorous chicks guaranteed. No money in advance; pay on delivery. Prices for May and June $5.00 per 25, $9.00 per 50, $14.00 per 100. Special prices 500 and 1000 lots. Largest electric hatchery in the World. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh Street, Petaluma, California.

Hillview Buff Plymouth Rocks — An American bird for Americans. Splendid layers, fine broilers and fryers, beautiful in color, the ideal for the farm, city lot or show room. Blue ribbon winners 1920 in Oakland, Riverside and San Diego shows. **Eggs for hatching from our best matings** $5.00 per setting of 15, commercial eggs $3.00 per setting. Hillview Poultry Ranch, Chatsworth, California.

Sly's Old Mission Strain Rhode Island Reds — Quality unsurpassed. Matings represent highest development in exhibition and utility values. Settings $3.00, $5.00 and $8.00 fifteen eggs. Catalogue free. Albert Sly, 1642 (D) Middleton Place, Los Angeles.

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Baby Chicks from My Hoganized, heavy laying strain of pure bred S. C. White Leghorns, May and June delivery, at the very reasonable price of $13.00 per 100, $60.00 per 500. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks — Barred Plymouth Rocks and Rhode Island Reds in 25, 50 and 100 lots 20c each. Hatching eggs $2 per 15. We ship by Parcel Post, pay all charges. Write for circular. Hargett & Son, Route 2, Compton, California.

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. Eggs from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

Baby Chicks hatched to order from Black, White and Buff Minorcas. Eggs for sale. Also 4 White Minorca Cockerels $5.00 and $10.00 each. Black Cochin Bantam Eggs. Horace W. Crowell, 58 N. Craig Avenue, Pasadena, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Baby Chicks—White Leghorns, 10s, 100s, 1000s hatched right in $60,000 brick and concrete hatchery from Hoganized, Trapnested heavy layers. PEBBLESIDE POULTRY FARM, Sunnyvale, California.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Exhibition Quality Reds, trapnested, bred to lay. Write for descriptive circular. Satisfaction guaranteed. T. S. Caldwell, 335 B West Broadway, Glendale, Calif.

Hoganized Rhode Island Red Eggs for hatching, $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Baby Chicks—Can book a few more orders S. C. White Leghorns, McFarland strain. Mrs. F. C. Reineking, Inglewood, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jesch, Fallon, Nevada.

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It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

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Get Chicks Now and have layers for next winter when eggs are high. Hatches every week. Prompt reliable service. Safe arrival of vigorous chicks from good layers guaranteed. Hatched by electricity. White and Brown Leghorn, R. I. Red, Barred Rock. Reasonable prices. Stubbe Poultry Ranch and Hatchery, Box 67-D, Palo Alto.

We Can Supply You With thoroughbred utility S. C. White Leghorn chicks from heavy layers in 100 or 1,000 lots from Hoganized and trapnested stock. Order now for spring delivery. Write for hatching dates. Forster Brothers, 2918 Otis Street, Berkeley, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

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White Leghorn Baby Chix from heavy-laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Price for April, May and June, $14.00 per 100. The Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

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Baby Chicks hatched from our utility S. C. White Leghorns, a result of many years selecton and breeding for egg production. San Jose Poultry Yards, Fifteenth and Margaret Streets, San Jose, California.

"Better Hatched Chicks"—S. C. White Leghorns, R. I. Reds. Our chicks are Bred Right, Hatched Right, Priced Right, Delivered Right and they Grow Right. Hatch each week. San Diego County Hatchery, San Diego, California.

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Baby Chicks — Can book a few more orders for early S. C. White Leghorn and S. C. Rhode Island Red chicks. Tupman Poultry Farm, Box 7C, Ceres, California.

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

For Sale—White Wyandotte eggs, $2.50 per 15, $9.00 per 100. Mrs. Flora Cox, Anaheim, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

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Mammoth White Pekin Duck Eggs for hatching, $1.00 per dozen. A. Surtman, Petaluma, California.

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Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

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Orland, California.

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Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

Big Type Poland Chinas—Breeding stock of both sexes for sale at all times. Prices reasonable. J. N. Cook, Orland.

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Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

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For Sale—1-75 Holt Tractor, good condition; 1 Sandusky Tractor, Model J, new, never been used; 2 2nd hand Sandusky Tractors, Model J; 1 Sandusky Model E, 2nd hand rebuilt. Will accept any reasonable offer on any of the above. Address Hogue-Kellogg Company, Ventura.

Merry Garden Auto Cultivator—Pulls a five inch plow six inches deep in sand, adobe or clay. Price fully equipped $275. Dwight E. Smith, Southern Distributor, 1645 No. Normandie Ave., Los Angeles.

For Sale — Waterloo Boy Tractor, Good Condition. Phone 724-R-1, Alhambra Exchange, San Marino Ranch, San Gabriel, California.

Wanted—Orchard tractor and automobile in exchange for citrus nursery stock. W. B. Ames, San Dimas, California, 1 mile west of town.

For Sale—10-20 Titan International Tractor at bargain price. Call or write Spencer, Haigh & Koster, 146-148 North Los Angeles Street, Los Angeles, California.

MISCELLANEOUS

For Sale—300 hives of bees all three stories high. Sell as a whole or in part. Ten frame standard equipment, A1 shape. Self spacing frames built on wired foundation. Mostly 1920 queens bred for business by an expert. Hives full of bees and brood and uniform in strength. The pick of 1400 hives. Delivery May 20th. Price $15 a hive. Sam P. Nealey, Owner, Rialto, San Bernardino County, California.

Ship Your Hay to Us and receive cash when car is unloaded. Pacific Growers Exchange, Central Bldg., 6th & Main Sts., Los Angeles, Pico 3384. Alex. Thornton—Gordon Davidson.

Mesquite Honey—Can 60 pounds $6.50. Five case lots $10.00 per case, 120 pounds. F. O. B. Parker, Arizona. G. E. Striplin.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

Kentucky Tobacco, Natural Leaf; smoking, 10 lbs. $2.50, 20 lbs. $4; chewing, 10 lbs. $3; 20 lbs. $5. R. F. Veal, Sedalia, Ky., Agent.

WANTED

Wanted to Rent—Small ranch with option to buy, where we can keep a few cows and poultry, where can raise plenty of feed. Would consider few good cows. Give location and full description of land and water conditions. (No desert land.) W. A. Linkletter, Calipatria, California.

Manager and Salesman of large ranches, citrus and farming over 20 years in Southern California. Unqualified testimonial to efficiency. Position wanted. Address Manager, 628 N. Alexandria Ave., Los Angeles. Phone 597784.

Want to Hear from party having farm for sale. Give particulars and lowest price. John J. Black, 116th St., Chippewa Falls, Wisconsin.

Wanted: A few more contracts for the growing of citrus nursery stock. Address R. F. D. 215, Upland, California.

Wanted to Lease 20-40 acre alfalfa ranch. Highest cash rental paid. Box 9, Cultivator.

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Thorough, Complete and Practical courses in Civil, Electrical and Mechanical Engineering, Automobile Engineering and Machine Shop. One of the best equipped schools in the United States. No time wasted in non-essentials. Students do actual engineering work. Address Polytechnic College of Engineering. Oakland, California.

LIVESTOCK

For Sale — Seven 2 year old goats, from heavy milkers, fresh in May. All bred to thoroughbred Toggenberg bucks, 2 Toggenberg, hornless; 3 Toggenberg and Saanen hornless; 1 Toggenberg; 1 Saanen with horns. W. L. Lutz, R. 3, Santa Ana.

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

CATTLE

AUCTION SALE

17 GUERNSEY BULLS

of all ages out of imported and high record dams will be sold in our big dispersal sale on

April 28

HOLLOW-HILL FARM—Colton Management
California Breeders Sales & Pedigree Co.
C. L. Hughes, Sales Manager,
Sacramento, California.

For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Ayrshires—A few well marked and well put up bull calves from high producing stock. Wyndham Dairy, Redding, Cal.

SEEDS AND PLANTS

Vegetable Plants — Strong Transplanted Stock. Ready now Early Jewel, San Jose Canner, Beefsteak, Burbank, Stone TOMATO, Cabbage, Cauliflower, Sweet Potatoes 20c doz., $1.25 per 100. Bell, Mexican Chili, Pimiento Peppers 25c doz., $2.00 per 100. Postpaid anywhere in California. H. A. HYDE CO., WATSONVILLE.

Peas—"Blue Bantam" earliest and sweetest of all table peas. Heavy yielder, 15c per lb. SEVIN-VINCENT CO., Seedgrowers. Established 1860. 512 Washington Street, San Francisco, California.

R*O*S*E*S—$1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Grafted soft shell walnuts, Placentia, Perfection and Eureka 7 to 8 feet $2.00. Write for catalogue C. KAVAN NURSERIES, San Bernardino, California.

Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch—767 S. Central Avenue, Los Angeles, Cal.

50,000 Vines, rootings, Thompsons, Emperors, Sultana, Muscats, $30.00 a 1000. Fruit trees, berry plants, farm and garden seeds. Box 501, Fowler, California.

For Sale—Millions of tomato, egg plant, celery, pepper, rhubarb and other plants. L. C. Johnson, 795 W. 7th Street, Pomona.

For Sale—Dwarf Red Milo Seed. Selected stock. Heavy producer. Eight cents per lb. delivered C. O. D. or check. C. E. Newman, Chowchilla, California.

Sweet Potato Plants—Yellow Jersey, $4.00 per thousand. F. O. B. W. E. Van Gorder, R. 5, Box 91, Santa Ana.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination. 25c per lb. Aurora Seed Mill, Stockton, California.

Sweet Potato Plants — Large or small lots. 16551 West Sherman Way, A. L. Feldschan, Van Nuys, California.

California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

Plant Rhodes Grass Now—Write Imperial Valley Seed House, El Centro.

Thornless Blackberry Plants 25c. Address R. 9 Box 499, Los Angeles.

Durango Cotton Seed—See display ad of Boston Land Company in this issue.

MACHINERY

Owing to Illness Have Had to Give Up My Farming Interests and will dispose of my equipment, consisting of a Trundaar Tractor, 3-4 Gauge Moline Engine Disc Plow, 6 ft. Moline Double Disc Harrow, Gardiner Combination Furrower and 9 ft. Cultivator, 4 row Ventura Bean Planter, 2 row Planet Jr. Bean Cultivator, No. 26 American Bean Thresher, 2 100 gal Gasoline Tanks and 2 50 gal. Oil Tanks. Will sell as a whole or singly at less than half cost. J. B. Reeve, 229 West Amerige Ave., Fullerton, California. Phone Pacific 93-W.

For Sale 50 rebuilt windmills, 50 new and used tanks.
50 brass cylinders, rods, plunger pumps 1-in. to 30-in. capacity.
Why pay more? When you can save so much these times. Send for bargain sheet. Demmitt Co.'s. Office 120 North Main, Los Angeles. 15191.

For Sale—2 bottom 14 inch Oliver Tractor Plow, almost new. Price $125.00. Horace M. Dobbins, 53 West Colorado St., Pasadena.

ROOFING MATERIAL

SPECIAL SALE

The largest roofing dealers in the West
GUARD ROOFING COMPLETE
1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35
PIONEER SANDED ROOFING COMPLETE
1-Ply $1.70; 2-Ply $2.20; 3-Ply $2.65
Roof Paint Special, 40c a gal., $2.00 for 5 gal. can. We carry a full line of roof and house paints.
Prompt deliveries on Mail Orders.
ANGELUS ROOFING & PAPER CO.
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PHEASANTS

Beautiful Ringneck Pheasants $12 pair, one fine male $5. Eggs $5 setting. Pause Pheasantry, Fairoaks, California.

TREES

For Sale—All kinds of citrus nursery stock, one and two year buds, fine roots. Y. Yamaguchi, Upland, 10th Street and Cucamonga Avenue. Phone 386-W.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

Citrus Nursery Stock for Sale—Oranges, lemons and grapefruit. Strong, vigorous stock, selected buds. Wholesale and retail. Mr. Ames, with Lone Hill Citrus Association, San Dimas, California, 1 mile west of town.

5,000 Valencias; 2,000 Eureka lemons; 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

For Sale — 10,000 Florida Sour Orange Seedlings, very fine. Two year old Valencia Orange and Eureka Lemon Trees. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

We Have Citrus Trees, Berry Plants, Tomato Plants, Thompson Seedless Grapevines. California Wonder Corn and Elephant Grass are big producers. Send for catalog. Bishop's Nursery, Highland.

Florida Sour Seed-Bed Trees, six to twelve inches high. Straight roots. Stocky trees. Highest quality. L. A. Tuttle Nurseries, Route 1, Pasadena.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Budded Orchards. Top Worked Results guaranteed. L. A. Tuttle, R. 1, Pasadena.

TURKEYS

Turkeys — "Goldbank Boy." Champion Giant Bronze young tom. First Prize Cockerel at the New York, Madison Square Garden Show, the premier show of America, with 4311 poultry exhibits, held January 18th to 22nd, 1921, has just been imported by us, arriving at our mountain ranch February 26th. His sire, "Goldbank VIII," was grand champion at the same show, winning first in Cock class. We have mated this young champion bird to a limited number of twenty and twenty-one pound fancy, highly colored, eastern bred hens, also just imported. No eggs of this strain for sale this season at present.

A thirty-six pound yearling son of "Copper King V," the famous thirty-eight pound yearling giant bronze grand champion of the 1919 Madison Square Garden Show, will head our other flock—having mated him to our choice twenty pound hens. Egg prices reasonable. Two young toms of this last strain on hand for immediate delivery. For further particulars address: Bronze King Mountain Farm, Box 308, Calistoga, Napa County, California.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

"Goldbank" Strain — Giant Bronze turkey toms. Partridge Plymouth Rock chickens. Chicken and turkey eggs in season. M. M. Reiman, Planada, California.

Turkey Eggs—Mammoth Bronze — Write for folder. Guarantee stock built up by 5 years of untiring effort. Andrews & Andrews, "Bo-K-Haunt" Hemet, Calif.

For Sale—White Hollands, Quality, Size and Vigor. Tom $15, eggs 50c each. Blue ribbon flock header. L. A. Robinson, Hemet, California.

White Holland Turkey Eggs, 75c each, guaranteed. Pause Pheasantry, Fairoaks, California.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St., Pomona, California.

Mammoth Bronze Turkey Eggs 30c; R. I. Red and Black Minorca eggs 10c. W. L. Duvall, Franklin Avenue, Pomona, California.

FARM LAND FOR SALE

CALIFORNIA IRRIGATED LANDS Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192 Indio, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

15 Acre improved irrigated ranch, alfalfa, oats, orchard and berries, R. D. 1 Box 14, Los Molinos, Calif.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

RABBITS

Pedigreed Fleming Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

THE RICHEST POOR FARM

(Continued from Page 499.)

Superintendent Harriman gives a most informing statement as to the steps by which this increased production was secured.

By Superintendent Harriman

The first great improvement was made by the use of King Jones Homestead, 129493. Although out of an untested dam, the excellent quality of his near ancestors made him very prepotent for good. He was a double grandson of Fobes Tritomia Mutual De Kol and both his granddams were daughters of Homestead Junior De Kol. This makes him 75 per cent the same blood as Lady Oak Fobes De Kol, 36.44 and 991.5 pounds in 365 days. Also Jessie Fobes Bessie Homestead, former world record four year old with 34.96 in seven days and 142.16 in 30 days. The sire only had three daughters which were given the benefit of advanced registry testing, and one of them became California state record four year old for milk in 30 days, with 2,772 pounds. One son of the above bull was also used for three years.

In December, 1916, we purchased a son of our present senior herd sire, King Segis De Kol Mead, and many of his heifers are now coming into milk, most of them, however, from grade cows. This bull was out of a 34 pound daughter of King Pontiac Topsy, was an excellent individual and transmitter as well. One of this bull's grade daughters recently freshened and in the first five weeks made as much milk as her dam produced in her entire first lactation period. We have a few registered daughters of this bull which will be placed on test as they freshen.

We later purchased a daughter of King Segis De Kol Mead which gave birth to a fine bull calf from a Colantha Johanna Lad grandson, and this bull has been used here for some time. The dam of this bull, Whittier Pontiac Netherland 4th, is the oldest daughter of King Segis De Kol Mead to be given the benefit of an official test.

As a junior four year old she made a record of 28.75 pounds butter in seven days and is being continued for yearly test. She is being milked three times a day in the stanchions with a hundred others and is receiving no special treatment other than an allowance of grain in proportion to her production, yet has produced 411 pounds of butter in three and one-half months. This is the third yearly test period for this cow and she has given us three calves in two years and three months preceding her last freshening. This cow is remarkably persistent, a regular breeder and a wonderfully fine individual, and was in fact one of the principal reasons for our recent purchase of her sire.

Having used a son and then a grandson of King Segis De Kol Mead and having studied three of his daughters in this herd, we welcomed the opportunity to purchase him last December, as we believe that his good qualities will be strengthened by line breeding with King Korndyke Pontiac Mead, the wonderful young bull which we purchased last May from A. W. Morris & Sons. This young bull is a son of De Kol of Valley Mead 2d, a 1,000 four year old that produced an 1,100 pound three year old daughter, and is sired by King Korndyke Pontiac 20th. King Segis De Kol Mead is a son of De Kol of Valley Mead, who is the founder of this famous California family and is a paternal brother of Segis Pontiac De Kol Burke, whose daughter, Miss Aaggie Acme Burke, is dam of the $41,000 Baldwin bull. We believe that this cross must inevitably produce individuals with the character and producing ability of the wonderful ancestors back of these two sires. Our first three heifers from King Korndyke Pontiac Mead have arrived during the past month and we have great hopes for their future.

LEGAL QUERIES

(Continued from Page 491.)

why the whole of the estate should not be assigned to the use of the family. If, on hearing, the court finds net value of estate over encumbrances of record of the widow upon the date of the death of the deceased does not exceed the sum specified, the court by decree assigns to the widow, or in case there be no widow, then to the minor children, the whole of the estate subject to encumbrances and after payment of the expenses of the last illness, funeral charges and expenses of administration. The whole of the title thereupon vests in the widow and no further proceedings in administration are then required. In the first instance a petition for administration is required and administrator appointed and thereupon the proceedings above described taken.

Juvenile Court Will Aid

There is a family of father, mother and six children. The oldest child is 16 and the rest range down to six years. The father has met with a severe accident, throwing the support on the mother and children. The oldest boy has come under the baneful influence of a designing person and fails to do his duty to the family. The result is that the family are liable to lose their property. What can be done?—Subscriber, Oxnard.

The case is quite clearly one for the care of the juvenile court, under the provision for dependent children. This provides that in case the parent of a child is unable to exercise proper parental control or where the child is in need of such control or where the father cannot provide for the necessities of life and has no means to provide for such necessities or where the minor persistently refuses to obey the proper orders or is beyond the control of his parent or is in danger of leading an idle life, such child may be declared a dependent person and placed under the juvenile court. Aid could also undoubtedly be obtained for the family from the mother's pension law. By invoking the aid of the juvenile court it does not mean that the child is made a criminal in any respect, but the stronger authority intervenes where it is found that such authority is necessary.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

of California Cultivator, published weekly at Los Angeles, Cal., for April 1, 1921.

STATE OF CALIFORNIA,

County of Los Angeles, ss.

Before me, a Notary Public in and for the State and County aforesaid, personally appeared Frank J. Ironmonger, who, having been duly sworn according to law, deposes and says that he is the publisher and business manager of the California Cultivator and that the following is to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

NAME OF—	POST OFFICE ADDRESS
Publisher, Cultivator Publishing Co.,	Los Angeles, Cal.
Editor, C. B. Messenger,	Los Angeles, Cal.
Managing Editor.	
Business Mgr., Frank J. Ironmonger,	Los Angeles, Cal.

2. That the owners are (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding one per cent or more of the total amount of stock).

Cultivator Publishing Co.,	Los Angeles, Cal.
R. M. Teague,	San Dimas, Cal.
Frank J. Ironmonger, Hollywood,	Los Angeles, Cal.
J. H. Yetter,	Los Angeles, Cal.
W. R. Wood	San Dimas, Cal.
E. H. Sanford	Claremont, Cal.

3. That the known bondholders, mortgagees, and other security holders owning or holding one per cent or more of the total amount of bonds, mortgages, or other securities, are: (If there are none, so state). None.

4. That the paragraphs next above, giving names of owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holders appear upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest, direct or indirect, in the said stock, bonds, or other securities as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is ... (This information is required from daily publications only.)

FRANK J. IRONMONGER, Business Manager.

Sworn to and subscribed before me this 29th day of March, 1921.

(SEAL) ROBERT WHITFIELD.

Notary public in and for Los Angeles County, Cal.
(My commission expires April 4, 1923.)

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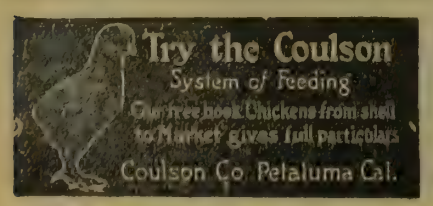
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The Case for the Capon

By Jean A. Koethen

"CAN you give me some information in regard to capons?" writes a Whittier subscriber. "At what age are they marketed? What should Rhode Island Reds weigh? What would be a fair guess at cost of raising? How much feed would they consume? Is there a market in Los Angeles and how does it compare with San Francisco? How does it compare with Eastern markets? Do capons have to be dressed or can they be shipped alive? What are they fed mostly? What would be the difference between live and dressed birds in price?"

One of the strongest arguments for caponizing is that the birds can be marketed at any age. The flesh of a rooster becomes hard and tough by the time he is six months old. He must be marketed as a soft roaster at four or five months or he is worth very little. Capons are usually held till they are about a year old, when they should weigh around ten pounds, though their weight not infrequently reaches 12 or even 14 pounds. At this age, when a rooster would be only soup meat, the capon is as tender and delicious as a young pullet.

The weight of capons of the American breeds is around ten pounds. Light Brahmas and Orpingtons are heavier. The vigor of the stock and method of feeding, however, are just as important in determining weight as they are in determining egg production.

The cost of raising capons is about the same as that of feeding a laying hen, possibly a little less. Some capon producers let the capons run with the hens. It costs about $2 to bring a pullet to six months of age, or laying maturity, and last year it cost $3 a year to feed her after she began to lay. Feed is cheaper now, and it is hard to say what it will cost to feed either pullet or capon. Three dollars for bringing a capon to the age of one year would be a safe guess, and it may be less. A laying hen consumes from 75 to 90 pounds of feed in a year.

A Growing Market.

A couple of years ago commission men told me there was very little demand for capons in Los Angeles. There is now, they say, a steady and growing market. Prices here and in San Francisco are approximately the same. Capons retailed this season for 65 and 70 cents a pound and were bought by wholesalers for 46 to 52 cents live weight. A man who raises a good many tells me he is able to sell them all in his own neighborhood. He charges five cents a pound for dressing, selling the birds for 65 cents alive or 70 dressed.

I have no figures as to Eastern prices, but from the fact that Farmers Bulletin 349, U. S. department of agriculture, says capons sell in season for 25 to 35 cents "and often more," I judge the Los Angeles market is at least as good. Capons, like other market fowls, are shipped alive. For private sale to a hotel or restaurant they might be dressed, but that would be by special arrangement. In the vicinity of Los Angeles one may almost always get in touch with a buyer who drives around and collects market poultry. The price paid is not quite as good as may be had by shipping direct to the city, but when you count all expenses there is not much difference.

Feeding Capons

A young capon for several months after the operation requires a good growing ration, such as all young birds should have. A good deal of green feed is desirable all through its life. In the fall, toward marketing time, the ration may be made more fattening than is given pullets by the addition of corn meal oats to the laying mash. Later on moist mash may be given once or twice a day. If it is possible during the last two weeks of fattening to keep them in crates and feed as broilers are fed there will be greater weight and greater profit.

Poultry Queries

Conducted by Jean A. Koethen

Mating Turkeys

I have three turkey hens but no tom. Will the hens mate with a neighbor's tom if he is put in the yard? I have been told that after the hens have laid a clutch of eggs and go broody they will mate. Is this true?—Subscriber, Corona.

The hens will mate as soon as they have been with the tom long enough to feel acquainted, and one mating fertilizes a whole clutch of eggs. Breeders, however, keep a tom with a pen of laying turkeys all the time. They say this is the only way to be certain of fertility. As you have only three hens I think you might expect fertility after two or three weeks.

Does the Germ Show?

After breaking an egg is it possible to know positively whether or not the egg is fertile? By what sign?—Subscriber, Corona.

I know of no way of distinguishing a fertile from an infertile egg before the germ begins to develop. On every egg, when it is broken, may be seen a little white spot. This receives the germ, but as far as I know, there is no change in its appearance until incubation begins. I may be mistaken If I am, somebody correct me.

White Comb

I have close to 1,000 year-old Leghorn pullets in large yards with houses 18 by 20, 150 pullets to the house. A month ago they had nice red combs but lately the combs have turned rather gray, like sunburn. They seem well and are laying better than 50 per cent. They have green barley twice a day, a mixture of dry and sprouted grain at night, dry grain in morning, mash all day, wet mash every other day. — Subscriber, San Gabriel.

Your hens are certainly well fed and their laying indicates there is not much wrong. I think they are getting a little out of condition from heavy feeding without quite enough room to move around in. There is a disease called "white comb," believed to be due to "dirt, over-crowding or lack of green feed" which is a good deal like the condition described. If you could give them 3 or 3½ square feet of floor space apiece instead of less than 2½, and increase the amount of greens so that they have a little before them all the time, it would be better.

Chicken Manure

Can you tell me how to handle chicken manure to keep flies away? I keep mine in a box, but the odor and flies annoy my neighbors.—Subscriber, Glendale.

A manure pit seems to be the proper thing. Dig as deep a hole as you can, and each time you put in manure, cover it with dry dust or sawdust and acid phosphate or kainit. The dust and phosphate keep the nitrogen from escaping, and there should be very little odor. Possibly you can accomplish the same end with a tight box.

Paralysis

Several of my five-month's old pullets have been stricken with paralysis. The droppings are variously colored; none of them normal. Can you help me?—Riverside.

Those pullets have eaten something that poisons them. What, is the question? Such cases have been reported

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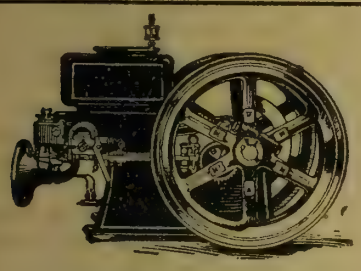

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in flocks that have been fed dirty or spoiled grain or corn that has heated or become moldly. Hens that are on range sometimes get hold of a dead chicken or gopher, and ptomaine poisoning results. Sometimes they get a bit of some of the poisonous chemicals used in spraying trees, and this poisons them. Better shut the flock up while you make a thorough investigation. Sometimes the beef scrap in the mash is not as fresh and sweet as it should be. After you shut up the birds drop the laying mash for a while and feed plain bran insead. Examine the feed carefully, especially the corn. A little mold in corn sometimes works havoc in a flock. As you say there are 85 pullets and only half a dozen are affected, it looks as if the trouble were due to something they have picked up outside rather than to anything in the feed.

Limber Neck

My hens seem to have crooked necks. Sometimes they stretch them and the neck inclines to one side. I feed rolled barley, mash and milo.—Subscriber, Redlands.

Please note answer to Riverside subscriber. Both paralysis and limberneck are due to intestinal disturbance which almost always comes from some kind of spoiled food. Intestinal worms sometimes produce the same symptoms, but you would know if they had worms. Examine the feed carefully and make sure there is no mold or spoiled beef scrap or other meat. Your ration is rather limited. You do not mention green feed, which is very important, and it would be better to feed three grains than two.

Cripples

Mrs. C. A. M., of Norman, Oklahoma, writes in regard to incubator cripples: "When I read the answer to Mrs. K. B. H., Redlands, I felt in all fairness to those helpless little chicks I ought to tell my experience. I have used several incubators for over 15 years and have found that cripples are the result of not turning and rolling the eggs thoroughly. This stirring gives the embryo chick the exercise it cannot get otherwise. Just as a child's limbs need exercise to keep them from getting stiff, so do the little limbs of a chick require motion to develop the muscles. I had a neighbor who said it was all bosh to turn and roll the eggs two or three times a day and to prove it she just turned the number on her eggs up in the morning and down at night, and out of 100 eggs she got 47 cripples."

Doubtless Mrs. C. A. M. is right in saying failure to turn the eggs is one cause of cripples, but that it is not the only cause is proved by my own experience. The first incubator I ever owned was set up without the oversight of the agent, and the thermostat was put in upside down so that it was impossible to control the heat. At hatching time the heat ran very high and nearly every chick that hatched was a cripple. If I recollect rightly, we got ten sound chicks out of 30 or 40. I ran several incubators after that, and ran this one after the thermostat was fixed another season, always turning the eggs according to directions twice a day, as I had the first time, but I never had more than an occasional cripple, except in one or two cases where I knew the heat had run too high at hatching time.

The cooperative marketing bill passed in the last Arizona legislature has become a law upon signing by Governor Campbell. This law combines the good features of the California cooperative marketing law and does not conflict with the Arizona laws governing the corporations of the state. It will be taken advantage of immediately by the cotton growers of the Salt River Valley.

Citizens of Gallup, New Mexico, are planning to turn out to work about 20 miles of road west from that town into Arizona. It has also been suggested that possibly the citizens of Clifton, Duncan and Franklin, Arizona, may offer a "reprisal" in the form of road work on the road from these towns into Lordsburg, New Mexico.

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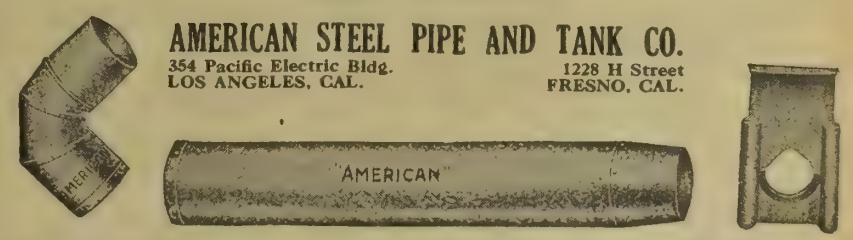

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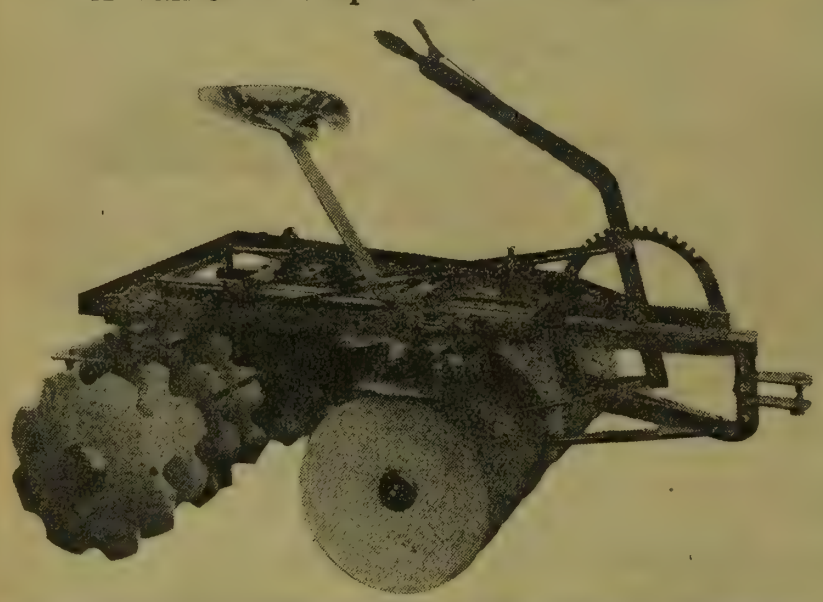

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FRUIT TREES

Ask about our **JUNE BUDDED TREES** also the **DOUBLE BUDDED DORMANT STOCKS.** They can be planted with splendid results. We still have a limited supply of one year trees. All of them are the leading commercial varieties.

FIG TREES

All the leading varieties such as Black Mission, Calimyrna, Kadota and White Adriatic.

GRAPE VINES

A Choice Selection of First Class Number One Vines.
Emperor, Flame Tokay, Malaga, Muscat,
Thompson Seedless.

—OUR NEW DESCRIPTIVE CATALOG MAILED FREE—

Kirkman Nurseries

FRESNO CALIFORNIA

Los Angeles Markets

Los Angeles, April 6. 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price, 38 cents.

Mar.	30	31	Apr. 1	2	4	5
'20 ...	36	36	37	37	38	38

CHEESE

Brokers' prices:
California flats, 23@25.

EGGS

Fresh extras (case included): Produce Exchange closing price 28 per dozen. Case count Produce Exchange closing price 27 closing price 25 per dozen.

Dairy Exchange price last week on extras:

Mar.	30	31	Apr. 1	2	4	5
'20 ...	28	26	26	26½	27	28

There is practically no shipping at this time; the product is now going into storage.

POULTRY

Price to producers: Hens, lt., 25; heavy 25; colored, 32; broilers, 25@46; roasters, 40; old roosters, 12; fryers, 48; ducks, old 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 13@18; old, 9.

LIVESTOCK

Los Angeles, April 5. — Weighed and delivered off cars without food or water: Hogs, (hard grain), 125 to 175 lbs., 11.00; 175 to 225 lbs., 11.50.

Cattle (on foot, gross weight): Steers, good, 9.50@10.60; medium, 9.00@9.50. Cows, good, 9.00; medium, 7.00@7.50. Calves, 1.25 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 6.00; lambs, 12.00@12.50.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe Avenue. Receipts from the interior for 24 hours ended at 10 a. m. Tuesday were: 91 hides, 50 pelts, 437 lbs. tallow, 563 lbs. wool.

Green and green salted hides—No. 1 heavy hides, 50 lbs. and up 4½ per lb.; No. 1 light hides, 25 to 50 lbs., 4 per lb.; No. 1 kips, 15 to 25 lbs., 6 per lb.; No. 1 calf skins, under 15 lbs., 9 per lb.; No. 1 skunks, 15@30 each; No. 1 bull hides 3½ per lb.; No. 1 horse hides, over 50 lbs., 2.00 each; No. 1 do.; 40 to 50 lbs., 1.50 each; No. 1 do., 30 to 40 lbs., 1.00 each; ponies and glues, half price; No. 1 grubby hides and skins, 1½ less; No. 2 hides and skins, 2 less, glue hides and skins, half price.

Dry flint hides—No. 1 hides, 16 lbs. and up, 9 per lb.; No. 1 kips, 7 to 15 lbs., 10 per lb.; No. 1 calf skins, under 7 lbs., 11 per lb.; No. 2 hides and skins, 2 less; glue hides and skins, half price.

Pelts—Large, long wool, 45@75 each; medium, 25@45 each; short wool and shearlings, 10@25 each.

Goat skins — No. 1 common, 10@30 each; No. 2, 5@10 each; badly damanged and small kids, worthless.

Tallow—No. 1 white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool—According to qquality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock April 5, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading

Potatoes: Supplies liberal, market unsettled. Stocktons: Burbanks, quality poor, 1.75@2.00; few best 2.25@2.50. Idaho: Russets, mostly 2.25@2.35. Local: White Rose mostly 2.25. New potatoes: 10@11 per lb. Sweet potatoes: Supplies moderate, market steady. Best mostly 2.00@2.25 lug. Arkansas and Texas, 7@7½ lb.; jobbing sales, 6@6½ lb.

Onions: Supplies heavy, market dull. Stocktons: White Globes, cold storage stock, 75@1.00; Browns, mostly 35@65 per cwt. sacked.

Garlic: Local best mostly 12@15 lb.; poorer 8@10.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock April 5, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 75@1.00; poorer wide range.

Asparagus: Supplies heavy, market weak. Local: Mostly 15@16 per lb. Northern: 11@12 per lb.

Beets: Doz., 40@45; sk., 1.75@2.00.

Cabbage: Field cr. best mostly 75@85; poorer 50; best 1.00.

Carrots: Doz., 40@50; sk., 1.00@1.25.

Cauliflower: Supply moderate, field cr., best, 1.50@2.00; poorer, low as 1.25; few best high as 3.00.

Cucumber: Hothouse, best, 2.00@2.50 dozen.

Lettuce: Local field cr. quality poor, 1.00@1.25; best mostly 1.50@1.75.

Peas: Imperial Valley: Quality generally poor, wide range in prices, supplies cleaning up. Local: Best 10@11 per lb., jobbing sales 8@10.

Radishes: 15@20 doz.

Rhubarb: Crimson Winter, best bx., 75@90; Strawberry bx., 1.15@1.25.

Spinach: Doz., 20.

Squash: Summer, 1.45@1.50.

Tomatoes: Mexican, per lug, best 3.50; repacked lug, 3.75. Much poor stock at wide range in prices.

Turnips: Per doz., 35@40; sk., 90@1.10.

CITRUS FRUITS

Grapefruit: California, per box, market pack, 2.00@2.25; special packed brands, 2.75@3.25; Imperial box, 4.75@5.25; small sizes, 4.25@4.50.

Lemons: Market dull, wide range in prices: Local stock: Packed, box, 1.50@2.25, few high as 2.75; loose, bx., 75@1.00; lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels market pack large size 3.00@3.50; small low as 1.75; special brands small sizes 2.75@3.25 large 4.00@4.25; packing house culls, 25@50 box; few best 75. Tangerines, best, 6@7 lb., small, 4.

HONEY

Supplies heavy: Poor wire inquiry. Movement slow, market weak. Carlots f. o. b. usual terms; few sales White Orange Blossom 13@13½; White Sage 12@12½; Light Amber Alfalfa 6½@7; Light Amber Sage 7½@8½; White Alfalfa 7½@8½. Hawaiian White 7½; Light Amber 6; Honey Dew Honey 5.

Beeswax sacked in less than carlots, per pound, Hawaiian, light color 35; domestic, light 32@34; dark low as 26.

Producers seem more willing to sell at lower prices and supplies are cleaning up in some sections. The local demand for small lots at higher prices is helping to absorb the surplus. The new crop will probably be heavy in another month, due to the favorable season. It is estimated that approximately 10 per cent of next year's crop will be comb, but supplies are now exhausted. San Diego County reports 17,000 colonies registered now, and in thrifty condition.

WALNUTS

California Walnut Growers Association's prices: Soft Shell, No. 1, 22½; Soft Shell, No. 2, 16½; Budded, fancy, 26½; Budded, standard, 22½.

GRAIN AND FEEDS

Grain Exch. price bid April 5:

Milo: Carlots 1.67½; No. 3 Eastern bulk, 1.45.

Corn: No. 2 Yellow, bulk 1.55; sack 1.60.

Barley: Carlots, 1.20@1.22½.

HAY

Alfalfa Growers of California report under date of April 4:

There were 280 tons received on the Los Angeles tracks, with 50 tons held over as against 370 tons the week ending April 2.

Rabbit Alfalfa	35.00
No. 1 Dairy	23.00
Standard	20.00
Stock	15.00
Rabbit Alfalfa	36.00
No. 1 Dairy	24.00
Standard	21.00
Stock	16.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@30.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@16.00
Straw	10.00@13.00

San Francisco Markets

San Francisco, April 5, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras	37

Dairy Exchange prices extras this week and year ago:

Mar.	29	30	31	Apr. 1	2	4
'20 ...	37	36	36½	36½	36½	37
'19 ...	58½	58½	59	59	59	...

Rcts. wk. ending Apr. 4, 4,252 centals.

April 4, 315 centals butter received from Point Arena.

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Ore. Y. A.	35
Ore. Trip	36
Cal. Y. A.	25
Cal. Flats	23½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	28½
Extra Pullets	27½
Undersized	24

Mar.	29	30	31	Apr. 1	2	4
'20 ...	30	29	28	28½	28½	28½
'19 ...	45	45	44½	44½	44½	...

Rcts. wk. ending Apr. 4, 684,314 dozen.

POULTRY

Wholesale prices are:

Hens: Colored, 35@38; White Leghorn, 28@32; strictly young roosters, 40@44; old roosters, 20@22; fryers, 47@53; broilers, small 45@50; large, 55@60.

Ducks: 30@35.

Squabs: 70@75 per lb.

Turkeys: Nominal.

Geese: 32@35 per lb.

Pigeons: Old, 3.00@3.50.

Belgian Hares: Live, 25@28.

Jackrabbits: 3.00@3.50 per doz.

LIVESTOCK

Western Meat Co. prices:

Cattle: Steers, No. 1 8@8½; do, second quality, 7@7½; do, thin, 4@5½.

Cows and Heifers: No. 1, 6@7; do, second quality, 5@6; do, thin, 3@4.

Calves: Light weight, 8½@9½; medium, 8@9; heavy, 7@8.

Lambs: Yearlings, 8@8½.

Sheep: Wethers, 6@7; ewes, 3½@4.

Hogs: Hard, fat, grain-fed, weighing 100-200 pounds 10½; 200 to 300 pounds, 10; 300 to 400 pounds, 9.

California Farm Bureau Marketing Association reports:

No. Hogs	Ave. Wt	Dock	Price
Wasco, April 2			
89	190	...	$11.40
84	156	...	11.30
56	218	...	10.65
3	300	...	9.65
1	240	80	6.65

Three cars, 19 consignors, total $4,829.30.

HIDES AND PELTS

The market on hides and skins continues weak and prices unsettled. Tanneries throughout the United States are shut down or running part time, causing light demand for raw stock.

Damaged and extra grubby hides in winter condition will scarcely bring enough to pay freight on them.

The list below will show our estimate of today's values:

No. 1 heavy hides, 60 lbs. up, 3; do, medium, 45 to 60 lbs., 3; do, light, 30 to 45 lbs., 5; do, native bulls, 2; No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 5; No. 2 wet salt kip, 15 to 30 lbs., 3; No. 1 wet salt calf, trimmed, 7½; No. 2 calf, 2 per lb. less.

Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Dry Horse Hides: No. 1, large, skinned to hoof, 1.00; do, medium, 75; do, small, 50; No. 1 colt, 25@50. All cut, scarred or badly cured hides are culls, and worth proportionately less.

Wet Salted Horse Hides: No. 1, large, skinned to hoof, 2.00; No. 1, medium, skinned to hoof, 1.50; No. 1, small, skinned to hoof, 50@1.00; No. 1, colt, skinned to hoof, 25@50.

Dry Horse Hides: No. 1, large, skinned to hoof, $1.50; No. 1, medium, skinned to hoof, 1.00; No. 1, small, skinned to hoof, 50@75; No. 1, colt, skinned to hoof, 25@50. All cut, scarred or badly cured hides are culls and worth proportionately less.

Goat Skins: No. 1 large, not matted, Angora, 30 up; No. 1, medium, not matted, 15@20; No. 2, 5@10. Damaged skins and very small kids, worthless.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good, 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20;

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, 1.90@2.15 for No. 1; do, Oregon Burbanks, 2.00@2.25; New, 7@9 lb. Idaho Gems, 2.25@2.40. Sweet potatoes, nominal; Nancy Hall, 5.00@6.50 per 100 lbs.

Onions: Australian brown, 50.

Garlic: New, 7@10 lb.

VEGETABLES

Wholesale selling price:

Asparagus: Lb., Field run, 34; fy. graded, 4@6; extra fy., 6@8; green, 3@6.

Artichokes: Doz., 25@85.

Beets: 1.00@1.50 sk.

Carrots: 75@1.00 sk.

Cauliflower: Doz., 40@75.

Cucumbers: Hothouse, small, 4.00@5.00 box of 2½ dozen; large, 2.50@3.00 per dozen; English, 2.50@2.75 per dozen.

Cabbage: Lb., 1.

Celery: Cr., 1.50@3.00.

Eggplant: Cal., 15@20.

Endive: 10@20 per lb.

Lettuce: L. A. cr., 1.50@2.00; Imp., 3.00@3.25.

Onions: Green, per lug, 1.25@1.50.

Peas: Large, 6@7 lb.; small 4@6; Bay, 7@9; fy., 10.

Parsnips: Sk., 2.00@2.25.

Peppers: Bells, Southern, 10@30 lb. for green; Florida, 35@40.

Rhubarb: Alameda, extra choice, 1.25@1.75.

Squash: Imperial Valley Summer, 1.50@1.75; Cream squash, 60@75; Hubbard and Marrowfat, 1.75@2.25 sk.

Spinach: Lb., 3@4.

Tomatoes: Mex. 4.00@6.00, L. A. lug.

Turnips: Sk., 75@90.

FRESH FRUITS

Avocado: California, doz, 6.00@8.00; Tahiti, 5.00@8.00 doz.

Bananas: Lb., 9@10.

Pineapples: 4.50@6.00.

Strawberries: Imp. Valley, 4.50@4.75 cr.

Loquats: 17½@20.

CITRUS

Navel oranges, 2.65 @ 4.75; lemons, 2.00@3.50 per box; grapefruit, new crop, 2.00@3.50; tangerines, 1.50@3.50 per half orange box.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 18 lb.; Sunmaid, seeded, 36 15-oz. pkgs. 22 lb.; seedless Sultanas, 25-lb. bxs. 18 lb.; Thompson Seedless, 25-lb. bxs. 21 lb.; do, 48 15-oz. bxs. 22 lb.; 3-cr. L. M., 25-lb. bxs. 19 lb.; 2-cr., do, 18 lb.; 1-lb. clusters, 20-lb. bxs. 5.40 box.

Apricots: Fancy 25 lb. boxes, 22 lb.; extra choice, do, 19 lb.; choice, do, 16 lb.; standard, do, 15 lb.

Peaches: Blue Ribbon brand, 48 11-oz. to cs., $10 cs.; Blue Ribbon brand, 24 2-lb. bxs. to cs. 11.00; fancy, 25-lb. bxs., 17½; extra choice, 25-lb. bxs., 13½; choice, 25-lb. boxes 12½.

Pears: Fancy, 25 lb. bxs., 18; extra choice, 25 lb. bxs., 12; choice, 25 lb. bxs., 10.

Figs: Fancy black, 25 lb. boxes, 12½ lb.; extra choice, do, 9½ lb.; choice do, 8 lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4 layer, 10 lb., 2.00 box; choice 4 layer, 10 lb. boxes, 1.75 box.

Prunes: 30-40s, 25 lb. boxes, 13; 40-50s, do, 11 lb.; 50-60s, do, 9½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8 lb.; choice, do, 7 lb.

NUTS

Peanuts: Japanese, 8; China, 7½.

Pecans, 25.

Almonds: California Almond Growers Exchange quote:

Nonpareil	26
I. X. L.	26
Neplus	25
Drake	18
Languedoc	17
Hard Shell	12

BEANS

Below California Bean Growers Association shippers prices choice recleaned, April 4:

Large Whites	3.45
Small Whites	3.40
Pinks	5.75
Mexican Reds	7.05
Red Kidneys	8.75
Henderson Bush	5.20
Cranberries	6.75
Bayos	9.00
Blackeyes	6.15

HOPS

Cal. 1920, lb., 33@35.

GRAIN

Sales grain exchange, March 29:

Wheat: Milling, 2.35@2.45; feed, 2.30@2.40.

Corn: Cal. Yellow, 1.70@1.80; White Egyptian, 2.60@2.70.

Oats: Red feed, new crop, 1.45@1.55. seed, 1.65@1.75.

Barley: Feed, 1.17@1.22½; off grades lower; shipping, 1.30@1.40.

Bran: 33.00@37.00.

Shorts: 31.00@36.00.

Mill Run: 29.00@35.00.

Middlings: 40.00@42.00.

Milo: Cal. Red, 1.95@2.00; Eastern Red, 1.60@1.75.

Kafir: Eastern, 1.60@1.70.

HAY AND FEED

Alfalfa Growers of California report under date of April 4:

There were 1,031 tons received in San Francisco.

No. 1 Dairy	19.00
Standard Dairy	17.00

Under date of April 2 A. W. Scott Co. says:

Receipts the past week 1,031 tons. Business has dragged badly and the week sees the end of rather an unsatisfactory month's business in all lines of hay and feed, unsatisfactory, because it was marked by a disinclination on the part of both buyer and seller to trade and an uncertainty as to prices and futures which destroys confidence and limits trading to the very minimum. A strong healthy hope for the future is perhaps the most encouraging feature. The recent movement intended to weld all California into one working booster force to improve business conditions and market California products, has created a feeling of hope and determination that is reflected in all avenues of business. The so-called buyers' strike is undoubtedly to be the first sentiment that will be affected by this concerted action to improve conditions. Alfalfa has been dullest of all grades and sales at slightly reduced figures throughout the interior are reported.

Mill and dairy feeds have been affected seriously by the dropping of wheat, corn and oats to still lower levels, and the market on all grades has closed weaker and at fractional lowerings on all prices.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00
Straw	10.00@15.00
Barley, ground	33.00@35.00
Barley, rolled	29.00@30.00
Bran, Red	34.00@35.00
Bran, White	36.00@38.00
Millrun	38.00@40.00
Middlings	47.00@50.00
Linseed Meal	60.00@65.00
Cocoanut Meal	26.00@27.00
Alfalfa Meal	28.00@29.00
Cottonseed Meal	40.00@46.00
Sugar Beet Pulp	30.00
Molasses, Tanks	23.00
Molasses, Barrels	26.50
Milo	40.00@45.00
Corn Meal	40.00@45.00

Citrus Markets

Los Angeles, April 6, 1921.

Oranges are being received rather more satisfactorily, f. o. b. quotations running around $3.25 for 150's with severe cuts on small sizes, likewise the sizable premium for large sizes.

Little interest in lemons is shown save that liberal shipments are now being made by water, which is giving opportunity to dispose of some of the fruit which would otherwise go to the "wash."

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 14,747 cars; lemons, 3,026; total, 17,773. To same date last season: Oranges, 13,488; lemons, 2,643; total, 16,131. From Central California to date, this season: Oranges, 4,379; lemons, 124; total, 4,503. To same date last season: Oranges, 3,751; lemons, 279; total, 4,030. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

AT THE AUCTIONS

March 31

New York: 24 or., 5 mixed, 1 lem. Nav. 3.25-4.70, Bloods. 3.30-3.60, Tange. 4.30, halves 1.75-2.80, lem. 2.05-3.20.

Philadelphia: 10 or., 2 lem. Nav. 3.00-4.40, Bloods. halves 1.50-1.90, Seeds. 2.80-3.00, Sweets. 3.00-3.25, lem. 1.85-3.25.

April 1

New York: 14 or., 3 mixed. Nav. 3.25-4.45, Bloods. halves 1.95-2.95.

Boston: 12 Nav. 3.15-4.15, Tange. halves 2.25, Bloods. 3.20.

April 4

New York: 39 or., 7 mixed. Nav. 3.20-4.80, Navelencias 3.50-4.15, Bloods. halves 1.35-1.85, Tange. 4.20, St. Mikes 4.30.

Cleveland: 12 or., 2 lem. Nav. 2.45-4.45, lem. 2.20-3.20.

St. Louis: 9 or., 2 lem. Nav. 3.60-4.30, lem. 1.65-3.05.

April 5

New York: 28 or., 3 mixed. Nav. 3.00-5.70, Tange. halves 2.80, Bloods. 3.15-3.45, lem. 4.25.

Philadelphia: 8 Nav. 3.20-4.05.

Pittsburg: 6 or., 1 lem. Nav. 3.55-4.60, lem. 2.70-3.00.

Boston: 16 or, 4 lem. Nav. 3.35-4.60 lem. 1.75-3.90.

WEATHER REPORT

San Francisco, Cal., April 2, 1921.

Stations	Wk.	Rainfall Season	Rainfall Norm.	Temp Max.	Temp Min
Eureka	....	43.10	38.88	58	32
Red Bluff	....	25.45	21.56	84	46
Sacramento	....	15.60	17.12	76	44
San Francisco	....	22.10	19.61	73	46
San Jose	....	13.81	14.73	76	38
Fresno	....	7.23	8.30	82	46
San Luis Obispo	....	17.35	18.17	82	44
Los Angeles	....	9.78	14.07	84	51
San Diego	....	4.46	8.89	74	48

CUNNINGHAM PULVERIZER

Paralyzes clods and works close up to trees and vines. It mulches the crust following irrigation, and preserves moisture.

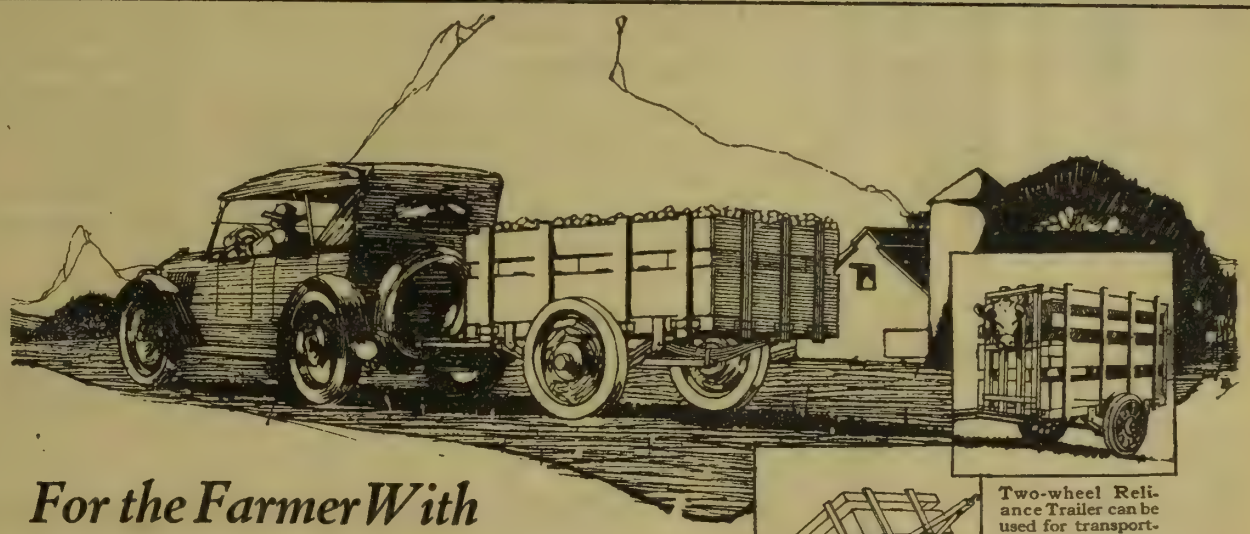
DIRECT FACTORY TO FARMER

All sizes sold at pre-war prices.

Write for Circular.

California Plow Company

140 Polhemus Street. San Jose, Calif.



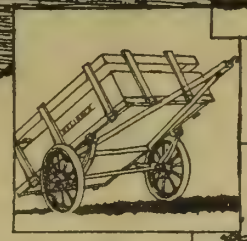
For the Farmer With Small Loads To Haul

Automobiles are not made to carry merchandise. Yet most farmers make a practice of transporting small lots of produce or material in their cars not realizing, perhaps, how this increases costly depreciation and tire-wear and how boxes, sacks, etc., scratch, mar and tear.

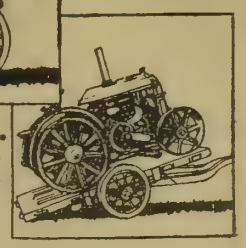
Why not utilize a small 2-wheel Reliance Trailer for minor hauling—towed behind your auto? It saves your car and saves much time. It enlarges your hauling capacity. These trailers pull easily without strain on your car and are balanced correctly for perfect tracking and smooth running.

Reliance Trailers are built throughout of wrought steel—light in weight but strong and durable. Workmanship and materials absolutely guaranteed. Built in capacities of 1200 lbs., 1-ton, 1½-ton and 2-ton.

Why not write for prices and the name of our nearest dealer?



Two-wheel Reliance Trailer can be used for transporting live stock.



Light, 1200-lb. capacity 2-wheel Reliance Trailer for extra light work and for campers, etc.

Reliance 2-wheel trailer with special tilting bed. Specially adapted to moving tractors, but can be used for transporting other merchandise. Has side stake pockets and can be fitted with any type body, or easily interchangeable bodies of various types. Bed locks automatically when swung into level position for running.

Reliance Trailer & Truck Co. Inc.

1656 Howard St. San Francisco

Reliance

HEAVY DUTY

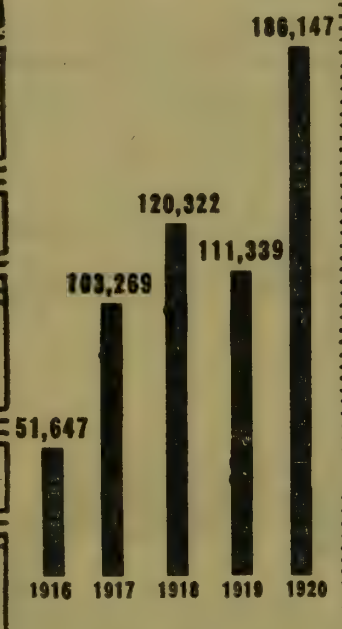
TRAILERS

The Trailer With Red Wheels

We also build 4-wheel models of Reliance Trailers in various capacities and types. If interested in big hauling ask us for instructive information on how trailers increase truck capacities and cut down time and hauling costs.

The Chevrolet Plan for Distributing $4,000,000

CHEVROLET



Chevrolet Sales Record

THE production schedule of Chevrolet "Four-Ninety" Models for the seven months from January 1st to July 31st, 1921, is fifty thousand cars.

We will give $70 to each retail purchaser of a new open car or light delivery model, and $100 to each retail purchaser of a new closed car, provided we manufacture and sell fifty thousand Chevrolet Model "Four-Ninety" cars between January 1st, 1921, and July 31st, 1921. This offer to be subject to the terms as set forth in full in the refund certificate which will be delivered to each purchaser.

Fifty thousand cars is the minimum which will secure substantial savings in cost in manufacture. These savings will be passed on to the purchasers of these fifty thousand cars.

This plan is in keeping with the Chevrolet policy to make the price of its product as low as quality manufacture on a large scale will permit. It is in keeping with the Chevrolet purpose of providing quick, convenient, economical transportation at a cost within reach of those who want an automobile.

Each purchaser of a Model "Four-Ninety" will receive a certificate from his dealer, or from the Chevrolet retail store manager. This certificate will be redeemed as indicated on its face.

This is a straightforward business proposition presented in a straightforward way. Whether you are in the market for a new car or not, you must not fail to learn the details of this unique and simple plan. It offers to every man of sound business judgment an opportunity to take advantage of the best automobile value obtainable.

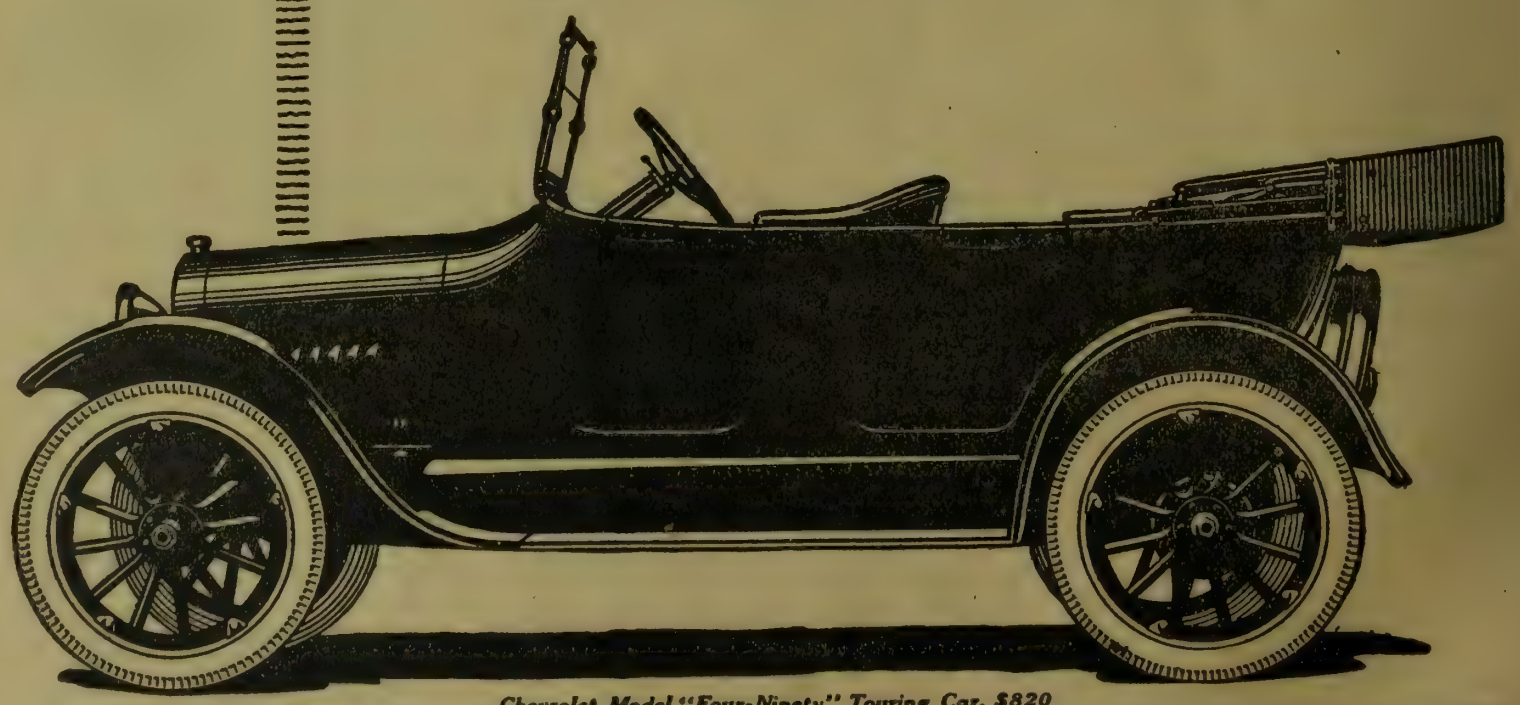
Retail purchasers of Model "Four-Ninety" cars since October 1st, 1920, will receive their certificates through their local dealers or retail stores on application to them.

CHEVROLET MOTOR COMPANY

GENERAL SALES DEPARTMENT

NEW YORK

More than 4,000 Dealers, Retail Stores and Service Stations in United States and Canada



Chevrolet Model "Four-Ninety" Touring Car, $820

Additional Chevrolet "Four-Ninety" Models: Roadster $795; Sedan $1375; Coupe $1325; Light Delivery Wagon (1 Seat) $820; Chassis, $770

All prices f. o. b. Flint, Mich.

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — April 16, 1921 — No. 16

Important Crops, Fruit Products and Livestock Products

The Director of the Census announces, subject to correction, the following preliminary figures for the United States from the Census of Agriculture for the year 1919, with comparative figures for 1909:

* * *

For some reason figures as to raisins and dried grapes are not given for 1909, but the $50,000,000 crop of 1919 is a material increase over that of 1909, and we think we are entirely safe in saying that by far the biggest half of that $50,000,000 is due to cooperation.

* * *

Another illuminating item as to the benefit of cooperation is the report as to oranges — in 1919, 27,900,000 boxes as against 19,487,000 in 1909, but note the dollar return, $84,000,000 for the 1919 crop as against $17,566,464 for the 1909 crop. Both California and Florida are cooperatively organized.

* * *

One of the field crops which is of particular interest to California is sugar beets. The United States produced over 6,000,000 tons in 1919 as against less than 4,000,000 tons in 1909. The cash return for this crop was $66,000,000 in 1919 as against $19,800,000 in 1909. Sugar cane, on the other hand, shows a great decrease in tonnage though a most satisfactory increase in return.

* * *

Livestock reports are not so satisfactory. Note the material reduction in the amount of butter produced on farms. Cheese shows still greater reduction. Sale of milk, however, has materially increased as is shown by the half billion gallon increase there.

		Acreage	Production	Value
CROPS				
Corn	1919	87,000,000	2,385,000,000 bu.	$3,569,000,000
	1909	98,382,665	2,552,189,630 bu.	1,438,553,919
Oats	1919	37,900,000	1,062,000,000 bu.	861,000,000
	1909	35,159,441	1,007,142,980 bu.	414,697,422
Wheat	1919	73,000,000	975,000,000 bu.	2,106,000,000
	1909	44,262,592	683,379,259 bu.	657,656,801
Barley	1919	6,500,000	124,000,000 bu.	163,000,000
	1909	7,698,706	173,344,212 bu.	92,458,571
Rye	1919	7,700,000	80,000,000 bu.	122,000,000
	1909	2,195,561	29,520,457 bu.	20,421,812
Buckwheat	1919	770,000	13,700,000 bu.	21,200,000
	1909	878,048	14,849,332 bu.	9,330,592
Rice (rough)	1919	915,000	36,700,000 bu.	101,000,000
	1909	610,175	21,838,580 bu.	16,019,607
Peanuts	1919	1,300,000	28,600,000 bu	65,000,000
	1909	869,887	19,415,816 bu.	18,271,929
Hay	1919	73,000,000	96,000,000 tons	2,028,000,000
	1909	68,227,310	87,216,351 tons	776,067,880
Potatoes (white)	1919	3,300,000	293,000,000 bu.	644,000,000
	1909	3,668,855	389,194,965 bu.	166,423,910
Tobacco	1919	1,900,000	1,375,000,000 lbs.	445,000,000
	1909	1,294,911	1,055,764,806 lbs.	104,302,856
Sugar beets	1919	640,000	6,000,000 tons	66,000,000
	1909	364,093	3,932,857 tons	19,880,724
Sugar cane	1919	.....	3,800,000 tons	67,000,000
	1909	.....	6,240,260 tons	26,415,952
Hemp	1919	8,000	7,300,000 lbs.	1,200,000
	1909	7,647	7,483,295 lbs.	412,699
Hops	1919	16,000	19,500,000 lbs.	10,200,000
	1909	44,693	40,718,748 lbs.	7,844,745
Apples	1919	.....	139,000,000 bu.	246,000,000
	1909	.....	145,412,318 bu.	83,231,492
Plums and prunes	1919	.....	19,500,000 bu.	41,900,000
	1909	.....	15,480,170 bu.	10,299,495
Oranges	1919	.....	27,900,000 boxes	84,000,000
	1909	.....	19,487,481 boxes	17,566,464
Lemons	1919	.....	6,000,000 boxes	17,400,000
	1909	.....	2,770,313 boxes	2,993,738
FRUIT PRODUCTS				
Raisins, dried grapes	1919	.....	336,000,000 lbs.	50,000,000
Cider made on farms	1919	.....	19,400,000 gals.	9,700,000
	1909	.....	32,583,998 gals.	.....
Vinegar made on farms	1919	.....	8,600,000 gals.	2,600,000
	1909	.....	7,246,632 gals.	.....
LIVESTOCK PRODUCTS				
Milk produced	1919	.....	6,285,000,000 gals.	.....
	1909	.....	5,813,699,474 gals.	.....
Butter made on farms	1919	.....	710,000,000 lbs.	352,000,000
	1909	.....	994,650,610 lbs.	222,861,440
Cheese made on farms	1919	.....	6,600,000 lbs.	2,300,000
	1909	.....	9,405,864 lbs.	1,148,708
Eggs produced	1919	.....	1,577,000,000 doz.	641,000,000
	1909	.....	1,457,385,772 doz.	281,157,980
Honey produced	1919	.....	49,100,000 lbs.	12,800,000
	1909	.....	54,814,890 lbs.	5,762,869
Wool	1919	.....	240,000,000 lbs.	127,000,000
	1909	.....	289,419,977 lbs.	65,472,328

Special Farm Paints

For Buildings, Silos, Machinery, Wagons, Etc.—Made for Western Climate

We make special paints and varnishes with western farm needs and western weather conditions in mind.

It's vitally important that you get such paints. They must be the best that any one can make, for real economy lies only in good paint.

It costs more to rot a building than to paint it. Paint now if your buildings need it, and save money.

Beware Cheap Paint

But use the *best* paint, for the best if properly applied will be good from five to ten years hence. Cheap paint, on the average, starts cracking in twelve months.

It's what paint covers that you want to save—not merely a few cents per gallon in *first* cost.

Cheap paint doesn't spread as easily or as far as good paint. So when you figure *labor* and *square yards* covered, cheap paint costs just as much as good paint.

Cheap paint, in practically every instance, is the most expensive you can buy.

For 72 Years

The paints specified by Fuller are the result of 72 years' experience in the making of all kinds of paints, varnishes, etc., for western use.

We use the best materials as others do. But we combine them with a 72-year knowledge and long-time skill. Our Pioneer White Lead-base is finely ground—pure white. It must pass through silk screen with 40,000 mesh to the square inch.

We use special machines for mixing the materials in scientifically exact proportions. Fuller paints are noted for covering capacity, ease of spread and great durability.

If you want from five to ten year protection for your property investment, get Fuller's—western paint for western weather conditions—a paint *you know*.

Fuller's SPECIFICATION Farm Paints

House Paint - Barn & Roof Paint
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HOUSE PAINT: Pure Prepared Paint, Phoenix Pure Paint for Painting Houses. The purest, best protection and most durable paint made. Made in 32 colors.

BARN AND ROOF: A protective coating for Barns, Roofs, Fences. Dries with a good gloss and wears. Economical in cost and dependable in quality. Six colors to select from.

PACIFIC WAGON PAINT: Adapted for repainting Agricultural Implements, Farm Wagons, Windmills. A glossy and durable finish offered in 7 colors.

RUBBER CEMENT FLOOR PAINT: A sanitary, waterproof and durable paint for floors of kitchens, closets. Attractive in color and gloss. Dries hard over night. Made in 12 colors.

Also makers of Decoret, Washable Wall finish, and Silkenwhite enamel.

W. P. FULLER & CO., Master Paint Manufacturers for 72 years.

Established 1849, San Francisco. Branches in 16 Cities in the West. Dealers Everywhere

Free Advice on Painting

IF you cannot get a master painter and wish to paint your home yourself, but do not know much about painting, ask Fuller's Specification Department for advice. How to treat the old paint, What color scheme to use. How many coats. The proper brushes. The best time to paint, etc.

Send photo of your house or barn with dimensions of the roof and siding, and we'll estimate the cost—without obligation.

Take advantage of Fuller *Service* as well as Fuller Paints. Write us *now*. Take steps to *paint now*. Don't let weather depreciate your investment.

Send Coupon For Interesting Book—Free

Mail coupon for "Save the Surface"—a free book that tells of the importance of good paint.

We'll send also our booklet describing Fuller's Specification, Farm Paints, Varnishes, etc.

Send coupon now. Find out what good paint means to you.

W. P. Fuller & Co.
Dept. F-31 San Francisco.

Please send me, without charge, a copy of "Save the Surface" and your booklet of farm paints and varnishes.

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California Cultivator

Vol. LVI, No. 16 Los Angeles, April 16, 1921 One Dollar Yearly

What Will the 1921 Harvest Be?

By Fruit Growers and Direct From the Orchards

CALIFORNIA produced in 1920 345,000 tons of peaches, 90,000 tons of pears, 95,000 tons of prunes, 115,000 tons of apricots, 18,700,000 boxes of oranges, 4,500,000 boxes of lemons, 180,000 tons of raisins, nearly 600,000 tons of table and wine grapes, 15,000 tons of cherries, 10,000 tons of figs, 5,500 tons of almonds, 21,500 tons of walnuts, with cantaloupes, vegetables, and a number of other crops in other thousands of tons.

What she will produce this year is a live question even this early when some of the trees are still in bloom. It is a live question and open for discussion this early because of several considerations such as irrigation, cultivation, marketing and plans for the entire year's work on the part of the producer. Of course this matter of probable production is only one of many other factors which will aid in deciding the coming year's methods. Only a few weeks ago the peach, apricot, pear and other growers asked: "Why shall we spend large sums in further cultivation and irrigation other than to keep our groves alive for other years' productions? The canner has immense quantities of holdover; warehouses even are filled with last year's stock, and the consumer is ceasing to buy, but frost conditions, slightly in California and rather heavily in many other sections, have reduced estimates as to the coming season's output."

Plainly the weather conditions have materially reduced the output of California. This reduced tonnage may be in keen demand not only for California and Eastern markets but possibly for export to Europe. Hence the grower is looking at his orchard from rather a different angle than 30 days ago. What do the producers think as to the coming season's outlook? Here are some estimates from different parts of the state:

California Cooperative Crop Reporting Service

Kauffman of the federal bureau of crop estimates and the California department of agriculture reports April 1 conditions:

Grain of all kinds made a good growth and much seeding of barley resulted following the delay occasioned by excessive moisture during February. As a whole pastures were in excellent condition and livestock in better form than usual, with prospects of some early grass beef. Even temperatures brought out fruit blossoms early and freely and a good set of fruit generally followed. Frost occurred more or less in all parts of the state, April 4, 5 and 6, and some damage is reported to deciduous fruits and raisins, although it is not believed to be very serious.

Claud D. Tribble, Elk Grove, Sacramento County

Almonds: 60 per cent.
Apples: 100 per cent.
Apricots: 70 per cent.
Cherries: 100 per cent.
Peaches: 100 per cent.
Pears: 100 per cent.
Prunes: 100 per cent.
Plums: 100 per cent.
Grapes: 90 per cent.
No frost damage so far.

Niles Cannery, Alameda County

Almonds: One-half crop.
Apricots: 40 per cent normal crop.
Cherries: O. K.

W. D. Butler, Horticultural Commissioner, Napa County

Almonds: 50 per cent. Brown rot.
Apples: 100 per cent.
Apricots: 10 per cent. Brown rot.
Cherries: 100 per cent.
Peaches: 75 per cent. Brown rot.
Pears: 90 per cent. Some rot.
Prunes, 125 per cent.
Grapes: 100 per cent.

H. J. Baade, Farm Adviser Napa County

Apples: 100 per cent.
Apricots: 10 per cent. Brown rot destroyed most of our 'cots.
Cherries: 75 per cent. Rain and unfavorable weather conditions destroyed 25 per cent.
Peaches: 75 per cent.
Pears: 80 per cent.
Prunes: French, 100 per cent; Sugars, 100 per cent; Imperials, 50 per cent.
Grapes: 100 per cent.

F. C. Brosius, Horticultural Commissioner, Sacramento County

Almonds: 55 per cent. Some frost damage.
Apples: 75 per cent.
Apricots: 70 per cent. Slight frost damage.
Cherries: 90 per cent.
Peaches: 100 per cent.
Pears: 100 per cent.
Prunes: 90 per cent.
Grapes: 90 per cent. Slight frost damage some districts. Some damage to trees account sour sap.

Sutter County Farmer, Yuba City, Sutter County

Almonds: One-half crop.
Apples: Can't estimate.
Apricots: Fair.
Cherries: One-half.
Peaches: 60 per cent.
Pears: Good.
Prunes: Full crop.
Grapes: 25 per cent.

Fred K. Howard, Fresno, Fresno County

One of the most serious frosts of recent years played havoc with fruits in part of the San Joaquin Valley on the night of April 3. The most serious damage was through one of the best fruit districts, extending from the Clovis district in the north to Kingsburg in the south, being particularly serious around Clovis, Sanger, Del Rey, Parlier, Selma and Kingsburg. Less severe frosts also occurred Monday and Tuesday, doing some damage in other districts.

Like all frost injury, the extent of the damage is difficult to estimate, but in some districts there will be a total crop loss, except for a possible second crop on some varieties.

Officials of the Associated Raisin Company estimate the loss at between 20 and 25 per cent of the total crop of raisins. Table grape varieties probably sustained an equal loss. Other deciduous fruits in the severely frosted districts suffered severely.

Lester C. Reed, Simi, Ventura County

Owing to the rain during the blossoming period and the frosts the early part of this week we are nearly out of the 'cot business this year; about 25 per cent for the entire valley. Ventura County produced about 2,300 tons of dried fruit last year, which was a 50 per cent crop. A buyer for one of the big packers estimates 750 tons this year.

Thos. P. Redmayne, Horticultural Commissioner, Marin County

Almonds: The few grown in county show a good setting of fruit with no frost damage and are probably safe.

Apricots: Badly damaged by rains at blossoming time and main varieties almost a total failure.

Apples: Heavy with bloom and indications excellent.

Cherries: Not grown to much extent, but show good setting.

Peaches: Average crop indicated.

Pears: Bloomed well; too early yet to determine setting but appearances are favorable.

Prunes: Indicate an unusually heavy crop.

Grapes: Normal; no frost damage apparent.

The rainfall, which was somewhat above normal, interfered greatly with spraying operations.

Chas. F. Collins, Horticultural Commissioner, Tulare County

Almonds: Not of commercial importance.

Apples: Good prospects now (April 11).

Apricots: Very few grown.
Cherries: Not grown here.
Peaches: Some injury from frost in

(Continued on Page 518.)

DON'T WASTE THE FRUITS—CAN EVERY ONE

The outlook is better. Canned and dried fruits are moving and fruit growers are beginning to take at least a half a breath. California's output will be somewhat reduced, at least that is the general impression amongst growers and observers. With the holdover out of the way, as it probably will be within the next few months, and with frost reports from many eastern fruit growing sections indicating material reduction in eastern output, every ounce of California fruit should be marketed. The trade is not as yet fully reassured, hence the safety-first plan, which every grower should consider, is to be independent and ready for handling one's own fruit.

There are evaporators; there are home canning outfits. A home canning outfit with a little intelligent study and a little care on the part of the fruit grower will convert a quickly perishable product into one of permament value.

There are home canners of various sizes which will handle the small orchardist's output or an entire neighborhood's output. Farm bureaus and extension service of the state university unite in giving latest information as to methods of work. Cruess says in "Home and Farm Food Preservation": "Commercial food preservation cares for the bulk of the food products, but beside the food so preserved, there are many millions of jars and cans of fruits and vegetables, glasses of jellies, jams and marmalades and many thousands of hams and bacons 'put up' by the housewife and farmer. Much food that would otherwise be wasted is saved and in addition a varied diet throughout the year at low cost is made available in many homes. Usually this work is done over a hot kitchen stove during the rush of the fruit or vegetable season and, added to other household duties, becomes a heavy burden. The methods are empirical and by 'rule of thumb'; consequently they are not well understood and not especially interesting."

Besides the book referred to there is "Successful Canning and Preserving" by Powell. These helps, with two good eyes and intelligent questions, will aid any who wish to put themselves on a perfectly safe basis with a home canner.

There is opportunity not only for saving one's own crop but rendering service to the community.

Adventuring With Chickens

By Jean A. Koethen

DEAR DAD: Do you remember little Willie Snow who used to bring us milk? His father farmed Harvey Thomas' west 80 and his sister Lizzie married one of the Lewis boys—the red haired one, I think. Well, who should turn up here in Gardenwood the other day but little Willie, six feet tall and with a kiddie or so of his own. He doesn't live in Gardenwood—is farming a walnut ranch some 30 miles from here and feels mighty prosperous. He heard of us from one of the poultrymen in the neighborhood where he was buying some chicks and came right over to see us. Chickens are just a side line with him, he says, but they'll help keep the pot boiling till the walnuts bear; and furnish a little manure for the trees besides. I thought from the way he talked that he was planning to raise 50 or so just for fun, but lo and behold! when he took us out to the car (a real one, not a flivver) to show us the boxes all neatly packed in the tonneau, if there weren't ten boxes, each holding a hundred peeping fluffies!

"What under the sun," demanded Tom, "are you going to do with a thousand chicks?"

"Why, raise them, to be sure. I ought to get three or maybe four hundred pullets out of that lot, and I need every one."

He has built a no-yard house, he says, right in among the walnut trees, and as soon as the chicks are out of the brooder house they will go into

(Continued on Page 536.)

Agricultural News Notes of the Pacific Coast

Northern California

Beekeepers of Glenn County have organized. M. A. Saylor is president.

Rice farmers are planning to get in their seed as soon as possible this year.

General Grant and Sequoia national parks open May 24 to tourist travel and close October 1.

The annual meeting of the California Olive Association will be held in San Francisco on April 18.

Northern California wool growers have formed a corporation with headquarters at Red Bluff.

An order for beehives from Chu Chin, China, has been received by the Diamond Match Company at Chico.

Delta asparagus shippers say the season will be short this year, owing to cool weather holding back the crop.

The chamber of commerce of Colusa is offering prize for best suggestion of more suitable name for "Foxtail Park."

The spring harvested rice from the Willows district went out at the rate of 50,000 bags during the first ten days of April.

The Glenn County farm bureau lumber mills will not operate this season because of the uncertainty of building operations.

The Natoma Rice Milling Company has been exonerated by grand jury of charges of selling rice without authorization.

Manager Nagle of the California Fruit Exchange estimates shipment of 40,000 cars of deciduous fruits from the state in 1921.

The Durham Dairymen's Association has installed a 3,000 pound electric separator and clarifier, and a cooling and cold storage plant.

Six weeks courses for agricultural teachers will be given this summer by the state university at Berkeley. June 20-July 30 are the dates.

The special committee appointed by the Pacific Rice Growers Association to investigate as to the crop marketing situation, has just published its findings in bulletin form.

The California Bean Growers Association has marketed 22,000 sacks of Small White beans of the 1921 crop through the American Relief Administration. The beans were shipped direct to Europe.

The California Bean Growers Journal urges all bean planters to carefully hand pick all seed beans so that the grade will not be cut down for percentage of "other beans" showing up in the harvest.

Fruit growers of Nevada County report excellent prospects for fruit up to this time, no damage apparently having been suffered. The cool, cloudy weather of March, with the heavy rainfalls, has been very favorable

Farmer employers of Tehama County have fixed a farm wage schedule: Day labor, $3.50 per day, without board; man and team of horses, $6.50 per day, without board; man and four horses, $9.50 per day, without board.

An ordinance designed to guard against the importing of foul brood into Butte County has been passed by the supervisors. It carries a minimum penalty of $50 for bringing bees into Butte County without the inspection provided for under the ordinance.

Central California

The delta section has marketed 1,800 carloads of celery.

Some 2,100 acres have been planted to new vineyards in Tulare County.

Stanislaus County Farmers Union banquet at Turlock last week seated 150.

Shippers of Valencias are generally holding back fruit to make sure of good market.

The Santa Cruz County farm bureau will hold its annual picnic on May 14 at New Brighton.

The Stanislaus County Poultrymen's Association will hold a show December 4-7 at the Winter Garden.

Cotton growers of the San Joaquin Valley are discussing affiliation with the Arizona-American-Egyptian Association.

It is expected that at least 30 floats will be entered in the big historical pageant of the Raisin Festival, April 29 and 30.

Tulare County has a new truck ordinance requiring permits before moving loads of more than ten tons over the highways.

The Corralitos farm center of Santa Cruz County is discussing the advantages of forming a farmers mutual insurance company.

It is expected that planting of cantaloupes in the Turlock district will be about 6,500 acres this year as against 7,500 last year.

The California Peach and Fig Growers Association is drawing up plans for a new plant at Dinuba, to cost between $60,000 and $70,000.

Following recent meeting of cotton growers at Fresno it was estimated that between 10,000 and 12,000 bales of cotton are stored in the valley.

The proposed trip of the agricultural legislative committee to the land settlement at Delhi has been postponed because of heavy work of the committee.

Kern County farm center meetings at Mountain View, April 18; Pond, 20; Inyo-Kern, 21; Rosedale, 22; Shafter, 27; Arvin, 29; board of directors at Bakersfield, 30.

Cotton growers of the San Joaquin Valley met in Bakersfield, April 5, to arrange for grading all cotton now held in Valley gins and decide as to forming a pool for its sale.

Farm home department meetings in Kern County at Bakersfield, Saturday, April 16; Beardsley-Rosedale, 18; Weed Patch-Arvin-Mountain View, 19; Inyo-Kern, 22; McFarland, 25; Rio Bravo-Wasco-Shafter, 28; Edison-Fairfax, 29.

The Pajaro Valley farmers have adopted a new wage scale. The scale for common labor and for thinning was raised from 35 cents to 40 cents. The rate for man and team of two horses was advanced to 75 cents per hour, and for man and four horse team to $1 per hour.

The Santa Cruz County farm bureau has adopted the following schedule for farm labor: General farm labor, 35 cents an hour; man and team, 75 cents an hour; man and four horses, $1 an hour; hire of two horses, 30 cents an hour; teamsters, 40 cents an hour; tractor drivers, 60 cents an hour; spraying, 40 cents an hour; thinning fruit, 35 cents an hour; milkers, $60 and board; other help, $60 and board.

Southern California

A new cottonseed oil mill is proposed for Imperial.

California Valencia Orange Show at Anaheim, May 17-22.

Beaumont and Banning orchardists report no damage from the recent cold weather.

Elsinore entertains the Associated Chambers of Commerce of Riverside County on April 19.

Mrs. Gwyn Thurmond of Saticoy will have charge of the women's department at the Ventura County fair this fall.

A new steamship service has been inaugurated between Santa Barbara and Los Angeles, touching at Ventura and Hueneme.

Karl Kelsey and Ernest Galwas tied for first place in the Glenavon pig feeding contest in the Riverside County farm bureau.

The Pine Flat irrigation project is being supported in the legislature by cooperating irrigation interests of the San Joaquin Valley.

B. D. Irvine of Brawley has been elected president of the Imperial County farm bureau. Mike Liebert of Seeley is vice-president.

Two carloads of La Habra lemons were part of the freight of the steamship Governor which was sunk in the Straits of Juan de Fuca.

A demonstration of gas tight fumigation tents was given at Corona last week. It was attended by citrus men from neighboring sections.

One hundred and eighty tons of Santa Paula grown beans were sent last week by boat to San Pedro and transshipped to Eastern ports.

There is some agitation to endeavor to keep the Palo Verde Valley of Riverside County free of tuberculosis by placing quarantine restrictions.

An egg bill is now before the state legislature that will require importers as well as jobbers and retailers of Chinese eggs to advertise them as such.

The next meeting of the California citrus institute will be held at Whittier, at some date between June 20 and 30, announcement to be made later by President Barrett.

Shipping of citrus fruits in paper cartons has been successfully tried out by the National Orange Company at Riverside. The trial shipment was of 900 boxes to New York.

Manager Churchill of the California Lima Bean Growers Association says that if rains do not come this season's planting to Lima beans will be even smaller than now appears.

"The one man farm" campaign is being pushed in Imperial Valley by chambers of commerce and others interested in bringing farmers of experience into the valley as home makers.

The annual convention of the California Association of Nurserymen is to be held October 20-22 at Exposition Park, Los Angeles, and a large horticultural and flower show is being planned.

A large delegation of Orange County people interested in water problems visited the conservation grounds of the waters of the Santa Ana in Santa Ana canyon. A party of 100 inspected the work of the Tri-Counties Conservation Committee.

The Coast and General

Thurston County, Washington, has 250 acres of loganberries.

State Entomologist Don C. Mote of Arizona has been appointed state bee inspector.

Production of cotton last year in Arizona, according to the reports of the census bureau, was 104,853 bales.

Governor Campbell of Arizona has requested President Harding to place embargo on long staple cotton as well as certain other agricultural products common to the Southwestern states.

Cotton growers in the Salt River Valley are making rapid progress in organizing the Cooperative Marketing Association. Meetings are being held throughout the cotton growing districts.

A boys pig club has been formed in Chandler, Arizona. The banks of Chandler are financing the members and a breeder near by is making a special price to members. It is expected that about 40 boys will join the club.

Boundary lines between Navajo and Coconino Counties, Arizona, are being surveyed to settle misunderstandings that have arisen between cattlemen as to the exact location of their ranges. The boundary is approximately 200 miles long.

Cattle shipped out of Arizona last year numbered 178,303, cattle slaughtered, 80,896. The report of the livestock sanitary board indicates that the number of cattle shipped and slaughtered last year was just a little more than half the number shipped and slaughtered the year before.

One cotton buyer in the Salt River Valley of Arizona is offering 20 cents a pound for Long Staple cotton. Farmers are disposed to hold indefinitely rather than sacrifice at this price, but as this is the first definite offer for some time it is taken as an encouraging sign of better market conditions.

A representative of the federal bureau of animal industry and the Arizona state veterinarian are planning a campaign for the eradication of tuberculosis. An appropriation has been made by the state for beginning the work, and it is the belief of those in charge that tuberculosis may be prevented and any existing cases stamped out.

Acreage of cotton under the Salt River Valley project this year will be 66,500, according to estimates carefully compiled from zanjeros' reports. This is approximately the same as in 1919 and about 40 per cent of the acreage of 1920. The alfalfa acreage will increase from a little over 25,000 to more than 42,000. The acreage of grain will be considerably greater than last year.

Considerable cotton in the Salt River Valley of Arizona will be "volunteered" this year. This method of cotton growing has but few advocates in normal years. The stand is not as good; flowering and fruiting are likely to be early, exposing the young boll to the extreme heat, and the quality of the fiber is not likely to be as good. The cost of plowing and planting fields is so great that in spite of the drawbacks there is likely to be a considerable acreage of cotton volunteered from the last year's stalks.

Federal Quarantine---Is It Worth While?

By C. L. Marlatt

To California belongs the honor of being the heartiest supporter of the federal quarantine, in fact, I think we can claim still more and say that to this state belongs the honor of initiating the entire movement which is protecting the country from some of the pests which had not secured entrance before the establishment of the quarantine. To this end our state department of agriculture, through its quarantine division, is affiliating with, even working under the direction of C. L. Marlatt, head of the quarantine division of the U. S. department of agriculture. The work in California was started a score of years ago by Alexander Craw. It has been continued by Ehrhorn, Bremner, Maskew and Strong. Mr. Maskew rendered many years of service in charge of state quarantine work. He retired only a few months ago and D. B. Mackie has been in charge of state work since that time. The San Francisco branch has, however, been directly under the supervision of Lee A. Strong. Los Angeles harbor quarantine work is supervised by A. C. Fleury while the San Diego work is in charge of L. E. French. In view of the fact that the importers are making continual effort to discredit the federal quarantine we are glad to give the following statement written by C. L. Marlatt, chairman, federal horticultural board.—Editor.

ANY law or regulation which restricts freedom of action on the part of the individual necessarily has enemies. Federal and state plant quarantine legislation aiming to protect this country from new important plant pests is not an exception to this rule. Just now Federal Quarantine No. 37, which restricts the entry of foreign plants to prevent such entry of pests is being unjustly criticized by a few persons who would like to see this quarantine abolished or amended so that in large measure the old time free importation of foreign nursery stock and other plants could be resumed with all its attendant dangers. It would hardly be worth while to pay attention to these criticisms except that they absolutely misrepresent the quarantine and have been widely circularized through a fairly active propaganda and unfortunately have been accepted at face value by many plant amateurs and societies of such amateurs. Such persons and societies, from lack of acquaintance with the quarantine and its workings, have thus obtained a very erroneous idea of the actual restrictions now being enforced on the entry of foreign plants. The agricultural and horticultural and nursery interests of this country appreciate the need for this quarantine and understand the provisions limiting plant importations. But for the information of plant amateurs throughout the country and of amateur horticultural and garden societies, etc., it seems desirable to issue a statement of facts in relation to Quarantine 37, indicating the provisions which are made under it for the importation either free or under restriction of any plant whatsoever for which a necessity can be shown and to correct the more important of the misrepresentations which have gained acceptance in some quarters through lack of accurate information about the quarantine.

Plant Entry Provided

With respect to possibilities of plant importations under Quarantine No. 37, amateur societies and plant lovers have a right to be concerned by such statements as the following, taken from this propaganda:

The department of agriculture has inaugurated "a policy that would gradually result in the exclusion of all foreign nursery stock and florists' stock"; "a Chinese wall policy for America" which will exclude "other plants which may be discovered anywhere as valuable to us as have been the apple, the lilac, the peach, and countless other familiar but exotic plants in use today"; and "the extension of the present system of exclusion by regulation under a blanket law will undoubtedly result in a total embargo against further horticultural progress in the United States!"

What are the facts as to restrictions on plant importations? No plants are absolutely prohibited entry into the United States under Quarantine No. 37 or under any other federal plant quarantine! Ample provision has been made for the importation into the United States of any plant whatsoever, whether for introduction, experimental, scientific, or other purpose. The department has no wish or intention now or at any time to make it impossible to provide for the entry under proper safeguard of any plant for which a reasonable need can be indicated.

Entry Regulations

1. Unlimited entry is possible without permit or other restriction of field, vegetable and flower seeds, and of fruit, vegetables, cereals and other plant products imported for medicinal, food, or manufacturing purposes.

2. Unlimited entry is possible under permit of from 80 to 90 per cent of the bulbs hitherto imported; of all stocks, cuttings, scions and buds of fruits; the important rose stocks, and all seeds of fruit and forest trees and of ornamental plants and shrubs, including hardy perennial plants.

3. Entry, limited only by legitimate needs, of all other plants is provided for under special permit for the purpose of keeping the country supplied with any new variety or any necessary propagating stock.

4. The exceptions to these paragraphs are those involved under specific quarantines, as, for example, the quarantines relative to citrus plants, bamboo, banana, etc., but any plants prohibited entry under such quarantines may be imported by or through the United States department of agriculture, for any necessary experimental, scientific or introduction purposes.

The classification of plants above given includes all plants and seeds whatsoever for propagation or other uses, and indicates clearly the purpose of the department and the provisions of the quarantine to provide for the entry now and hereafter of any necessary or useful plant, and in quantities sufficient to meet any reasonable need.

How Plants May Be Imported

It is not necessary to consider the importation which is unlimited as to quantity and practically unrestricted of the plants and seeds in the first two groups of plants as classified above. The third group of plants in this classification includes all ornamentals and other plants not included in groups 1 and 2 and it is the restrictions on importations of this group that are objected to in this propaganda. As already indicated, provision is made under the quarantine for the importation of any of these plants under special permits, the only limitation being the showing of the necessity for their importation to supply stocks of any new plants or of any old plants not now commercially available in the United States, for the purpose of establishing reproduction plantings which may ultimately make this country independent of further foreign supplies. No restrictions are placed on the sale of any plants produced from such imported stock except that the importer will be expected to maintain a sufficient supply to meet his continuing needs. Special permits for such importations are issued to any and all applicants who agree to the conditions of the permits and will be continued to be issued with respect to any plant until the department of agriculture is convinced that adequate stocks are commercially available in the United States.

Experts Pass on Special Permits

With respect to any request for a special permit, the determination whether the plants requested are either new or are commercially unavailable in the United States is made by a committee of experts appointed by the chief of the bureau of plant industry of the department — men therefore who are thoroughly acquainted with the subject. In addition, the recommendation of this committee before being returned to the board receives the approval of the chief of that bureau. With respect to such permits, furthermore, the department recognizes that plants may be common throughout the country and yet not available commercially and for such plants also special permits will be issued. Undoubtedly some errors have been made in refusing permits, but on proper presentation of evidence the permits in question have been issued. There may also have been some lack of uniformity at the outset before an adequate system of records and control was worked out, but under the existing system action should be uniform. The board, however, will give careful consideration to evidence with respect to any permit which would warrant its issuance even over the recommendation of the experts of the bureau of plant industry. The board's own function with respect to such permits is to insure uniformity and to enforce the conditions embodied in the permits.

The requirement of a bond in connection with such special permits has been objected to in a few instances. It developed that such bonding of permittees was a necessary requirement. The mere promise of a few importers at least was apparently not sufficient and at the outset plants imported under special permits for the purpose of propagation were in some instances promptly sold in violation of the permit. The bond seems to be the only means of insuring full compliance with the permit and unfortunately it is a burden which must fall on all alike. The bond employed, however, is the one which has been long used in the customs service for similar purposes and has not proved any serious bar to plant importations, as evidenced by the special permits already issued and the importations made thereunder, discussed below.

Importations of "Prohibited Plants"

The records of actual importations of this class of so-called "prohibited plants" makes a very informing statement with respect to the charges of "total plant exclusion," "Chinese wall," etc. The records of the department indicate that since the promulgation of this quarantine some 650 permits have been issued for the entry of those so-called "prohibited plants." The plants authorized entry in these permits include bulbs, ornamentals, roses, orchids, herbaceous plants, etc., to a total of upwards of sixteen million plants. The bulk of these is naturally represented by bulbs and bulblets which must be secured in large quantities for adequate reproduction purposes, but the permits also include several hundred thousand ornamentals. Altogether these permits include authority for the entry of 5,000 different varieties of plants out of some 5,500 covered in the requests received; in other words, ten out of 11 of the plant varieties requested have been authorized entry. These special permits are valid or may be extended until the plants authorized have been secured and entered and many of them are still in force. The "prohibited plants" thus imported are now being grown in hundreds of establishments in some 25 different states and also in the District of Columbia. This new plant production development should within a few years make us independent of much of the stock which was formerly secured abroad and will build up horticulture and floriculture in this country in the most constructive and permanent way, and, at the same time, accomplish the object of the quarantine, namely, to very materially lessen the danger which has hitherto been a continuing and heavy one, of entry of new destructive plant pests. This does not look like an "embargo" or a "Chinese wall plant policy for America!"

Functions of Board Misunderstood

There seems to be a general misapprehension with respect to the functions of the federal horticultural board in relation to this and other quarantines promulgated by the department of agriculture. This point of view is voiced in the propaganda referred to in such expressions as "The horticultural board is the controller of the horticultural research and commerce"; "Permits issued or denied arbitrarily"; "The official acting for the federal horticultural board determines the quantity of any plants which in his wishes it is proper to admit"; "The present federal horticultural board is composed of plant pathologists and entomologists and has neither knowledge of nor interest in the development of the garden art and all that it means to America"; "There is no reason why five men, none of whom is a horticulturist, should have power of life and death over the florists and nurserymen of this country, a power prohibiting millions of amateur gardeners from growing the plants which they desire," etc.

POMELOS FROM ISLE OF PINES

A consular report for March, 1921, states: "The late crop of pomelos is also being shipped to the United States in large quantities. The shipping season lasts from the middle of January to the end of April. In January and February, 1921, there were 15,144 crates of pomelos shipped to the United States, with an invoice value of $54,286, as compared with 8,966 crates, valued at $30,725, for the corresponding months of 1920.

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard — D. F. Reichard
J. W. Mills — J. B. Neff
Fred M. Reed — Louis B. Stanton
G. E. Gordon — M. E. Bemis
A. R. Gould — E. L. Koethen

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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

"Figuratively speaking," the cover is wonderfully interesting. These are days of figures and tabulated statements which make possible comparison of present production with that of former years. The farmer numbers his livestock and figures up his stored away crops as well as his bank account in order to know wherein he is succeeding or failing. The merchant or the manufacturer likewise keeps close tab on his invoice. The federal government must know as often at least as once in ten years wherein it is gaining and wherein it is losing. One little corner of the census bureau's activities is exhibited on the cover. Our crops are chronicled in acreage, in billions of pounds or bushels, or hundreds of millions of tons. As a rule, there has been a wonderful increase the country over.

* * *

And we are all jealous of our own figures, especially we Californians. A couple of weeks ago we gave figures which had been forwarded from the census bureau as to 14 selected counties in the United States. From these it appears that a California county is to be granted highest honor in crop production in the United States. There are, however, other California counties which feel that they are producing even more than some of the counties so far reported by the census. As soon as the figures as to these counties are received the Cultivator will give them the same prominence on the cover as those which have already been published. For instance, Imperial Valley papers have canvassed the situation and state that Imperial Valley's 1920 crop was far greater than the 1919 crop as reported. San Joaquin, Stanislaus, Fresno, and other counties, known to be wonderfully large producers, are also anxiously asking: "Where do we stand?" We will all be patient, and we think the next few days will give a most satisfying answer to California counties.

* * *

A bull which would sell for $1,200 would be a pretty good bull. But when we said under the photograph of King Korndyke Pontiac Mead in last week's Cultivator that he was the son of "King Korndyke Pontiac 20th purchased by the Burr Farm for $1,200," we knew better, for K. K. Pontiac 20th was purchased for just ten times that sum. In other words, we dropped off one cipher; $12,000 should have been the price named for that worthy sire.

* * *

San Joaquin Valley users of white coal have been granted a reduction in agricultural service rates by the state railroad commission. The new rates are retroactive and begin with April 1. These rates will materially aid in correcting the injustice which was visited upon farmers by the rates which prevailed during last season.

* * *

Assembly Bill No. 945, "an act regulating the use, construction and maintenance of the public highways, etc.," practically repeals, if passed, former enactments regulating use of highways and provisions having to do with registration, identification and equipment of vehicles and provides new regulations, also new registration fee, penalties for violations, etc. The bill has been read, sent to the printer and is in committee, and, as a rule, the automobile and highway people are anxious to see it out, passed and signed. It is a good bill and should be passed.

* * *

The April issue of the Monthly Bulletin of the California department of agriculture is a special pest control number. The reports of the state convention and of the commissioners have been given in former numbers and now there will be opportunity for more of cultural material. Harry Smith touches upon biological control; Professor Babcock, bud selection; Professor Essig, economic insects; Prof. T. Francis Hunt, brown rot; Donald D. Penny, horticultural commissioner of Santa Cruz County, a skin-feeding tortricid of the apple; D. B. Mackie, observations on Arizona authorities in connection with thurberia weevil; and Prof. Baker of Washington, rice aphids.

THE MESSAGE

Congress is in session; the president read his message; and the country generally approves. It is possible the message may not live as a classic in literature, but it is filled with common sense suggestions as to the needs of the country. Perhaps one sentence expressing more of the general trend of the message than any other is: "More business in government; less government in business." Harding takes stand emphatically opposing government ownership. He insists we must have a greater merchant marine but that it shall be secured through encouraging private capital rather than by public ownership.

He takes definite stand against endorsement of the League of Nations but does express the hope that an association of the great powers may be secured which will lead to a permanent peace.

SAVING THE SEQUOIAS

Many loyal Californians, appreciating our wonderful heritage in the sequoias, the oldest living things on this earth, have appealed to state and federal governments for aid in saving for future generations a few of these valuable trees. Now comes assistance from another great force, and outside of our own state, the National Geographic Society. President Gilbert Grosvenor writes regarding that society's effort to secure the purchase and presentation to the United States government of 1,276 acres in the Sequoia National Park. In addition President Grosvenor writes:

"The society, furthermore, holds options upon and expects shortly to purchase and cede to the government 640 acres of sugar pine, yellow pine and fir in this park, which constitute the approach to the Sequoia groves. For this new project, public spirited members without solicitation have placed $40,000 at the disposal of the society. The additional $5,000 required was appropriated by the society from its funds at the February meeting of the board of trustees. This brings the total contribution of the society to $25,000 and of members to $61,330, and the area saved to 1,916 acres."

Membership in this society costs but $3.50 per year, and one of the privileges is the receipt of the National Geographic Magazine.

RAISIN MARKET SLUGGISH

During the past few weeks the raisin market has been sluggish, and as soon as the outcome of the contract campaign was definitely known the Associated wired to the trade in the east in part as follows: "Owing to exaggerated statements of stocks on hand and reports that growers were not freely signing contracts the raisin market has not been active in the last 60 days, but with assurance that this success gives, the hand to mouth method of buying should be discontinued as you can now place your orders with confidence that you will at least make a reasonable profit on the turnover. We have on hand today sold and unsold of all varieties of raisins and dried grapes 52,000 tons, which is 25 per cent of the 1920 crop. with seven months before the new crop can reach the markets."

COLLEGE APPROPRIATIONS

It seems that the many suggestions made regarding the college of agriculture; its remaining at Berkeley, its removal from Berkeley, the establishment of branches, etc., will not be carried out during the present session of the legislature. There will be a committee consisting of three farmers, one each from Northern, Central and Southern California, one college of agriculture professor, a senator, an assemblyman, and the comptroller of the university. This committee will investigate the work of the university and its needs and recommend to the next legislature, which will convene in 1923, the best steps to take to establish a permanent and a great agricultural educational institution. This brings before the legislature now in session the question as to maintenance and immediately needed improvements.

For maintenance of the college of agriculture, including $50,000 for deciduous fruit experiment station work, it is now recommended that the legislature shall appropriate $2,050,000, but owing to the rapid growth and the great demands on the college additional buildings and equipment are needed on the farm at Davis which will cost $450,000 more. Hence the agricultural legislative committee and other forces are now working to secure an appropriation aggregating an even $2,500,000.

RACE PROBLEMS

In making an address on immigration and race problems in Galveston, Texas, Prof. Conklin of Princeton remarked: "The greatest danger from immigration of European races is from inherited mental and moral defects, since bodily defects are more easily detected and eliminated. The army mental tests should be applied to all immigrants and all of inferior mentality should be excluded. Freedom from criminal tendencies should be determined in their old homes before they start for America. Immigration of colored races should be prevented as far as possible. Within 200 years our country will be fully populated. Let us not curse our children to the latest generations by serious race problems in order that we may 'get rich quick.'"

Californians are discussing the importance of immigration from a standpoint other than our power of assimilation—or its lack—of European peoples and are doing some serious thinking. As Carlyle says: "So soon as men get to discuss the importance of a thing, they do infallibly set about arranging it, facilitating it, forwarding it, and rest not till in some approximate degree they have accomplished it." Perhaps Easterners may now have the situation visualized so they may to a degree aid us in accomplishing that which will be best for the whole country. It must be understood that the mere securing of cheaper production for a few years or of using labor which may be wonderfully convenient at the present time should not be allowed to blind us to the fact that the heritage of our children is jeopardized.

WHAT DO THEY MEAN?

Eastern industrialists, financiers and others are seriously concerned over the gathering in Washington at the same time that congress convenes "of representatives of the organized farmers of the United States." The alarming statement is made that these organizations "include more farmers than were ever associated together in any formal group of farmers in the history of agriculture in this or any other country, or in all the world together." "Five of these eight great organizations include a membership of between three and four million." "A political power of not less than 5,000,000 voters." That "political power" stuff is exactly what hurts, hence pages in a magazine published in Washington asking why these presumptuous people are there demanding protection which other people of the entire nation must be taxed to provide. "In a democracy no class can be taxed for the benefit of another class." "These farmers should not be permitted to increase their profits, curtail supply, fix prices, or otherwise secure advantage at the expense of the rest of the people." "The taxpayers money must be turned back into proper channels, the effort at class domination of commodity marketing must cease, etc."

Well, it's too bad if we have to stand on other people's corns, but we must stand. We have long endured injustice. It is wonderfully shocking to be touching elbows. But "what in the deuce do they mean?"

Is the Pruning of Citrus Trees Necessary or Desirable?

By Robert W. Hodgson

THERE is little need of emphasizing to the average citrus grower the necessity for reducing production costs to the absolute minimum. The unsatisfactory returns of the past year have automatically caused citrus growers everywhere to come to a rather keen realization of this necessity. Agitation tending toward reduction in wages, the result of which has been the recommendation of a standard wage scale in certain citrus districts, clearly points toward the recognition of the necessity for reducing costs of production. Growers are everywhere studying their cultural operations and debating as to what are the essentials and what may be safely eliminated. Fertilization programs are being examined with considerably closer attention than has been the case for many years.

A marked tendency toward the discontinuance of pruning is being shown in many districts, a tendency, however, which has as its basis an additional factor entirely aside from the economic situation. During the past year a number of articles have appeared in the agricultural journals of Southern California the inference from which might be that the practice of pruning is undesirable and may safely be dispensed with. The data which have been submitted and upon which this inference is based have to do purely with the yields obtained, it having been rather conclusively shown that any pruning whatever results in a decreased yield of fruit and the more severe the pruning the greater the decrease.

There are pruners here and there, however, as well as orchardists and students of citriculture, who do not feel that, simply because pruning has been found to result in a decrease in yield, it should be discontinued altogether. The writer holds this same viewpoint. And there are many growers who are in considerable confusion and uncertainty regarding the whole practice. If pruning is undesirable they are most anxious to discontinue it on account of the expense incurred. On the other hand, if pruning is necessary and desirable this is the best time to do a thorough job, since the crop is not worth as much as under ordinary circumstances.

Pruning a Devitalizing Process

Plant physiologists have long recognized that any sort of pruning whatever is devitalizing to the tree and the more severe the treatment the greater the reduction in vigor. The fundamental conception of pruning is that of a change in environment. The taking off of any of the above-ground parts of the tree simply results in decreasing its available food supply and in proportion to the amount of growth removed. With trees in foliage and of course with evergreens, the effect of pruning is all the more severe since it means the removal of actively functioning leaf surface which must be renewed before the tree is in a position to again receive its normal food supply. Elaborate pruning investigations have in every case shown this to be true, the unpruned tree in all instances having been found to be larger and stronger in every way than the pruned trees. Consequently a reduction in crop is most naturally to be expected as a result of pruning and particularly following severe treatment.

Deciduous fruit growers have long recognized that pruning is not done primarily to increase fruit production, although rational pruning treatment following severe heading back has been found to actually result in more fruit, this being the reason for the phenomenal results attending the use of the new "long" system of pruning. The unpruned trees, however, have been found to produce more fruit, although of somewhat inferior quality, particularly in point of size.

Why Prune?

The question then naturally arises as to what reasons there are to justify the practice of citrus pruning and which make it necessary for citrus trees to receive pruning treatment. The first of these which entirely justifies a reasonable amount of pruning for citrus trees is the fact that under favorable conditions, if unpruned, both orange and lemon trees may become too large for economical handling. Every grower recognizes the great disparity in costs of fumigation and spraying in the case of large trees as compared to medium size or small trees. Fumigation and spraying costs today are among the most important factors in production costs. The cost of gathering the fruit under present market conditions and labor costs has become practically prohibitive, ranging with lemons from 30 to 90 cents a box during the past season. No one will deny that it costs considerably more to gather fruit from a large tree than from a small one, particularly when it must be clipped carefully and handled as is necessary in the case of citrus fruits.

Years ago the Baronio system of pruning the lemon was in use in certain districts. It consisted of keeping the trees small so that all the fruit could be gathered from the ground. It was succeeded by the topping or hedge system, which consisted in brief of shearing off all growth above an arbitrarily selected height. Both of these systems clearly reflected the fact recognized by citrus growers for years that it frequently does not pay to gather fruit from large trees. The tree of medium size is the most economical to handle, costing less to fumigate, spray, and harvest the crop than the larger tree.

Moreover, it is possible by judicious pruning to grow more fruit on a medium sized tree where it is distributed from the outer shell of foliage clear in to the center than on a large tree which bears only shell fruit. Citrus trees if unpruned invariably become so dense as to lose the fruiting habit in the center of the tree. For fruiting there must be penetration of sunlight, since the carbohydrates stored up in the tree and which serve as its food supply are manufactured in the leaves and only when exposed to sunlight. For this reason alone—that of securing fruit on the inner parts of the tree—the pruning of citrus trees is justified and necessary.

Every citrus grower recognizes that in his trees there may be found different types of growth and that these differ markedly in their ability to compete with each other. The sucker, if

(Continued on Page 519.)

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Sulphur Time in Vineyards

By Fred K. Howard

SULPHUR your vineyard now. The use of sulphur on grape vines for the prevention of mildew is one of the necessary operations incident to the production of a profitable crop of grapes regardless of whether these grapes are to be used for shipment to the Eastern markets or dried into raisins. Mildew is one of the most serious diseases of grapes in California, and this is probably the easiest disease to control if the proper methods are used.

Sulphur Early

There are two essentials to remember in controlling mildew. First, start sulphuring early; second, thoroughly distribute sulphur. Many growers have failed to get results from the use of sulphur because they did not observe these two essential points.

Mildew is much more easily prevented than controlled, therefore the first application of sulphur must be made when the young, tender shoots of the vine are not more than eight inches in length. If the sulphur is applied at this time, and applied thoroughly, it requires only a small amount to do the work, while if the application is delayed until there is more foliage, and consequently more chance for mildew infection, then the sulphur requirements are relatively higher. It matters little, however, how early the first application is made, or when the second or third applications are made, if the proper distribution is not secured. It is not sufficient to throw a handful of sulphur around the crown of the vine. The fumes, whatever their nature may be, are not effective on the growing portion of the mildew for any gerat distance and, in fact, it has been authoritatively stated that sulphur on one leaf has very little or no effect on the mildew of another leaf. Further than this the few unsulphured vines, or parts of vines, in a vineyard are the source of infection for the balance, regardless of how well sulphur may have been applied earlier in the season. For this reason the use of burlap sacks and tin shakers should be condemned. The expense of a satisfactory knapsack sulphur machine is not very great when considering the returns one gets from the investment, and, if the acreage is large, a power machine which will do the work rapidly is not out of place.

Uniform Distribution Essential

A slogan for the man who wishes to control mildew satisfactorily is, "Distribute the sulphur in such a manner that there will be some on every leaf of every vine in the vineyard." The sulphur used should be either the best grades of sublimed sulphur or very finely ground sulphur. When examining material before purchasing, if upon rubbing between the thumb and finger there are gritty particles felt, the material should be discarded. Good dusting sulphur should be as fine and as smooth as talcum powder. These small particles will float in the air and adhere to the under as well as the upper surfaces of the leaves, while coarse particles will fall to the ground and be of little use so far as mildew control is concerned.

The time of the day for sulphuring matters very little provided there is no wind. For the comfort of the man operating the machine, as well as for effective distribution, there should be as little wind as possible. For this reason most of the sulphuring is done during the early morning hours. At this time there is also a slight amount of moisture on the leaves which helps to make the sulphur stick. Too much moisture, however, is detrimental, since it tends to collect in drops and concentrate the fine particles of sulphur in patches.

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TOPWORKING CITRUS

By Ernest Braunton

THE agricultural extension service, in cooperation with the bud selection department of the Fruit Growers Supply Company, has been holding a series of citrus top working demonstrations throughout Los Angeles County, the first being held on the W. A. Jones place near Azusa.

Farm Adviser Hodgson opened the meeting with a plea for recording yield of every individual tree in the orchard. He quoted the record recently obtained in an orchard near Highland, San Bernardino County. There are 1,525 trees 16 years old, planted 90 to the acre. The yield per tree ranged from nothing to 326 pounds, not a good yield for trees of such age. It was found that it required an average yield per tree of 150 pounds to pay all expenses. Of the lot 490 trees, or 32 per cent, yielded less than 150 pounds per tree. Of the remainder 646 trees, or 42 per cent, "broke even" or just allowed the drones and themselves, or 74 per cent, to pay their own expenses. This left 389 trees, or 26 per cent, to bring profit to the owner. By top working all below a certain yield, budding from the trees of best yield, all could be made profitable.

C. S. Milliken of the Fruit Growers Supply Company next spoke on the same subject, stating that while he was not advocating the top working of high grade lemon orchards, where trees are vigorous and crops not of highest quality it may be a good move, for we are confronted by these facts: California has 33,000 acres of bearing lemons, yielding a crop equal to the amount consumed in the United States. In addition there are 17,000 acres too young to bear and which are fully as promising as the older orchards, as we today know better where lemons should be planted. In the foothills from Pasadena to Highlands top working to other citrus trees, on lemon trunks, has proven very satisfactory. In some other districts the change has not been satisfactory, but the cause has not been determined. It may be temperature, climate, soil, treatment of orchard, or a combination of all these, Mr. Milliken not wishing to commit himself to an opinion without further study.

Perry Hill, foreman of the nursery of the supply company, and an expert authority on budding, then cut away the top of one of Mr. Jones' non-producing orange trees and placed several buds, showing the entire process in detail.

TREE BABIES

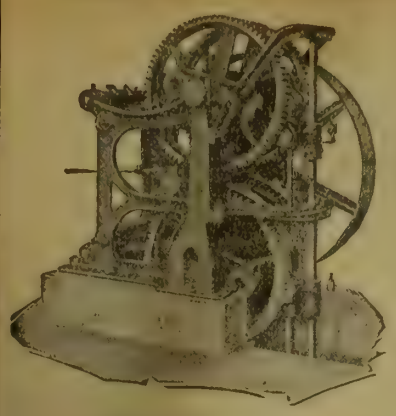
By Charles H. Shinn

It has been a glorious winter and spring. Never did outdoor California look more beautiful. Some two millions of people are beginning to think about the coming days of recreation, the climbs, the camps, the forests, the lakes and streams, the wild life of every sort. By the time this reaches print the exodus will be well under way; our forests and mountains are ready to welcome all of you.

Of course everyone finds in print, told in a thousand earnest ways, the good old rules about fire prevention and how to make, care for and clean up camp. These things simply have to be said and taught to young and old over and over again with every possible emphasis and improvement.

But we do seriously doubt whether many campers realize that for one mature tree destroyed by a fire a hundred, a thousand, or even more of the small trees, the babies of the forest world, are swept into nothingness. This item is really the all important one because it involves the whole future of the forest. The careless, selfish heathen who lets a fire start is really a murderer of tree children, and that's mighty bad business.

Again, if campers can only learn how to choose their camping places with full regard not only to convenient wood and water supplies, but also with especial care to avoid settling down in thickets of baby trees, they will deserve well of coming generations. Over and over again the writer of this paragraph has gently suggested to campers in the Sierras that by moving



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perhaps 50 feet away the lives of a lot of tree babies would be saved. In every case the suggestion was received in the same spirit and promptly acted upon.

It must be remembered that these tree babies are often less than an inch high, and only one or two years old. One has to look for them with care and know how to recognize them at sight. Let us especially teach that to the children.

SPRAYING APPLES

Farm Advisor Hodgson held a spraying demonstration on April 4 in the apple orchard of H. Koopmann, near Downey, Los Angeles County. The trees were in just the right condition for the first spraying for codling moth.

In his talk, previous to the spraying of several trees by a commercial sprayer, Mr. Hodgson said that when petals are falling plentifully is the proper time for first application of lead arsenate spray. This may be made from either 12 pounds of the paste or six pounds of the powder to 200 gallons of water. Either paste or powder may be obtained at any seed store and also from other sources. The second application should be made ten days or two weeks later, using the same formula. If a second brood appears, as is sometimes the case in late July or early August, spray again, but with a lighter spray, using eight pounds of paste or four pounds of powder to 200 gallons of water. When aphis or scab is present, usually at time of first spraying, add to formula given six gallons of commercial lime-sulphur and one pint of black-leaf 40. Not all varieties of apples may be sprayed at same time as there is quite a range in time of blooming.

PEAR OUTLOOK FOR 1921

Bartlett pears in the river districts are now past the full bloom state, reports Field Entomologist Urbahns of the state department of agriculture. Conditions generally point to the setting of a heavy crop of pears. If favorable weather continues the first spraying for control of the codling moth worms will be in full progress about April 5. Both the powder and the paste forms of lead arsenate will be used in large quantities. Pear growers are planning to make every effort to get the early spray applications thoroughly applied and properly timed since these are of greatest importance in reducing the amount of wormy fruit.

Some of the early varieties of pears have already been sprayed in the river district. In the foothill districts the blossoming of Bartletts appears to be about a week later than in river districts, hence spraying in the foothills should commence about April 10-12 under favorable weather conditions.

MEETING OF AVOCADO ASSOCIATION

The California Avocado Association will hold its annual meeting at the Hotel Maryland, Pasadena, May 6 and 7. There will be an experience meeting on Friday afternoon on the growing of avocados, which is sure to be interesting and instructive, following which a display of fruits will be exhibited which promises to be larger than any yet shown. The usual informal dinner in the Palm Room of the hotel will be followed by speeches by representatives of the various horticultural papers: J. C. Knollin, Orchard and Farm; B B. Street, California Citrograph; C. B. Messenger, California Cultivator; N. L. Chapin, Rural World, and a representative of the Pacific Rural Press.

On Saturday morning papers will be read by H. M. Chace of the U. S. department of agriculture, Los Angeles; Prof. M. E. Jaffa, University of California, Berkeley; Dr. J. Eliot Coit, Los Angeles, and L. W. Albright, Los Angeles.

President William M. Sallmon of Chula Vista will deliver his annual address at the Saturday afternoon session, which will be devoted to a business meeting for members only.

The National Grange is holding a conference in Washington this week and considering national legislation as it affects agriculture. One of the rules of the Grange is that it must remain absolutely out of partisan politics, but plainly it considers the watching of agricultural interests as outside of political activities.

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WHAT WILL THE 1921 HARVEST BE?

(Continued from Page 511.)

low lands; otherwise good prospects.
Pears: Of no commercial importance.
Prunes: Prospects fair.
Grapes: Very little injury from frost in this county.

A. L. Rutherford, Horticultural Commissioner, Stanislaus County

Almonds: 100 per cent.
Apples: 90 per cent.
Apricots: 100 per cent.
Cherries: 75 per cent.
Peaches: 95 per cent.
Pears: 80 per cent.
Prunes: 100 per cent.
Grapes: 80 per cent.

E. B. Beeton, Beaumont, Riverside County

In the immediate vicinity of Beaumont there has been very little damage done by the late frosts to deciduous fruits.

Almonds, apples, apricots, peaches have escaped without injury. The later bloom on cherries, pears, prunes and grapes has suffered a loss of from 10 to 15 per cent. Prospect for a normal crop looks favorable at the present writing, April 11.

Aratus Everett, Moorpark, Ventura County

Apples, pears, peaches and prunes are blooming and setting fruit fairly well, but none of these fruits is raised in comemrcial quantities here.

Apricots and walnuts are the only trees we rely on commercially.

There has not been so poor a prospect for apricot crops in 10 or 12 years. Old apricot trees have less than one-tenth of an average crop and many of the younger trees are failures on account of light setting and damage by late frost in coldest districts.

Walnuts are also damaged in some sections, but we hope that later blooming will come out and set. There is no hope of later blooming for apricots.

A. L. Shively, Santa Paula, Ventura County

Apricots: After the effects of the rain and frost the general estimates are 30 to 40 per cent of normal apricot crop for this county.

L. V. Haupt, Horticultural Commissioner, Kings County

Apricots: 100 per cent of normal.
Peaches: 100 per cent of normal.
Prunes: 110 per cent of normal.
Grapes: 100 per cent of normal. No damage to fruit. Slight damage to vines, but not enough to affect crop. This season's planting slightly damaged.

Wm. Gould, Horticultural Commissioner, Yolo County

Almonds: 50 per cent.
Apples: 75 per cent.
Apricots: 40 per cent.
Cherries: 50 per cent.
Peaches: 75 per cent.
Pears: 80 per cent.
Grapes: 70 per cent.

Santa Paula Chronicle, Santa Paula, Ventura County, Edith Bristol

Apricots: Temperature ranging close to 28 degrees from midnight till daylight several days early in April damaged the apricot crop of this district to what the orchardists fear will prove to be a considerable extent. Authorities estimate the loss to the apricot crop at fully 50 per cent. Through some sections of Ventura County, notably the Ojai district, the loss to the apricot crop is estimated even heavier than this.

E. T. Reynolds & Son, Chico, Butte County

Owing to frost damage last week it is impossible now to give you any estimate of the coming fruit crop, including almonds.

Peaches, almonds, prunes, grapes have been seriously injured; just what the prospect is now it is impossible to even estimate with any degree of certainty or value.

It will be ten days before estimate can be made that would be worth considering.

Ernest W. Curtis, Tehama County Agent, Red Bluff

Almonds: No damage noted thus far. Crop heavy.

Apples: Not grown comemrcially except in one section, and no report available.

Apricots: No damage noted. Crop good.

Cherries: No damage. Only one or two commercial orchards.

Peaches: No damage. Crop good.

Pears: No apparent damage.

Prunes: No damage except in hill sections, which constitute very small acreage.

Grapes: Not hardly a commercial crop this year. No damage noted on the few bearing vineyards.

Geo. W. Harney, Horticultural Commissioner, Yuba County

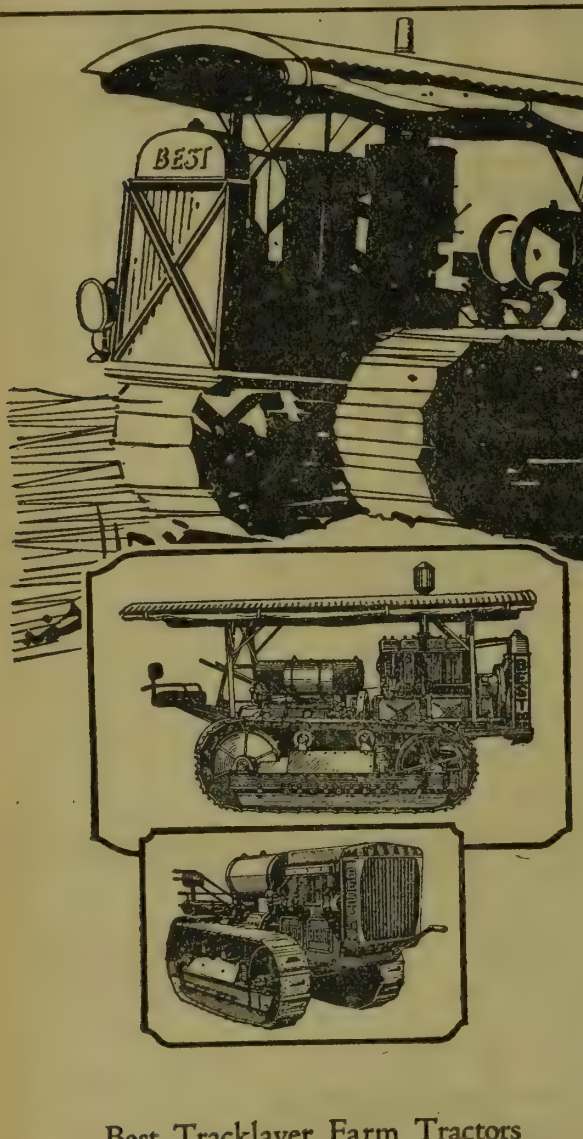
Too early to make report; must wait for few days to get definite line on damage.

Wm. B. Jackson, Ontario, San Bernardino County

Apricots: Less than one-fourth crop.

Peaches: Frozen in spots; and outside of that will be a bumper crop.

Grapes: Can't say. There has been some late pruning and serious frost. Early pruned vines will give good crop.



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IS THE PRUNING OF CITRUS TREES NECESSARY OR DESIRABLE?

(Continued from Page 515.)

allowed to remain in the tree, invariably wins out in the competition at the expense of the rest of the tree. If citrus trees are unpruned they are very likely to grow up to undesirable and unprofitable types of growth.

Rational System Suggested

Granted, then, that there are very good reasons why citrus trees require a certain amount of pruning, what may be considered a rational system? It seems to the writer that such a system is to be based first upon a knowledge of the different types of growth which may and do occur in citrus trees; second, upon a knowledge of the performance of these types of wood; and third, upon a recognition of differences in tissue efficiency between the different types of growth in the tree. There is little necessity for discussing the different sorts of growth which one may find in a citrus tree. Practically every citrus grower recognizes them, but they may be classed under the general headings of fruit wood and vegetative growth. The work of such investigators as Mr. Shamel, as well as the general experience of hundreds of growers during the past two decades has clearly indicated which of these types are the most satisfactory and consequently those which should be used. Sucker wood and all intermediate sorts are generally agreed upon as being undesirable, which leaves the fruit wood only, from which the tree should be formed. A rational system of citrus pruning, then, seems to be, first, planting trees propagated from the very best selected buds only, together with top working all off-type trees to the best strains; second, rigorously excluding all undesirable types of growth such as sucker wood and intermediate sorts; and third, keeping the trees reasonably open to the penetration of sunlight so as to induce interior fruiting.

There are several practices which investigation and experience clearly demonstrate to be undesirable. One of these is severe pruning of the normal, thrifty citrus tree. It has been celarly proven that severe pruning of healthy citrus trees results in a severe shock and setback. In the first place the bearing surface is materially reduced, which means decreased yields. In the second place the leaf surface is greatly reduced, which means decreased food supply and starvation, and in the third place, the severity of the treatment is certain to result in a forest of undesirable vegetative growth. Severe pruning of old and decadent or weakened trees may, however, be a decided stimulant and very beneficial, since it results in the elimination of inefficient tissue which acts as a drain upon the energies of the tree.

Heading back or stubbing is also to be avoided since it results in vigorous vegetative growth on the part of the trees which must later be cut out. Trees pruned by the system outlined above will produce fruit throughout the entire bearing surface from the outside shell to the center and will yield more fruit from medium sized trees than from much larger and unpruned trees left so dense as to bear all the crop on the outside. In addition, the cost of pruning by this system is about one-third the cost of the pruning given to the average citrus tree.

During the last week or ten days, the agricultural extension service of Los Angeles County has been conducting citrus pruning demonstrations in the various citrus centers demonstrating the above system. In every case, test plots have been laid out together with checks so that the results secured may be witnessed by the growers of the district.

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Machine Handling of Grain

AVERY curious thing, in a state which prides itself on its progressiveness in agriculture, is the persistence in California of the old hand work method of storing and shipping grain long after the other grain growing sections of the United States and of the world in general have adopted machine handling. The Middle West and Southwest, Canada, Australia and even South America many years ago installed elevators and other bulk handling equipment, and the farmers of those regions have ever since been reaping the benefits of the modern method in the forms of decreased labor and increased returns from their crops.

Storage on the Farm
Grain bin installed on J. L. Goodwin's ranch at Farmington with simple elevating device erected at cost of $100.

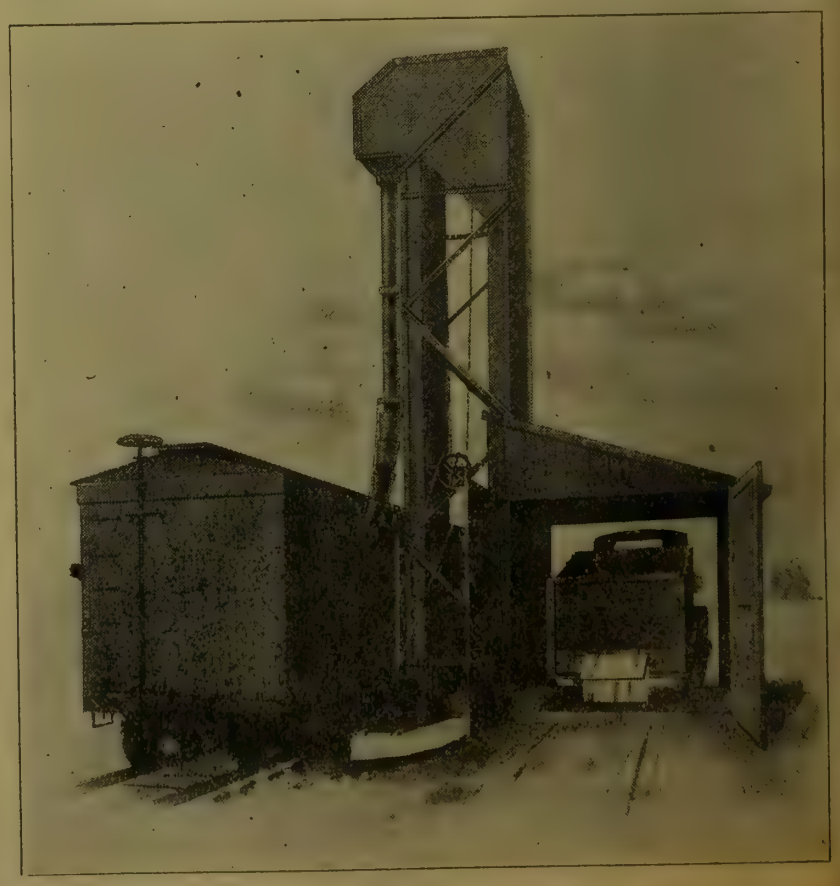
Away back in the forties and fifties of the last century it was found that bulk grain shipped in sailing vessels from San Francisco sometimes gave trouble, in the rough weather encountered in the vicinity of Cape Horn, by shifting its position in the hull and thus endangering ship and cargo. So it became the established custom to harvest and load the grain in sacks. Since that time millions of tons have been tugged and lifted about by main strength and elbow grease (with sack bucks and stevedores getting from $4 to $10 a day) when, by the use of simple machinery and a little gasoline, it could have been conveyed all the way from the harvest field to the flour mill or the holds of the ships without anyone's lifting anything heavier than an oil can or the tailboard of a truck.

Sailing vessels have been replaced by steamships, the Cape Horn trip by the Panama Canal; big users everywhere are equipped to receive and handle bulk grain, and find the sacks a nuisance, and yet until four or five years ago no serious effort was made to provide bulk handling facilities in California and get rid of the extra labor and waste involved in the old system.

And these wastes are very serious. The cost of the sacks, which fluctuates between seven and 27 cents according to the season and the farmer's necessity, is the least important item. Sack sewers, sack jiggers and sack bucks are all performing unnecessary labor, and they all have to be paid and fed. The same is true of most of the men in the warehouses, and, as far as grain is concerned, of the stevedores and other dockhands. Everything that they do can be much better performed by machinery and at a small fraction of the cost. Then there is the spillage of grain in sacking on the harvester, which amounts to little or much according to the skill and care exercised. Some sacks are always torn open in the field by stones or stubs or by being flung down too violently. In the field the squirrels and field mice get in their work, and in the warehouse or wherever sacked grain is stored the rats and mice hold high carnival. They eat some of the grain and spoil more, but the very worst results of their work are the holes they gnaw in the sacks, for from these the contents are spilled and wasted every time the grain is moved. This is probably the biggest waste of all. Often it is necessary to re-sack a whole crop on account of the ravages of rats and mice.

When the grain is harvested in bulk, stored in metal bins or other fireproof and rat proof buildings on the farms, hauled to the railroad in bulk wagons or trucks, put on board the cars by elevator equipment and similarly handled at the terminal or ocean shipping point, all these wastes and losses are reduced to the lowest percentages, and some are abolished altogether.

The California Farm Bureau Federation has made the bulk handling and marketing of grain one of the most important reforms on its program. Since acquiring by lease the 1,200,000 bushel terminal elevator at Oakland with all its facilities for handling, cleaning, storing and conditioning bulk grain, it has been carrying on a campaign to secure the erection of branch elevators of concrete construction at various grain centers throughout the state. Quite a number of these will be built; but it is now evident that the time is too short to have very many in operation in time for the 1921



Low Cost Loading Equipment for Bulk Grain

crop. Therefore the farm bureau is urging its members and grain growers generally to install at the railroad sidings simple and inexpensive bulk loading equipments, without storage capacity but capable of handling from 1,000 to 2,000 bushels per hour from the wagons to the cars. An equipment of this sort can be delivered and set up within three weeks of receipt of order. This has no storage, except for a few truck loads in the concrete pit, and, of course, no cleaning or beard-ing machinery, and this little device will load the cars just as well as an elaborate and expensive structure. Later on storage capacity and any de-sired machinery may be added, or, if a more elaborate structure is erected the elevator may be removed and used for the filling and emptying of the metal grain bins on the farms, in which case the only loss would be the expense of the concrete pit, which is a trifling matter.

For most grain growers metal grain bins or other simple storage buildings on the farms are highly desirable, both for immediate receipt of the bulk of the crop and later on to safely house grain which is kept for feed and for seed. Of course, it is practicable to haul directly from the harvest field to the railroad loading station, but unless a farm is very conveniently located this is likely to make heavy demands on trucks and drivers at the time they are most in demand. Be-sides, it tends to throw most of the grain on the market in the few weeks after the harvest, and this results in congesting the handling facilities and depressing prices.

One after another the bugaboos which were raised against the bulk handling system by those who profit by the old conditions have been dis-solved into thin air. It was said that insurance could not be procured for bulk grain shipped from San Fran-cisco. Lloyds said they would be glad to insure it in that form, and immedi-ately the other companies fell in line. Somebody claimed that English brew-ers and distillers wanted to receive barley in sacks because the beards were not broken off when handled in that way, or something of that sort. Letters from the American consuls at London and Liverpool, and from Dean Hunt, who has while in England been investigating the same matter, declare that these buyers much prefer to re-ceive barley in bulk. It was said that the local buyers would only handle it in sacks, and this is true with re-gard to some of them; but the mar-keting enterprise of the California Farm Bureau Grain Corporation is based on bulk handling; the Sperry Flour Company states that it will store bulk grain in quantities at its great elevator at Vallejo and that it will be in the market for wheat in bulk. The Western Pacific Grain Company writes that it prefers to purchase bulk grain, and, finally, those farmers who have harvested and sold their grain in bulk for several years have mar-keted it without any difficulty in that form, and at good prices. Among these are Andrew Kaiser of Glenn County, H. P. Mohr of Pleasanton and Moreing Brothers with their vast ranch on the American River. All of them say that they wouldn't go back to the old system if they could get sacks for nothing.

The cabinet and other advisers are now working with President Harding on the railroad problem. Following a recent cabinet meeting President Hard-ing called Chairman Clark of the in-terstate commerce committee and Chairman Barton of the railroad labor board into conference. The newspa-pers say "Chairman Clark informed the president that any further in-crease in rates would only stifle com-merce without producing additional revenue and that a reduction in rates is out of the question until operating expenses are curtailed." It seems cer-tain that just now the transportation problem is the most acute of all prob-lems, affecting practically every other interest, and that methods of lower-ing railroad costs and freight rates will be the chief subject in the first message of the president to congress.

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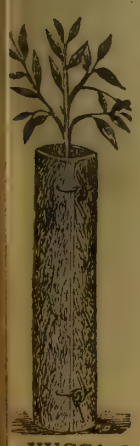

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Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Walnuts on Thin Soil

I should like to know if English walnuts will thrive in a sandy soil which does not go deeper than three feet; also is it is safe to plant in soil where root knot is present. Will it attack the black walnut root? — Subscriber, Lankershim.

Your conditions are not ideal. However, walnuts planted on soil three feet deep may grow and bear very good crops if they are not neglected and have constant attention. It must be borne in mind that soil of that depth gives rather scant feeding ground for the roots, and also that it will lose its moisture rapidly. Hence, frequent irrigations will be essential. This is, of course, presuming that your soil is in fine condition and is rich. Bear in mind these roots must never get dry. To that end the first step should be to guarantee to them a dependable water supply. As to root knot it may not always be existent in the soil, but there is always possibility of its development, especially if the roots are injured by careless cultivation. To prevent attack of root knot the dirt may be scraped away from around the crown of the tree and to the upper spreading roots and if the knot is observed it should be cut out at its first appearance. If forming on a small root remove the root above the knot and burn it. If a small knot has formed on a large root it may carefully be chiseled out down to healthy wood where the wound may be painted with Bordeaux paste. It will also be well to make careful examination as to presence of oak root fungus. If roots are found diseased and show white threadlike lines it is very probable that you have a case of this pest of many orchards.

Ration for Cow

A subscriber at Shafter, Kern County, who is feeding alfalfa hay and Egyptian corn to a Jersey cow giving ten quarts of milk is anxious to know what other concentrates he can feed which will balance the ration and give better milk flow.

This question was referred to Prof. Woll who make the following suggestions:

"A ration may be made up from alfalfa hay and Egyptian corn which will supply the various nutrients in about the right proportion for good milk cows, e. g., by feeding 20 to 25 pounds of alfalfa hay and 5 to 8 pounds of Egyptian corn. Such a ration will not prove very satisfactory for the purpose stated, however, because it contains only one grain feed which is, moreover, not especially palatable to stock. It can be improved upon by giving a variety of grain feeds, at least two or three. The choice of these must depend upon the feeds on hand and those which local feed stores carry, and their cost. During the past season coconut meal has been the cheapest concentrate on the market and, if available, a considerable proportion thereof should be included in the ration, say one-third to one-fourth. If market prices of grain feeds stand in about the same relation to each other as in the Bay region, the grain ration fed may be composed of Egyptian corn and coconut meal, two parts each, and mill feed or wheat bran one part, all by weight. If barley can be had at a similar price as Egyptian corn and at a lower price than mill feed or bran, a ration of equal parts by weight of Egyptian corn, rolled barley and coconut meal may be recommended. If the cow gives about 20 quarts (about 43 pounds) of milk a day, she is entitled to a good grain ration, viz., 10 to 12 pounds daily. She will undoubtedly increase in production with a change in the ration as suggested and will pay well for the improved method of feeding. The addition of green feeds, roots, or other succulent feeds would further improve the ration and stimulate the milk production of the cow. Dairy cows of the type owned by the subscriber are not numerous and will respond to good feeding and care. The best is none too good for them. The general principles governing the feeding of dairy cows are discussed briefly in Circular No. 215 issued by the college of agriculture of the University of California, Berkeley, and may be had upon application. The information given in this circular should prove of value to all dairymen, and especially to those owning dairy cows of good productive capacity."

Road Work Delayed

Please inform me through the California Cultivator to what authorities to appeal in order to get action on highway improvements in San Luis Obispo County. Bonds have been voted for improving the highway from Nipomo and Gaudaloupe and we want to see something started. — Subscriber, Nipomo.

We presume this is road work contemplated by the state highway commission. If so, write the commission at Sacramento. It is rather exasperating when bonds have been voted to have improvements delayed several years, but it takes time for the commission to get to all sections for which bonds were voted. Again, this may be a county bond proposition. If so, get in touch with the board of supervisors of San Luis Obispo. Also a point to consider in this matter of delay in road work is that cash from the sale of bonds is not available immediately after the voting for it requires time before all the red tape is unwound and the cash is actually in hand for the work.

State Trade-Mark

What are the necessary proceedings to take in order to obtain a state trade-mark for use on food product from one's own farm? How should one go about registering the name of one's farm? Can you give me an idea of the cost of the above registering and obtaining of trade-mark?—Subscriber, Byron.

Write to the Secretary of State for California, Sacramento, and ask for application blank for registration under the Farm and Villa Act, or one may simply use the following form:

"Application. To all whom it may concern: Be it known that..... being the owner of a..... located at....., County of....., State of California, hereby applies for registration as a name for said..... the following words ....."

Enclose with this blank a fee of $1. This particular form is used principally for protecting the name of the farm home and is of but little value. For the state trade-mark secure the blank from the Secretary of State fo. California. After filling out file with the required fee of $5. Within the boundaries of the state this trade-mark is practically as good as one secured from the federal government.

Seedling Fruits

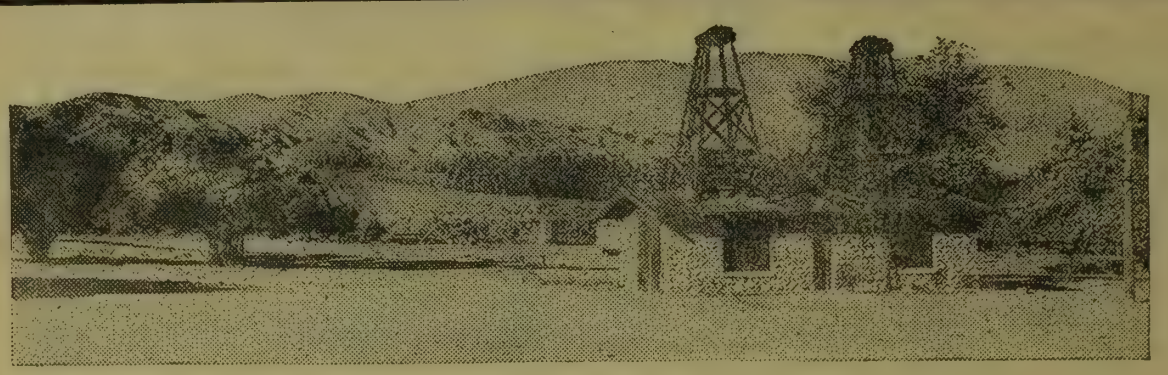
Will seedlings from apricot, peach and nectarine produce as good fruit as the parent tree? And how about seedlings from seedlings? Or is it absolutely necessary to bud or graft to get good fruit?—Subscriber, Chino.

Probably not, at least not more than one in a thousand. The tendency seems to be to revert. It is barely possible that seedlings from seedlings would come nearer to the parent than would the seed of budded trees. It is necessary to graft if one is producing commercial fruits.

Grafting California Walnut

Can California wild walnut trees be budded to other varieties of walnuts? If so, what method is used? Please describe in detail. — Subscriber, San Marcos.

Yes, and the methods have been described in previous issues of this paper. It is now too late to accomplish the work for this year. Next February or March the scions should be secured from highest quality trees and a careful grafter will be able to make valuable tree from the California wild walnut. Where one plants the seed he usually prefers to secure it from northern seedling trees.



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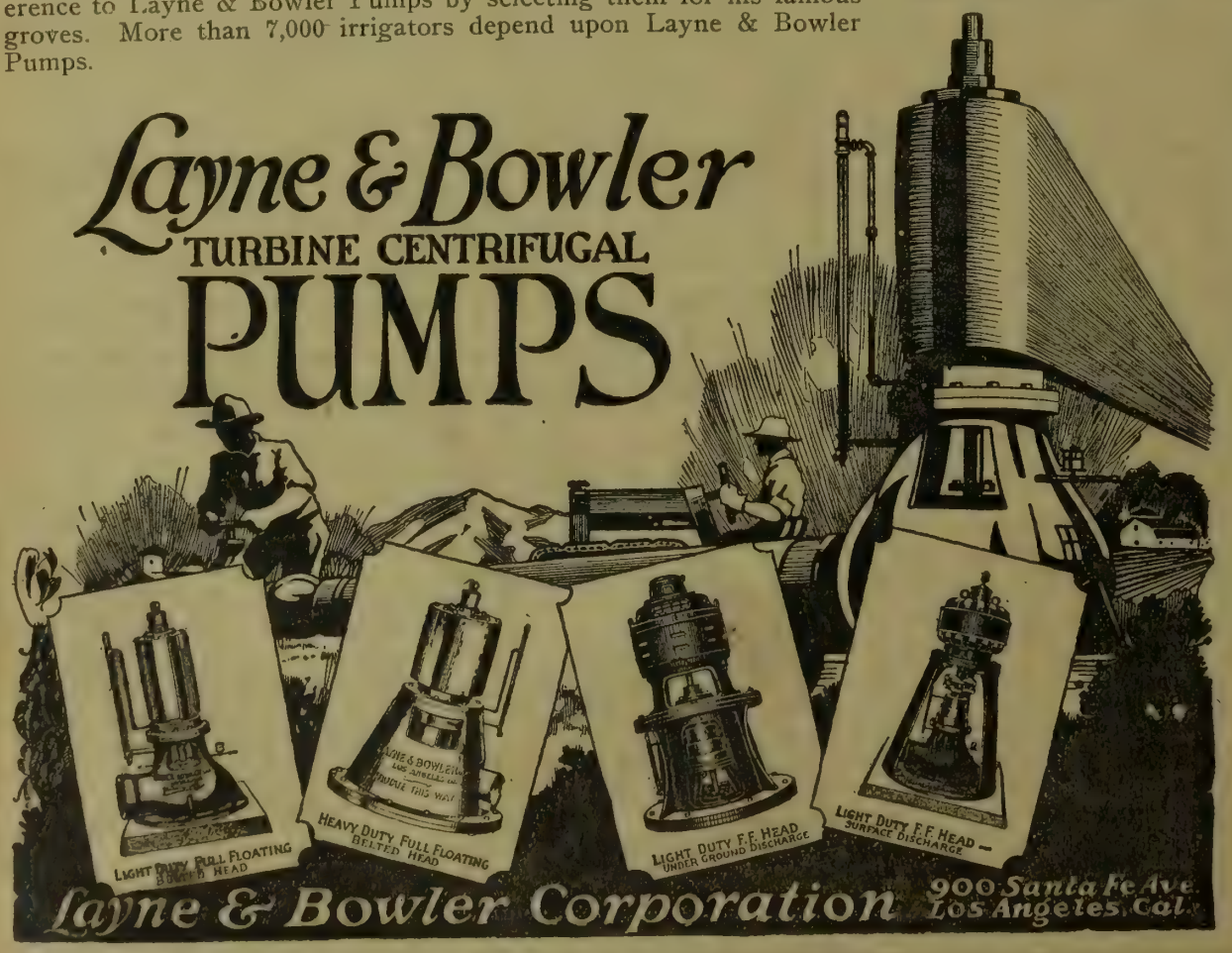
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Household Department

LITTLE BROWN HOUSE

There's a little pink tree in my garden,
Cocky and spruce with pride,
For in it a mocking bird built his nest;
He sings day and night, for he's ended his quest,
And he sings to his little bride.
My little pink tree enfolds the pair,
Shelters the treasure and holds them there;
And gently the petals drift down on me,
Sewing under my little pink tree—
Some call it a quince of Japan, but to me,
To me it's my little pink tree.

My little brown house, wistaria-grown,
Is a riot of purple bloom;
The gnarled old vine's long tendrils twine
Right into my little room.
Bumble-bees scorn the other trees,
Nectarine, orange and pear,
And their lazy zoom-m-m-m through the honeyed bloom
Quivers the still Spring air.
But under the wonder of Nature's touch
It's only a cottage, not very much—
My little brown house—but after all
Love called to me and I answered the call;
And under my little pink tree I sew.
Watching a tiny garment grow;
And into my little brown house I go
With the lilt in my heart that true loves know,
To put on the kettle and eagerly wait
For my dear one's hand on the garden gate.
Oh, little brown house and little pink tree
You are the heart of the world to me!
—Phyllys Drenforth Fortune, in March Sunset.

AT THE EDGE OF HILOTOWN

(Concluded.)

With several quite magnificent bows the messenger got upon his horse and went galloping away, leaving the baron with his mouth wide open. He grunted loudly several times, then he sank down into the chair and tried to think of nothing. He could not think of nothing, he found it harder and harder, for the simple reason that the air was full of all the most delicious smells in the world—savory meat, and spicy dressing and the breath of fresh crusty bread.

The baron wanted to eat, and he wanted to eat right away, but it couldn't be done. The dinner must wait until the duke arrived, and a lunch would ruin even the strongest appetite. So the baron fumed and sputtered. He did this until he was almost as hot as the kitchen, then he happened to look around for Ellareen; he was supposed to be tending her. Five minutes before, she had been sitting on the step, digging the dirt out of a crack with a bent pin. Now she was gone.

The baron shouted until he was tired, and all the servants, knowing that Ellareen was lost again, came, untying their aprons or brushing off their jackets, ready to go upon the daily hunt.

"Maybe she's down at the mud pie corner," puffed the baron. "Some of you circle the grounds. Look into all the lowest apple trees and then go out to the meadows. We must find her at once or she will dirty her dress—and besides, she might fall into the creek."

The baron himself went around to look into the stable yard. He could see Ranga, the only one left, beating cream in the kitchen doorway, and Gyp came up to the fence, sniffing timidly. Inside the stable a sleek brown horse was switching his tail. The baron slapped his red velvet sides and cried:

"While I wait I shall go and buy the watch dog. Ellareen must not be running wild while the duke is here. Come Ranga, saddle my horse and saddle one for yourself too. You must accompany me in case the saddle slips." He meant in case he slipped, for he was not even a middling good rider.

Ranga's hot face looked quite dismayed at this for the roasts had just come from the ovens and were not yet decorated, and there were ices to freeze and cherries to stone. He was the only one who was glad that the duke had decided to take a nap.

The baron bent down to walk through the kitchen door. He stuck his hands into his pockets and gazed proudly around while Ranga untied his calico apron.

"Ah, the pantry, the pantry!" murmured the baron, peeping in at the fragrant meats and the rows of goodies. "A goodly array, Ranga. But stay, we cannot leave it alone, there are hungry tramps and prowlers. Leave the dog to guard."

Ranga nodded and hurried out to the stable while the baron bustled through the house to get his feathered hat.

It was very cool on the lake road and the baron almost forgot that he was starving. He slipped only twice and felt very proud of himself, thinking how exquisite a picture he must make in his gleaming velvet and the black plumed hat. But his pleasure did not last long, for the watch dog dealer had had no better sense, no more judgment, than to sell the very last dog to a plumber in Hilotown.

The baron was extremely cranky all the way home but as his own wooden tower came into sight he began to sniff and remember the roast pig, and he turned forgivingly to Ranga.

"You are sure that dog will guard the kitchen well?"

Ranga bowed.

"He will, sire. I locked him in the pantry."

There was an explosion of dust and words which left the air quite smoky for a moment. The outraged baron, purple-faced and breathless, spurred his horse ahead to save a last remnant of the sacrificed meats, and Ranga followed, open mouthed. He thought a bee had stung straight through the crimson velvet.

The pantry door was locked, just as the cook had said. The baron put his hand to his chest feverishly as he turned the key; he had not the heart to look. After a long moment he turned his head and stared through the open door.

Gyp sat alertly on the stone floor. On the first shelf, just even with his hungry mouth, was the largest roast pig, untouched. Behind him stretched the cross shelf with its load of juicy beef and chicken pies.

For a moment the baron could not speak. Then he held out his hand.

"Good dog!" he choked. "Good dog!"

He tottered into the dining room. Perhaps the duke had arrived. Perhaps—but where were the servants! He found them finally, gathered into a little whispering knot down under the hickory nut tree.

"We cannot find her, Sir!" spoke up the perkiest parlor maid, and burst into tears.

The baron's head reeled. Ellareen was lost this time. really lost, his little pug-nosed Ellareen. He could hear the servants talking; they had searched everywhere, they were planning to ride into the city and look.

The baron sank to the grass and crushed a hundred daisies with his weight. He tried to speak. He looked about, dazed, and something cold and soft snuggled into his hand. It was Gyp's nose.

"Good dog! Find Ellareen! Good dog!" wheezed the baron.

The good dog went sniffing toward the house and puffing after him went the baron. Straight into the open front door pattered Gyp, and up the stairs.

Sniff, sniff went Gyp along the upper hall. He stopped and whined before the nursery door. The baron turned the knob. Of course not even a wise man would have thought to look for a little lost girl in her nursery, but there she was.

Ellareen sat contentedly on the white fur rug before the window. She was humming a jerky tune and painting busily with both hands grasping the big brush. The white fur was already beautifully spotted with green and green paint was oozing down the sides of the pail. The Hilotown carpenter had missed that paint as soon as he got home after erecting the baron's new chicken coop, but he was quite too lazy to go back after it.

Ellareen was too busy to hear the noise behind her, and after gazing fondly and proudly for a moment the baron turned and went downstairs with Gyp trailing after.

"Found her!" called the baron to the servants still standing under the hickory nut tree. "This is Ellareen's new watch dog and he found her at once. She won't get lost again."

Sudenly the baron straightened up and looked very dignified, for up the winding driveway were coming the duke and his retinue. There were a great many banners waving in the gentle wind, and as they drew nearer a bell-like trumpet blew, but the duke with his drooping mustache still looked quite sleepy and was yawning behind his hand.

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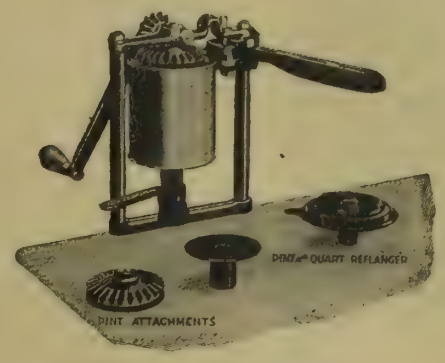

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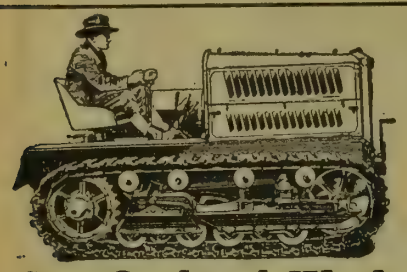

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When writing advertisers, mention the Cultivator.

"I'll wake him up," said the baron to himself as he and the duke kissed each other loudly.

So he whispered in the royal ear, "Roast pig, Denheim. Dinner is served."

It was served indeed. One wouldn't believe that a board could be filled with goodies steaming and icy as quickly as that one was. Ellareen was brought down and ate dinner with the paintbrush in her lap, as she refused to give it up. And Gyp sat between the chairs of his new mistress and the baron and caught the tempting bits tossed to him like a thoroughbred.

VEGETABLE RECIPES

By Helen Lyman

Browned Turnips

Take eight turnips, one and a half tablespoons of butter, half a teaspoon of sugar, salt and pepper. Peel turnips and cut in slices rather thick. Boil in salted water until tender. Drain well. Melt butter, when hot put in the turnips and sugar, fry until well browned, sprinkle with pepper and salt, serve at once.

Spinach Souffle

One quart of spinach, three eggs, little cream, salt and pepper, a few browned crumbs, little butter. Rub spinach through sieve after stewing well, add beaten yolks, cream, salt and pepper to spinach. Whisk whites to a froth, stir into mixture. Put into small souffle dishes, sprinkle with a little parsley and browned crumbs. Bake until well browned.

Vegetable Pie

Line a deep pie plate with pie crust. Boil one small cabbage, and chop fine, chop three hard boiled eggs, add a little salt and pepper, fill plate. Put bits of butter over it, then cover with a top crust. Bake in a moderate oven until well done.

Potato Apples

Two cups of hot potatoes, two tablespoons butter, one-third cup cheese, little salt and cayenne, a grating of nutmeg, little thick cream, yolks of two eggs. Mix ingredients in order given and beat well. Shape in form of small apples, roll in flour, egg and crumbs, fry in hot fat and drain on paper. Insert a clove at blossom end.

Vegetable Relish

Mix two cups cabbage, two green peppers, cut in shreds or chop, little celery seed and salt, brown sugar and one-fourth cup vinegar.

Sweet Potato Cup Custard

Take one large raw sweet potato and grate fine, add three eggs, one pint fresh milk, one cup sugar. Beat well and add vanilla flavoring. Cook in oven two minutes.

Corn Wriggle

One quart boiled corn, one can salmon, one pint milk, one cup water, one tablespoon flour, little butter, salt and pepper. Put corn and water on stove, let boil five minutes, add flour and butter creamed together, have milk hot, add salmon after picking over and removing all bones. Very delicious eaten as soon as it is prepared.

Parsnip Croquettes

Six parsnips, two eggs, a little flour, salt and pepper, egg and bread crumbs. Boil parsnips until tender, chop fine, add two beaten eggs and a little flour. Make into balls, with beaten egg, cover with crumbs. Fry in hot fat until golden brown. Serve very hot.

Tomato Soup

Take one quart of liquid meat was boiled in, put in a quart of tomatoes well chopped and one chopped onion, pepper and salt. Cook until tomatoes are soft, then strain, add a teaspoon of flour, dissolved in a little water, stirred in. Allow to boil ten minutes.

Turnips Creamed

Put some turnips in a stew dish with a little salt, butter and sugar. Simmer well, add a little pepper and serve in the sauce in which they were cooked, with a little chopped parsley.

Creamed Squash

Peel two squashes, cut in dice, boil in salted water until tender, drain, keep hot. Cook with a little butter and flour, and lastly pour in one-half cup of cream. Stir well and serve.

Fricasseed Beans

One cup of beans, one onion, one clove garlic, a little parsley and one hard cooked egg, one raw egg, little white sauce, salt and pepper. Soak beans in cold water two hours, put in saucepan with milk and water to cover them, sliced onions and garlic. Simmer four hours until beans are tender. Stir often. Take out onion and garlic, drain off milk and water, put sauce in another dish, heat it, add lemon juice, raw egg, lastly cooked beans. Arrange beans in a fancy dish, rub the hard boiled egg through a sieve, sprinkle over top. Garnish with chopped beets.

THE HOLINESS OF BEAUTY

You may never be a painter, but you can be a gardener. With a little effort you can take a piece of unsightly brown earth for your canvas and put upon it a fairer scene than ever fell from painter's brush. This is not all. You stand in the very gateway of the eternal beauty. You are a co-worker with God, with the great Artist who paints life, who puts that resplendent bow on the brow of the storm, who tints the mountains of cloud with amber and amethyst as they stand sentinel by the dying day.

Is it not wonderful that this Artist of the everlasting beauty will come down and work with you and second all your efforts? You plant the seeds and bulbs and wield the hoe, and that simple instrument becomes a wand in the hand of a king. You touch the earth and miracles of beauty spring up. Then the unseen brushes begin their work. In the sweet, still and dewy morning, in the calmness of the night, and in the heat of noon, He works with you. Plant the rose, the peony, the tulip and the columbine, and care for them, and lo, the silent partner comes without noise or heraldry, and the blessed work goes on. Soon a thrill comes to you. You feel the honor of it, the glory of it—this partnership with Him who paints the splendors of the suns.

* * *

We pass this way but once. Let us beautify the path as we go, so that the world may see which way we went. —C. S. Harrison in The Flower Garden.

HOUSEHOLD QUERIES

Who Knows?

A Cultivator reader asks if anyone has saved in an old scrapbook the poem, "There's but One Pair of Stockings to Mend Tonight." If so, we will appreciate very much having it sent in to the household department.

Calla Lily Stain

Could someone tell what will take out stains which come when you get the clear watery looking juice that almost drips from a calla lily stalk? It does not make a stain that shows until the cloth has been laundered. Few seem to know that it will stain, therefore are not careful. I learned from experience. I certainly do enjoy the Cultivator and the many good hints we get from it.—Subscriber, Riverside.

Calf Clubs

I read where they have calf clubs. Can you give me the address of one, as I have a fine calf and would like to join one. I am 13 years old September 14.—Reader, Delano.

The calf clubs are usually organized under direction of the farm bureau. Ask the officers of the Delano farm center or your county farm adviser, M. A. Rice, at Bakersfield.

HINTS FROM HOUSEKEEPERS

Orange Juice Icing

Icing for cake, which is very easy to make and will harden nicely but not crack can be made from the juice of the Blood orange thickened with pulverized sugar.—Mrs. John F. Lippincott, Riverside.

Sugar Pie

Seeing the inquiry for sugar pie, I will give my recipe:

First, when I have enough crust left from making pies to just line a pie tin, I prick it well to keep it from

The Cultivator Patterns

BE SURE TO SEND SIZE

3559. Misses' Dress. Cut in three sizes: 16, 18 and 20 years. An 18 year size will require 4⅜ yards of 44 inch material. The width of the skirt at the lower edge is 2 yards. Price 10 cents.

3586. Child's Dress. Cut in four sizes: 2, 3, 4 and 5 years. A 4 year size will require 3⅜ yards of 27 inch material. Price 10 cents.

3560. Ladies' House Dress. Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size requires 5⅝ yards of 36 inch material. The width of the skirt at the foot is 2 yards. Price 10 cents.

3562. Junior's Dress. Cut in three sizes: 12, 14 and 16 years. A 14 year size will require 3⅛ yards of 44 inch material. Price 10 cents.

3577. Ladies' Dress. Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 6¾ yards of 40 inch material. The width of the skirt at the foot is about 2 yards. Price 10 cents.

3575. Set of Garments for an Infant. Cut in one size: The dress will require 2⅛ yards of 36 inch material; the Barrie Coat 2¼ yards and the Robe 2¼ yards. Price 10 cents.

3571. A Practical Undergarment. Cut in four sizes: Small, 34-36; medium, 38-40; large, 42-44 extra large, 46-48 inches bust measure. A medium size will require 3 yards of 36 inch material. Price 10 cents.

3563. Girl's Dress. Cut in four sizes: 8, 10, 12 and 14 years. A 12 year size will require 5 yards of 27 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or, (1 or 2 cents) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS; we guarantee safe delivery of all patterns.

CATALOGUE NOTICE

Send 15c in silver or stamps for our Up To Date Spring and Summer 1921 Catalogue, containing over 500 designs of Ladies', Misses and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various simple stitches) all valuable to the home dressmaker.

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California Cultivator
Los Angeles

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Installations can be made in wells 10 in. or larger. Produce 300 to 4000 gallons per minute. Ask for Folder No. 4.
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Save Money—Buy Pipe From Us

Farmers, Miners, Builders — people in every kind of business are saving money buying used or renewed pipe from us. We sell every kind of pipe. Send in a list of your requirements today and get our prices. We have saved hundreds of people 33 1-3 to 50 per cent on their pipe bills. Here's a partial list of some of the miles of pipe we have in stock for immediate delivery.

8,000 ft. 6 inch Riveted 16 Gauge
700 ft. 8 inch Riveted 16 Gauge
5,000 ft. 12 inch Riveted 12 Gauge
1,000 ft. 18 inch Riveted 12 Gauge
800 ft. 22 inch Riveted 14 Gauge
300 ft. 24 inch Riveted 14 Gauge
500 ft. 36 inch Riveted 12 Gauge
10,000 ft. light wrought iron 8 inch pipe with cast iron collars.

All above pipe thoroughly overhauled and inspected and ready for immediate use.

We also have large quantity standard pipe and screw casing, pressure tested and guaranteed.

Don't delay—write for our prices on your pipe requirements today.

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PIPE

100,000 FEET
NEW and SECOND HAND
Pipe and Casing

—also Riveted Steel Pipe from ½ to 12 inch

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for all kinds of Trenching and Laying with Machines.

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Rooted cuttings, choice commercial varieties. White Chieftain, Maud Dean, Bonafan, etc., $3.50 per 100, postpaid.

Giant Pansy Plants, good stock, $2.50 per 100, postpaid.

Beaverton Greenhouses
Beaverton, Oregon

puffing but not enough so it will leak. Then I put in half a cup of sugar, sprinkle with cinnamon, dot with butter and pour in one cup of milk, sometimes add a little coconut or a few raisins. Bake fast enough so it will not get soggy, but do not let it burn. It takes quite a little while to thicken the milk so it will not run. This was always a special favorite with the children.

Second, Maple Cream or Sugar Pie. —Line pie tin with crust, prick and bake as for a lemon pie. When baked and cool, put this filling into it: Mix 1 cup maple sugar, ½ cup flour, 2 tablespoons milk which has been mixed with the yolks of 2 well beaten eggs. Put this in double boiler and when boiling hot mix a little at a time until all is mixed, then beat smooth and cook a short time longer. Turn in to the pie shell, spread over with a meringue of the two whites beaten stiff and slightly sweetened. Bake in a slow oven until the filling is well set and top a light brown. I think either brown or white sugar could be used and use any flavor preferred.—Mrs. E. A. C., Winters.

Headwork lightens housework.

There is no luxury equal to good plumbing; none so necessary.

We often talk of the good old days of our grandmothers. Think what it would mean to live in a house without plumbing!

When you are tired and aching from a long hard day's work, step into a tub of hot water and soak out all the ache and weariness. Finish off with a douche of cold water, put on clean fresh clothing and you feel a new woman indeed, the kind you want to be, fresh and rested and ready to be a pleasant companion in your family.

Many a nervous headache will yield to the hot water treatment, hot water outside and in. An enema of warm water, followed by soaking the feet in water as hot as can be borne, then by a long leisurely soaking bath in warm water will draw the blood from the head and restore the jangled nerves. Try it.

If you are building or putting in new plumbing, here is a suggestion worth noting. Have the stationary laundry tray installed beside the kitchen sink, fitted with hinged, sloping cover which serves as drainboard. The clothes wringer may be screwed between tub and sink, a rubber stopper placed in sink—and you have two tubs. The wide shallow sink is particularly convenient for bluing. It's hard for a bit of linen to conceal itself under something else and come out bluer than it should.

Builders and plumbers nowadays ask the mistress of the house just how high she wants her kitchen sink and laundry tubs set, and set them accordingly. Formerly they were set too low for any but the very short woman. If the women in the household come in assorted sizes it is easier for the short ones to stand on a board or a low bench to reach a high tub than for the tall ones to break their backs stooping.

If you have a tricky or inconvenient faucet on the kitchen sink that will not yield to the efforts of the repair man, it is an easy matter, and not expensive, to replace with entirely new faucet that does fill your need.

A tank of hot water, available night and day, is to be counted among the major blessings of civilization. It is not only cleansing, but curative and comforting.

Let the boys rig up a shower bath of their own outside the house this summer. There is something about a shower, suggestive of games and athletics, that appeals particularly to the boy mind, and the shower bath habit once acquired as half fun will stick through life to the physical and moral well being of the boy.

the life of the party

Say "Gear-ar-delly"

Whether it's a "little party" or a "big affair" Ghirardelli's is a great comfort to any hostess [big or little]. Cups of creamy, hot chocolate, chocolate layer cake, "fascinating" squares of chocolate fudge [not to mention a host of other goodies] —you can rely on Ghirardelli's to be the life of the party.

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Our storing facilities are ideal. We specialize on storing of household goods, office furniture, trunks and automobiles. Our private locked rooms are also a great convenience to our patrons.

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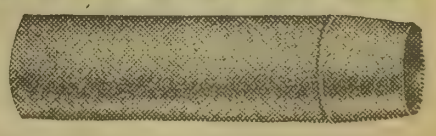

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says Mr. C. V. Hartwig, Yuba City, Cal.

Mr. Hartwig writes us more fully, "Your molasses mixed with ground barley and tankage made an excellent hog feed. I never saw hogs do so well or grow so fast."

Hogs, wherever grown, have about the same habits. The feed that will put on fat fastest in Yuba City will do the same thing in Sacramento or Imperial Valley. Molasses should figure in your **ration**, because it **makes fat** and does it cheaper than feed you are now using. Camo Molasses is a cheap feed and a fattener.

Let us give you facts and figures about feeding, that spell the difference between profits and loss. Let us tell you what Molasses will do for **you** and **your** stock. Ask us to send you our interesting booklet. Write for it today.

W. H. YOUNG COMPANY
58 Sutter St
San Francisco

Jane Garden Holsteins Average $493

By R. P. Royce

The complete dispersal of the famous Jane Garden herd of Holsteins, owned by Fred W. Kiesel of Sacramento, April 6 and 7, proved to be one of the most successful sales ever held in California. One hundred and sixty-seven head of f males and three bulls sold for a total of $83,570, an average of $493. In view of the fact that the offering included many small calves and that none of the cattle were sold subject to the tuberculin test the above average can be taken as an indication of the strength of the Holstein industry in this state and the high regard held for Jane Garden Holsteins.

The Holstein operations of Mr. Kiesel, culminating in the dispersal of his herd, should offer considerable encouragement to established breeders and should point the way for men who have recently entered the business or who expect to establish herds. Before Mr. Kiesel owned a single Holstein he built and filled two silos. That fact in itself, while not important, indicates the thoroughgoing way Mr. Kiesel set about going into the breeding business. In assembling his herd Mr. Kiesel selected animals of accepted type and proven bloodlines and in the selection of his herd bulls he has been content with nothing short of the best obtainable. That such a plan has been sound and profitable is attested by the sale list. Three bulls saw extensive service in the herd; Prince Gelsche Walker Korndyke, King Korndyke Pontiac and Sir Aaggie De Kol Acme. Thirty daughters of the first named bull averaged $390; 26 daughters of King Korndyke Pontiac averaged $548 and 38 daughters of Sir Aaggie De Kol Acme, many of them baby calves, averaged $494. No man who watched the sale could fail to grasp the demonstration of the value of a proven sire.

The sale was remarkable in that no high values were recorded, the top being reached at $1600, the price paid by J. W. Scudder for King Korndyke Pontiac. At the price named Mr. Scudder secured a rare bargain.

The top price for a female was fetched by the 34.10 pound two year old, Jane Garden Viola De Kol, a daughter of Sir Aaggie De Kol Acme, that was taken by E. A. Gammon for $1250.

Mr. Gammon, who is establishing a high class herd on his Hope Farm, Franklin, was the heaviest buyer, selecting 25 head of the tops for an average of $719. E. Burr of Los Angeles selected 30 head of heifers for shipment to Canada, where he is establish-

THE CALIFORNIA NATIONAL LIVESTOCK SHOW

By R. P. ROYCE

Last week a meeting was held in San Francisco at which plans were discussed for launching a livestock show to be held this fall. The meeting was attended by representative livestock men, business men and newspaper men. The project has received the hearty support of all interests and at this time it appears certain that the California National Livestock Show will become a fact.

This matter of a strong annual livestock show is one of vital concern to the livestock interests of this state, but overshadowing that importance is the great service such a show can be made to render in the development of California.

Now, as never before, the general public has come to realize that after all the prosperity of agriculture measures the prosperity of all. And because it is recognized by all that a successful scheme of agriculture can only be developed where livestock is given a major role, it is of the highest importance to the general welfare that that branch of agriculture be stimulated and fostered. A properly organized and conducted livestock show will stimulate and foster the industry as will no other means. Such a show accomplishes that end, not by simply providing a place where a few breeders meet and compete for honors, but by demonstrating the practical value of better cattle, horses, sheep and swine and lending inspiration to men not handling the better sorts to improve their herds and flocks.

Unless the livestock industry is prosperous other branches suffer. Profit with livestock can only come through widening the margin between production costs and selling prices. Better bred livestock, because such stock is more efficient, will widen that margin by lowering production costs.

The purebred livestock industry of California is still a young industry, but enough has been accomplished to demonstrate that every condition necessary for the production of superior livestock is present in this state. All that is needed is a stimulating influence such as the proposed show will provide.

We feel certain that the efforts of the organizers will receive the unstinted support of all breeders. We take is for granted that San Francisco has recognized the practical value of such a show. If not, let San Francisco ask Chicago, Kansas City, Denver, Portland or any other city that is the home of similar shows.

TYPE + PRODUCTION
FOR SALE
Holstein Females
PRICED RIGHT

Granddaughters of Johanna McKinley Segis
Granddaughters of Pontiac Korndyke
Granddaughters and daughters of King Segis Pontiac
with King Segis on BOTH SIDES OF THE PEDIGREE
How often do you have this kind offered you? Come out and see them.
Ranch located 22 miles south of Riverside.
Every Animal Tuberculin Tested and Guaranteed to be a Breeder

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PROPRIETOR
HOLSTEIN-FRIESIAN — CATTLE
Nuevo, Riverside County, Cal.

California Wonder Corn

Something New and Good. Produces 3 to 12 good ears per Stalk. I sell the stalks with the ears right on them so you can see just what you are getting. I also sell ear corn and shelled corn postpaid. My best plots have averaged 6 ears per stalk, over 300 pushels per acre. I am now selling seed grown directly from this same stock. This seed will produce Big Crops on Your farm. A few dollars starts you making Big Money This Year. My photo illustrated booklet tells all about it and gives prices. Send for your copy today. It's Free.

EDWIN FRAZEE
CORN SPECIALIST
Santa Rosa, California

tal of $7245. E. Ehrig of Stockton made his initial purchase with eight head. Other strong supporters were: Frank Helm, Fresno; J. R. Crawford, Burrell; Dr. J. M. Crawford, Fresno; G. W. Dwinnell and J. B. Rohrer of Montague; J. M. Hampton, Jr., Live Oak, and J. N. Cook of Orland.

The sale was conducted before large crowds each day; the bidding was very brisk at all times and the arrangements and management were declared to be perfect.

The sale was managed by C. L. Hughes of the California Breeders Sales and Pedigree Company. Col. Ben A. Rhoades of Los Angeles was the auctioneer and Col. John A. Davis of Manteca worked the ringside.

Many regrets were expressed over Mr. Kiesel's retirement, and even though he does not reenter the business he has the satisfaction of knowing that he has contributed much to the breed and the cattle industry of this state. We need more Kiesels out here.

BULLS

1, King Korndyke Pontiac, April, 1912; J. W. Scudder, Escalon, $1600.
2, Aristo Korndyke Pontiac, Jan., 1919; G. J. Stamm, Sacramento, $1200.
3, Prince Gelsche Walker Korndyke, Nov., 1913; J. M. Hampton, Jr., Live Oak, $525.

FEMALES

4, Jane Garden Johanna Segis, 27.99 lbs., Oct., 1917; Burr Farm, Los Angeles, $500.
5, Adele Korndyke, 22.09 lbs., May, 1917; J. R. Bush, Merced, $725.
6, Jane Garden Carmeletta Korndyke, Nov., 1919; J. B. Rohrer, Montague, $400.
7, Lacona Elzevere, 27.95 lbs., Mar. 1917; E. Ehrig, Stockton, $585.
8, Jane Garden Madrona, Feb., 1921; L. Peterson, Petaluma, $300.
9, Uneeda Johanna Bonheur Gloriana, 28.89 lbs., Dec., 1914; G. W. Dwinnell, Montague, $900.
11, Jane Garden Thursa Korndyke, Nov., 1919; Hope Farm, Franklin, $550.
12, Jane Garden Granada Korndyke, Nov., 1919; E. Burr, Los Angeles, $500.
13, Jane Garden Magnolia Korndyke, 22.44 lbs., Mar., 1918; Dr. Thos. J. Cox, Sacramento, $975.
14, Anoakia Walker, 20.38 lbs., Oct., 1916; A. L. Rambaud, Manteca, $850.
15, Uneeda Korndyke Frances, 25.72 lbs., Dec., 1913; J. R. Bush, $485.
16, Mamselle Frances Korndyke, 34.10 lbs., May, 1917; Hope Farm, $1200.
17, Jane Garden Gloria Korndyke, 16.46 lbs., Aug. 1918; G. J. Stamm, $700.
18, Jane Garden Victoria Korndyke, Nov., 1919; E. Burr, $400.
19, Korndyke Sadie Vale Starrena, 21.22 lbs., April, 1916; G. J. Stamm, $625.
20, Jane Garden Dirkje Korndyke, 21 lbs., Sept., 1918; Frank Helm, Fresno, $950.
21, Jane Garden Medina Korndyke, Nov., 1920; E. Burr, $235.
22, Jane Garden Aaggie Dirkje, Oct., 1919; H. E. Vogel, Fresno, $500.
23, Helen Nye Skylark, 28.02 lbs., Sept., 1911; E. Swift Train, San Francisco, $750.
24, Natoma Purissima De Kol, April, 1916; Geo. H. Davis, Brentwood, $235.
26, Jane Garden Nordica Korndyke, July, 1919; G. J. Stamm, $675.
27, Jane Garden Marimba Korndyke, June, 1920, Hope Farm, $400.
28, Cornucopia Walker Korndyke, 19.46 lbs., Oct., 1915; J. R. Bush, $800.
29, Jane Garden Rosina Korndyke, Mar., 1920; E. Burr, $375.
30, Jane Garden Sultana Segis, Nov., 1918; Hope Farm, $700.
31, Jane Garden Heilo Korndyke, Dec. 1919; J. B. Rohrer, $400.
32, Jane Garden Viola De Kol, 19.13 lbs., Oct., 1918; Hope Farm, $1250.
33, Natoma Hermosa Pontiac, May, 1916; Frank Helm, $700.
24, Jane Garden Mareella, June, 1919; Hope Farm, $700.
35, Susie Fern Pauline, 25.28 lbs., Nov., 1914; J. R. Crawford, Burrell, $700.
36, Natoma Superba Pontiac, 24.84 lbs., May, 1916; J. R. Crawford, $675.
37, Jane Garden Canna Korndyke, Oct., 1920; E. Burr, $235.
38, Natoma California De Kol, 17.74 lbs., June, 1916; J. R. Crawford, $500.
39, Corinne Korndyke Colantha, 23.98 lbs., Oct., 1914; G. J. Stamm, $650.
40, Jane Garden Tapioca De Kol, 25.25 lbs., Sept., 1917; Hope Farm, $1025.
41, Pennant Mutual Korndyke, 24.34 lbs., Jan., 1916; J. R. Bush, $350.
42, Jane Garden Cosa Kisella Korndyke, Sept., 1919; E. Burr, $375.
43, Pennant Pietertje Dodo, Mar., 1915; Hope Farm, $450.
44, Jane Garden Victrola Pietertje, July, 1918; J. R. Bush, $375.
45, Jane Garden Atlanta Korndyke, June, 1919; E. Burr, $350.
46, Pennant Mooie Clothilde, 24.19 lbs., Jan., 1913; A. L. Rambaud, $300.
47, Maud Cordova Clothilde, 18.19 lbs., Feb., 1916; E. Ehrig, $545.
49, Jane Garden Camellia Korndyke, Mar., 1918; Geo. H. Davis, $725.
50, Jane Garden Korndyke, April, 1919; E. Burr, $335.
51, Pennant Korndyke Goldie, Mar., 1915; T. H. Brice, Los Angeles, $385.
52, Jane Garden Bertha Korndyke, July, 1920; E. Burr, $235.
53, Buttercup Hengerveld Segis, 21.20 lbs., June, 1915; A. L. Rambaud, $925.
54, Jane Garden Verona Segis, 13.54 lbs., Dec. 1917; J. R. Crawford, $510.
55, Jane Garden Segis, Nov., 1918; Dr. J. M. Crawford, Fresno, $485.
56, Jane Garden Veronica, Oct., 1919, E. Burr, $450.
57, Segis Leona Burke, 21.44 lbs., Jan., 1916; J. R. Bush, $400.
58, Jane Garden Leona De Kol, Sept., 1918, J. R. Bush, $425.
59, Jane Garden Juanita Korndyke, Oct., 1920; J. B. Rohrer, $285.
60, Rest Easy Wera Bell, 22.62 lbs., April, 1915; Hope Farm, $1000.
61, Jane Garden Katrinka Korndyke, May, 1918, J. R. Bush, $410.
62, Jane Garden Lydia Korndyke, Mar., 1920; G. W. Dwinnell, $400.
63, K. P. C. Butterfly Beets, 21.79 lbs., Sept., 1914; Burr Farm, $425.
64, Jane Garden Coca Cola, Oct., 1919; Burr Farm, $460.
65, Tessie Leona Cornucopia, 25.61 lbs., Mar., 1916; E. Ehrig, $650.
66, Jane Garden Resava, Jan., 1921; L. Peterson, $190.
67, Artis De Kol Khrone 3rd, 19.08 lbs., March, 1916; Hope Farm, $725.
68, Jane Garden Arabella Korndyke, Jan., 1920; E. Burr, $350.

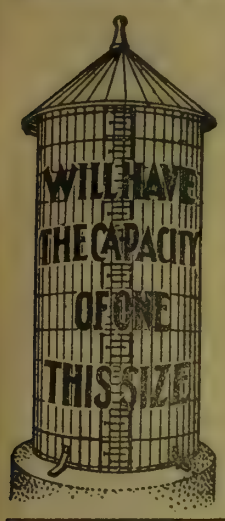
(Continued on Page 530.)

The Cushman
Silage Packer

is a Roller set in a suitable frame on which is mounted the standard Cushman engine—4 H.P. size.

One man in the silo handles the distributing spout and controls the engine.

This lessens the number of men required and packs the silage evenly, eliminating all gas pockets. It will increase capacity of your present silo at least one-third more.



Those who have used them claim that they pay for themselves in a season.

This is no experiment. The engine may be used for other work on the farm also.

The famous 4 H. P. engine used is the one so popular for use on grain and corn binders, manure spreaders, potato diggers. It can be used for pumping, wood sawing, spraying, grinding, making electric lights. It cannot be equalled for power in the blacksmith or machine shop.

Ask your dealer, or write for information to

Cushman Motor Works, Stockton

BERKSHIRES

RAISE BERKSHIRES
They are prolific, the best of mothers and will thrive under any of the climatic conditions in the West.

They Always Top the Market
We will supply your wants or tell you where you can obtain them. For full information address. Chas. M. Talmadge, Sec'y.

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The Profitable Hog

BERKSHIRES
universally recognized as the
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breed for economical pork production. Send for literature and information

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USE SHIRE POWER

The cheapest and best power that any farmer can use. Shire mares will raise as good a colt when working as when idle. Breed your mares to Shire stallions, the young stock will make you a very good profit. For information on Shires write:

W. G. Lynch, Secretary, American Shire Horse Association, Box H, Tonica, Illinois.

BREEDING DATE BOOK—FREE

We have issued a convenient little book for the keeping of breeding dates of cattle, hoping to aid the breeder and cattle owner in maintaining accurate records. We will gladly mail you a copy free if you request it. A postal will do.

CALIFORNIA BREEDERS SALES AND PEDIGREE CO.
C. L. Hughes, Sales Manager
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For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

D. G. Cummins & Son
Route 1 Visalia, Cal.

A "365" Day Liniment

YOU ARE SAYING TO YOURSELF—"If I only knew of something to stop that Backache—help my Rheumatism—cure my Neuralgia, I would send and get it at once."

Get It. Relief. Gombault's Caustic Balsam will give you immediate Relief. A Marvelous Human Flesh Healer and a never failing remedy for every known pain that can be relieved or cured by external applications. Thousands testify to the wonderful healing and curing powers of this great French Remedy. A Liniment that will soothe, heal and cure your every day pains, wounds and bruises.

Gombault's Caustic Balsam
The Great French Remedy
Will Do It

It Helps Nature to Heal and Cure. Penetrates, acts quickly, yet is perfectly harmless. Kills all Germs and prevents Blood Poison. Nothing so good known as an application for Sores, Wounds, Felons, Exterior Cancers, Burns, Carbuncles and Swellings.

"I had a bad hand with four running sores on it. The more I doctored the worse it got. I used Caustic Balsam and never needed a doctor after that." —Ed. Rosenburg, St. Ansgat, Ia.

Mrs. James McKenzie, Edina, Mo., says: "Just ten applioations of Caustic Balsam relieved me of goitre. My husband also cured eczema with it, and we use it for corns, bunions, colds, sore throat and pain in the chest."

A Safe, Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Rheumatism and Stiff Joints. Whenever and wherever a Liniment is needed Caustic Balsam has no Equal.

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A liniment that not only heals and cures Human Flesh, but for years the accepted Standard veterinary remedy of the world.

Price, $1.75 per bottle at all Druggists or sent by us express prepaid. Write for Free Booklet and read what others say.

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F. C. Fairbanks Ranch Hampshires

The Grand Champion Boar HARVEY'S CHOICE 53147 at head of our great herd of brood sows

HARVEY'S CHOICE
Grand Champion Boar
at Los Angeles, 1919

LOOKOUT CHEROKEE
Grand Champion at Liberty Fair
SIOUX QUEEN
Grand Champion at P.P.I.E.

18 High Class Brood Sows in herd—young stock for sale

A. E. Harvey, Manager Redlands, Cal.

Blue Ribbon Hampshires

Our Grand Champion Hampshires have paved the way for breeding high-class Hampshires on the Pacific Coast. Blood lines of Lookout Cherokee, Director, Sioux Queen and Gen. Tipton dominate the herd.

Both Hampshires and Shorthorns in finest thrift. Call at ranch or address

F. A. Langdon, Mgr.
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Italian Vineyard Company
Big Type Berkshires

Some dandy young boars for herd headers. The choicest breeding and ready for service.

Every one tuberculin tested and cholera immune.

Alex. M. Wilson, Supt. Guasti, Cal.

Settle the Packer Agitation

By A. L. Spellmeyer

IT IS well to preface the following statements by saying that the cattle and sheep and hog men of California are in better general financial condition, securing better prices and enjoying a better natural season, than in any other part of the great nation. The California stockman is not on the road to wealth. He is losing money in most instances, but it is a losing of interest on his land and cattle investment rather than actual loss in the investment itself. The producers of this state are as compared to producers in other states in good shape and should be thankful for California's glorious climate and isolation.

There are several questions that are vital to the stability of the livestock business here and elsewhere. One at least of the elements that contribute to the high cost of production, the raise in railroad freight rates, is working with California at present rather than against it.

The vital question that is now affecting all lines of the cattle business particularly is the unsettled packer question. This is operating to the injury of the cattle industry, and irrespective of how it is done, a speedy settlement for or against the packers should be reached by the legislators and these bills pending put through at once or killed. The lessening beef cattle numbers of the country, the continued sacrifice of breeding cows, the soil needs that make livestock imperative on a million farms, the growing population of the country, all demand action. Men must know what is ahead of them, and the loss that the cattle and sheep men are bearing today cannot continue and our meat and wool supply be maintained.

The other vital question is the retail margin of gross profit, and for it three solutions are suggested in many livestock papers; to have the cattle associations organize and establish abattoirs and markets, to have cities establish them, or to permit the packers to market the meat themselves. The danger of the latter course is self evident with a group of men who might act without regard for consumer or producer, as such a complete control of food would mean, to judge by past abuse.

The fact is that today the group of packers is mighty, stronger than any food control has ever been in any history of any country, and, a great senator says, apparently stronger than the government, so it is the open question, will these packers, like Samson of old, wreck the pillars of the livestock industry before they will accept control? The way the pillars have been shaken during the last year or two it looks probable.

There is not even a long shot chance that associations or municipalities will undertake direct marketing, and any one who depends upon the present organization of stockmen to stand together with their money and their votes merely leans upon a rotten reed as their associations are full of the wormholes of self interest, and these cattlemen are split into factional groups and their influence nullified, their potential power made into a joke.

The president of the American National Livestock Association, the Hon. John B. Kendrick, states that cattle associations should "provide for ourselves a strong forceful organization, etc., or disband any form of association." "As it is today our efforts are futile and hence are rightly subject to the scorn of our enemies."

One prominent cattleman and horse breeder says that all he can see in some associations is a chance to pay dues and cast a vote for a few men who do all the moving and talking while some fellows say "Aye" and pay the cost.

Therefore, knowing these things, the cattlemen face an uncertain future, and that alone prevents activity or development of the industry.

While the producers of meat and the packers were wrangling and fighting, like two boys over a watermelon, the third boy came along and took the melon, and that third boy is the retailer.

Packers have passed several dividends; they have spent tens of millions upon their propaganda and advertising campaign; all the while the producers being hit in the markets, which weakened their fighting ability, and this at a time when supply is annually decreasing. All this expense has been levied upon the producer and the consumer. The producer is getting about 50 per cent of his cost of raising the beef and the consumer is paying. Waste is abhorrent. If the cattlemen will not organize now they are not fit. If the consumer won't help the producer let the consumer pay for the inevitable shortage. The retailer is between the millstones and cannot keep up his margin when the packer-producer agitation is once settled. War costs money, whether with guns or a commercial staple.

We hear a lot about cattlemen and sheep men accepting the present prices and writing the lower value off as loss, as a merchant does with stock on which prices have declined. The production of cattle or of sheep depends upon its cost, the cost of the coming crop. That is the rub. The next crop cannot be produced in wool at 20 cents, in beef at its present U. S. price, or in mutton.

The man who owns his land is forced to stand a specified cost, which has not lowered for the coming year and is dependent upon the amount of land investment, and land has shown no decreased valuations to correspond with meat on the hoof. Wages are but a small part of expense, interest being greater, and that has mounted.

Some $5.50 cows that recently sold in Los Angeles after long expensive feeding brought almost enough to pay their feed bill and expense. The steers did better at 9 cents, but showed great loss over their market value at the time they were put into the feed yards. The Cultivator last fall printed my warning as to the lack of prospective profit in any feeding operation that involved heavy expense. It has come true with a vengeance.

There are about 2,000,000 sheep and a lot of cattle in Arizona feeling the effect of a short grass year and drouth. There will be no fat grass lambs from Arizona this spring. Any fat lambs must come from California, and the California sheep man is in clover as compared to others. He has the feed, the fat lambs and a short market. Whether he gets a price will be seen.

The spring cattleman of California has a daily rising Eastern market to figure as his competition, with more than two cents for freight and shrink in his favor. There is just one thing in this world that can prevent the California man from getting ten cents for spring grass beef, if he demands it, and that thing is contracts and cashing in by his brother cattlemen. For a time beef will be about adequate to supply, then the volume will make it greater than demand for a couple of months and less than demand later.

The possibility exists that packers will ship in carcass or live beef, but from the outlook it will cost them money to do it, and while they have done it in outlying districts it's a different matter to ship a train or two of steers or a few dozen cars of beef, bought on the Middle West sacrifice market of the past winter and stored in the coolers, and to supply an approximate 60,000 a month California kill or ten per cent of it, which this state will be using.

From what we can learn the cooler stock has not been piling up, but the packer agitation has disgusted more people than the cattlemen themselves, and the amount of meat consumed has been dropping. It may drop farther as that is always the case when there is lowering of wage returns.

IMP. DENE JEWEL, 589.16 lbs. butterfat, 10,546.4 lbs. milk. Sells well along with calf of King of Hollow Hill.

Dispersal of Rare Guernseys

55---Registered Cows, Heifers and Bulls---55

Hollow Hill Farm

Owned by G. W. Wilder

Colton, Cal.

Thursday, April 28, 1921

An offering that permits a wealth of selection, presenting breeding, production, and show ring quality of high merit. Good health is also a most attractive feature of the herd.. Representative individuals in the sale include

IMP. ANGEROSA III, with 538.08 lbs. butterfat, 10,472.5 lbs. milk, Class AA. Bred to Effie's King of Hollow Hill Farm.

ROSA KING OF HOLLOW HILL FARM, 478.51 lbs. butterfat, 8978.9 lbs. milk as junior 2 year old.

IVA OF BELLMATH II, with 495.7 lbs. butterfat, 10,710 lbs. milk.

FEMALES

IMP CHERRY III OF THE EFFARDS, 735.3 lbs. butterfat at 4½ years. Grand Champion Southern California Fairs 1918 and 1920. Well along with calf to King of Hollow Hill.

IMP. DENE JEWEL, 589.16 lbs. butterfat. Third prize aged cow 1920 California State Fair. Well along with calf to King of Hollow Hill.

JEWEL LANGDON OF HOLLOW HILL FARM, out of Imp. Dene Jewel and by King of Hollow Hill. First Prize junior heifer calf 1920 California State Fair.

CAROLINE LANGDON OF HOLLOW HILL FARM, 473.37 lbs. butterfat as a junior 2 year old. By Effie's King of Hollow Hill Farm and out of the grand foundation cow Caroline of Chilmark, 727.97 lbs. butterfat.

REBECCA OF SUNNYVIEW, 647.86 lbs. butterfat, Class BB. Dam of Grand Champion bull at Arizona State Fair 1920 and junior champion bull at California State Fair 1920, also first prize Produce of Dam at same show.

IMP. ANGEROSA III, with 538.08 lbs. butterfat, Class AA. She is by Imp. Clara's Sequel and bred to Effie's King of Hollow Hill Farm.

ROSA KING OF HOLLOW HILL FARM, 478.51 lbs, butterfat as a junior 2 year old. By Cora's Glen and out of Imp. Angerosa III.

IMP. BRITTLEWARE MOLLY II, by the same sire as Imp. Brittleware Mistletoe, a California class leader with 751.4 lbs. butterfat at 4½ years.

IVA OF BELLMATH II, with 495.7 lbs. butterfat in one year, and her daughter by Tritomas May King.

BULLS

EFFIE'S KING OF HOLLOW HILL FARM, born Oct. 16, 1916. By Cora's Glen and out of Imp. Cherry III of the Effards, 735.3 lbs. butterfat at 4½ years. He sired first prize Get of Sire 1920 California State Fair, also junior champion females at 1920 California and Arizona State Fairs.

REUBEN KING OF HOLLOW HILL FARM, born Feb. 25, 1919. By Cora's Glen and out of Rebecca of Sunnyview, 647.86 lbs. butterfat, Class BB. In 1920 was junior champion at California State Fair and grand champion at Arizona State Fair.

BERT E. KING OF HOLLOW HILL FARM, born Aug. 20, 1919. By King of Hollow Hill and out of Cora's Beatrice, 676.3 lbs. butterfat at 9 years.

ANGER LANGDON OF HOLLOW HILL FARM, born March 3, 1919. By King of Hollow Hill and out of Imp. Angerosa III, 538.08 lbs. butterfat. Class AA.

ANGUS KING OF HOLLOW HILL FARM, born March 26, 1920. By Cora's Glen and out of Imp. Angerosa III (see above).

ROSA'S E. KING OF HOLLOW HILL FARM, born Aug. 16, 1920. By Effie's King of Hollow Hill Farm and out of Rosa King of Hollow Hill Farm, 478.51 lbs. butterfat at 2 years, she is a daughter of Imp. Angerosa III.

AZUCENA'S PENROD, born Nov. 10, 1919. By Pencoyd's Secret Premier and out of Azucena's Cousin, 418.51 lbs. butterfat at 3½ years.

RILEY LANGDON OF HOLLOW HILL FARM, born Dec. 1, 1920. By King of Hollow Hill and out of Lady Rilma, 421.56 lbs. butterfat as a junior 2 year old.

TOPPER LANGDON OF HOLLOW HILL FARM, born April 30, 1918. By King of Hollow Hill and out of Topsy's Legacy. He was first prize 2 year old at 1920 California State Fair.

OTHERS of rich breeding, including some just about ready for service, just the kind to breed production and Guernsey quality into grade dairy herds.

THIS HERD WON 40 firsts, 26 seconds, several championships, and many lesser prizes in the 1920 California and Arizona Fairs.

THE OFFICIAL RECORDS in this herd were made under the trying conditions of a certified dairy.

IN FIVE YEARS of regular tuberculin testing to meet the requirements of a certified dairy, only one animal in this herd has responded to the test.

Every animal over six months old tuberculin tested and sold subject to retest by the buyer; every animal guaranteed a breeder according to terms of catalog. HOLLOW HILL FARM is 4 miles from San Bernardino, 3 miles from Colton, 12 miles from Riverside. SALE HEADQUARTERS, Hotel Reynolds, Riverside.

CATALOG FREE ON REQUEST

Auctioneer:
Col. Ben A. Rhoades
Los Angeles

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

One can see from the various angles, various considerations and various possibilities how evil a thing is the unsettled packer question, how uncertain the agitation that follows it makes the livestock business, and why it is advisable to either regulate this meat outfit or offer a compromise that both packers and producers can accept, but get it settled so that cattle shortage will not continue, and stop this sacrifice of herds and breeding stock.

The Meat Situation in 1920

There was less meat produced, less exported, and less consumed in the United States last year (1920) than in either of the two previous years, although the consumption in 1919 and 1920 varied but little, the great change being in the exports. These and other facts are brought out in a series of tables recently compiled by the bureau of animal industry, showing the annual status of the meat situation for the calendar years 1907 to 1920, inclusive. The data for each year include: The total slaughter which is divided into federally inspected and non-federally inspected; the exports and imports; and the consumption, total and per capita, of each kind of meat and of all meats combined. The same information is given for lard separately from pork. Some of the salient points indicated by the tables are as follows:

Beef growers made their supreme war effort in 1918 and during that year sent to market 15,750,400 animals, which yielded slightly over 7½ billion pounds of dressed beef. This number has never been approached before or since. In two years the cattle slaughterings have fallen to 12.176,400, with an accompanying decline of 1½ billion pounds in beef production.

The exports of beef products fell from 728,000.000 pounds in 1918 to 164,000,000 pounds in 1920. This was to be expected, as the United States for several years before the world war was not a beef exporting country. South America and Australasia are now the great sources of cheap beef and mutton and naturally will dominate the export trade in those commodities.

Ten years ago the consumption of beef per head of the population in the United States is shown to have been 78 pounds; last year it was not quite 56½ pounds. Beef consumption in the American household has undergone a great change during this time, especially in reducing waste, and doubtless a considerable part of the difference between these amounts formerly found its way into the garbage can.

Perhaps the most outstanding feature of the domestic meat situation in recent years has been the increase in the production and consumption of veal. The demand for calf products has caused a steady increase each year for the last six years, and calves marketed in 1920 more than doubled the number in 1914 and 1915.

Sheep and lamb slaughter was marked by considerable irregularity. The slaughter was greatest from 1911 to 1914, after which it declined for three years, then increased for two years, and in 1920 again declined.

Exports and imports of mutton and lamb have been almost negligible until last year, when New Zealand frozen lamb carcasses were imported in large quantities, making an epoch in the trade. The total weight imported during the year was 101,000,000 pounds, nearly one-fifth of the total domestic production of both mutton and lamb.

Consumption of mutton and lamb in the United States is only about six pounds per person per annum and is very small compared to beef and pork. It is smaller even than veal, of which about eight pounds per person is consumed.

Pork production in 1920 fell considerably below the high record made in 1919 when marketings were unusually large, owing to the high prices prevailing during a part of that year, including the highest ever paid for live hogs. Nevertheless, the consumption of pork was slightly greater in 1920 because of the heavy decrease in exports. The exports of bacon and hams fell off more than one-half, the totals for these two items in round figures being 1,787,000,000 pounds sent abroad in 1919 and 822,000,000 in 1920. The exports of lard, however, almost held their own, decreasing only 20 per cent. This was because Germany, our second best customer for this commodity, was again in the market for quantity and took 128,000,000 pounds, which was within less than 1,000,000 pounds of the total taken by the United Kingdom, always the chief consumer.

SWINE RECORD ASSOCIATIONS

American Berkshire Association, Frank S. Springer, secretary, Springfield, Illinois.

Kentucky Red Berkshire Association, W. B. Turley, secretary, Richmond, Kentucky.

American Large Black Pig Society, W. T. Benton, secretary-treasurer, Lexington, Kentucky.

Cheshire Swine Breeders Association, Edward S. Hill, secretary, Freeville, New York.

O. I. C. Swine Breeders Association, O. C. Vernon, secretary, Goshen, Indiana.

Chester White Record Association, F. F. Moore, secretary, Rochester, Indiana.

National Chester White Record Association, Thomas Sharpless, secretary, West Chester, Pennsylvania.

American Duroc-Jersey Swine Breeders Association, Robert J. Evans, secretary, Union Stock Yards, Chicago, Illinois.

National Duroc-Jersey Record Association, J. R. Pfander, secretary, Peoria, Illinois.

American Essex Swine Association, F. H. Stout, secretary, New London, Iowa.

American Hampshire Swine Record Association, E. C. Stone, secretary, Peoria, Illinois.

National Mule-foot Hog Association, C. C. Kroglow, secretary, DeGraff, Ohio.

Mule-foot Hog Breeders Association, D. D. Gilson, president, Mammoth Springs, Arkansas.

American Mule-foot Hog Record Company, R. E. Pfeiffer, secretary, Wyandotte Building, Columbus, Ohio.

American Poland China Record Company, W. M. McFadden, secretary, Transportation Building, Chicago, Illinois.

National Poland China Record Company, A. M. Brown, secretary, Moorland Block, Winchester, Indiana.

Standard Poland China Record Association, F. L. Garrett, secretary, Maryville, Missouri.

National Spotted Poland China Record Association, F. L. Oberchain, secretary, Bainbridge, Indiana.

American Tamworth Swine Record Association, E. N. Ball, secretary, Hamburg, Michigan.

American Yorkshire Club, Harry G. Krum, secretary, White Bear Lake, Minnesota.

Improved Small Yorkshire Club of America, F. B. Stewart, secretary, Espyville, Pennsylvania.

United States Small Yorkshire, D. T. Boscom, secretary, Montgomery, Michigan.

Victoria Swine Breeders Association, H. Davis, secretary, Dyer, Indiana.

COW TESTING—A COMMUNITY BUILDER

"No one doubts that the cow testing association is a good business proposition for the individual member," says E. M. Harmon of the Missouri agricultural extension service. "It serves as a basis for culling the stock and the building of a profitable herd; it helps to solve the dairyman's feeding problems and determines the sale value of dairy animals.

"But the testing association goes farther than that. It interests the community in better and more profitable dairy methods. This point is shown in the progress report of the St. Louis County Association for the past year.

"At the beginning of the year members of this association used 24 silos and by the close they were using 27. Their use of pure bred bulls increased from 15 to 17; pure bred females from 211 to 291; balanced rations from 7 to 13. The number using summer soiling crops increased from three to four; summer silage from three to five. The number daily weighing milk increased from five to seven; members doing official testing from one to four. The number of those having farm lighting systems in their homes increased from 10 to 14.

"In addition to this a pure bred calf club was organized with 23 members. These 23 members came from 16 different farms and in this way the foundation was laid for 16 pure bred herds. Only the best of stock was selected.

"It is of course a matter of interest to know that 57 cows were sold by the members as unprofitable. One man said the tester saved him over $75 a month on his feed bill for 40 cows. But the important thing is that this cow testing association and other such associations are encouraging better dairy methods which will stabilize the dairy industry and make it more profitable."

De Laval

first gave us a better way of separating cream and now a better way of milking

Proof that the De Laval Milker is actually a better way of milking comes from De Laval users from all sections of the country. They are practically unanimous in their agreement that the De Laval increases the production of milk even over good hand milking. The saving in time and the increase in production of milk will soon pay for a De Laval Milker.

Send for catalog, which contains complete information

The De Laval Pacific Company

61 Beale Street San Francisco

Sooner or later you will use a

De Laval

Milker or Cream Separator

PRICES OF REMCO PIPE

—both continuous stave and machine banded—have been reduced about twenty-five per cent.

The Remco quality of material and workmanship have not been reduced or changed in any way.

If you are going to need pipe this summer let us give you the new prices.

Redwood Manufacturers Company

1604 Hobart Building San Francisco

308 East Third Street, Los Angeles

A 1 Duroc Ranch

— THE UTMOST IN DUROCS —

My herd has been selected for type, conformation and utility, with regard to fashionable blood lines. Here you will find Pathfinders, Sensations, Orions, Creators and Defenders.

Visitors Welcome. Correspondence Solicited.

J. P. Walker Visalia, Cal.

Watch La Tierra de Uva Durocs Pathfinders, Orions, Sensations Three Top Boars

Fannie's Orion King assisted by Uneeda Orion B, 2nd prize aged boar at State Fair, 1920, and grand champion at Glenn County Fair, 1919, and Valley View's Sensation, 3rd prize junior boar pig and litter mate to 1st prize and reserve champion at State Fair, 1920, and a wonderful string of prize winning sows and gilts, including Miss Sensation, 1st sow pig and reserve champion at State Fair

C. C. ELLIS Exeter, Cal.

Order One of These Duroc Gilts Now

and get started in the hog business. A few extra good yearling gilts, either open or can be bred to California Orion King or King Cherry Orion, a pair of proven herd boars that are unequaled in any herd in the West. Satisfaction or your money back. BETTER DUROCS AT REASONABLE PRICES

Harvey M. Berglund Dixon, Cal.

THE WILLOWS RANCH

Home of Big Type Poland China Hogs
This Herd Noted for Size and Quality
CORRESPONDENCE INVITED

A. J. Elliott, Proprietor Box 45, Route 1, Tulare, Cal.

Sunny Side Holstein Dispersal

I am dispersing my good Holsteins on April 14, 1921. These will include the daughters of Sir Veeman Korndyke Pontiac and a yearling son of King Korndyke Pontiac 20th out of K. P. Tola who made 36.16 lbs. of butter in 7 days and 1000 pounds in a year.

R. F. Guerin Visalia, Cal.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

April 20-21, Toyon Farm Association, Los Altos.
April 26, Santa Anita Rancho, Santa Anita.
May 11, Victory Herd, Carruthers.
May 18-19, James McGillivray, Sacramento.

Shorthorns

May 26, Caledonia Farms, West Sacramento.

R. K. Walker of Diamond Bar Ranch writes: "We have recently sold Diamond Sensation 2d, a litter mate to Diamond Sensation, to Sargent Brothers of Whittier. This is one of the good yearling boars in the West and is sired by the world's grand champion, Great Orion Sensation, and out of a dam by old Pathfinder. This boar will undoubtedly make a great name for himself. We also sold a splendid February yearling boar by Great Pathfinder and out of Model Lucy to Osterman & Osterman of El Toro, and a March yearling by Mammoth Sensation Jr., and out of a Pathfinder bred sow, to Victor Magee of Oceanside. These men were all purchasers of bred sows in our February bred sow sale."

J. I. Thompson, manager of Straloch Farm, Davis, is now in the East visiting the leading Shorthorn herds. It is probable that Thompson will select a carload of females to add to the Straloch herd.

J. R. Bush of Merced, who was one of the heaviest buyers at the Jane Garden Holstein dispersal sale, has purchased from Mr. Kiesel a young bull sired by Sir Aaggie De Kol Acme and out of Korndyke Sadie Vale Star-Rena. The dam of Mr. Bush's bull is a 21 pound daughter of King Korndyke Sadie Vale and her seven nearest dams average 33.84 pounds butter in seven days. She was purchased by Mr. Kiesel for $3,100, which is the highest price ever paid in this state for a heifer of her age.

E. Burr, owner of Burr Farm, Los Angeles, attended the Jane Garden sale and selected 30 head of choice heifers as a foundation for a herd that he is establishing near Calgary, Canada. This shipment will be the first lot of California Holsteins ever sent to Canada. While Mr. Burr could have secured Holsteins nearer his new ranch, he stated that he selected California Holsteins because he was convinced that this state produced the best.

P. B. Cross of San Francisco, who is generally known as the rice king of the Sacramento Valley, is developing a large ranch near Cottonwood, Shasta County. H. L. Fisher, manager for Mr. Cross, states that it is planned to establish select herds of Shorthorn cattle and Berkshire swine. Mr. Fisher says that four 400 ton silos have been built and that plans are under way for the construction of five barns to house 125 head of cattle each and a farrowing barn for 150 head of sows. Over 350 acres of alfalfa have been put in.

Harry L. Redd, the popular young Holstein herdsman formerly with W. J. Higdon of Tulare and more recently with Fred W. Kiesel of Sacramento, is now in charge of the large herd of Holsteins owned by Frank Helm of Fresno. Mr. Helm has one of the largest and choicest herds owned in this state and from now on expects to develop his herd to a high point.

Howard Vaughn of Dixon has recently sold a Shorthorn bull to J. B. Alameda of Napa and a Chester White boar and sow to Harold T. Bolden of Fort Bragg.

Announcement is made this week of a sale of 180 head of registered Holsteins from the Willowmead herd owned by James McGillivray of Sacramento. The Willowmead herd is one of the largest and best known herds in the state.

Robert N. Clapp of Nuevo, Riverside County, has sold the young bull Rosamaines Pontiac Ormsby, who is by Sir Skylark Ormsby Hengerveld and out of the cow Stanislaus Piebe Laura Pontiac, who recently made 32.8 pounds of butter in seven days for Mr. Clapp, to Frank Helm of Fresno.

JANE GARDEN HOLSTEINS AVERAGE $493

(Continued from Page 527.)

69, Canary Lassie Korndyke, 16.02 lbs., Mar., 1914; Geo. H. Davis, $460.

70, Jane Garden Dahlia Korndyke, Sept., 1918; Hope Farm, $625.

71, Jane Garden Utopia Korndyke, Aug., 1919; E. Burr, $510.

72, Lady Nevada Pauline, 18.42 lbs., Mar., 1916; E. Ehrig, $350.

73, Jane Garden Cornelia Korndyke, Aug., 1917; E. Burr, $500.

74, Daisy Pauline Brookside, 16.89 lbs., May, 1915; A. L. Rambaud, $485.

75, Jane Garden Ripona Korndyke, June, 1919; Hope Farm, $300.

76, Poland Ormsby Betty, 18.49 lbs., Feb., 1915; Hope Farm, $550.

77, Jane Garden America De Kol, Oct., 1918; Hope Farm, $1000.

78, Wisconsin Piebe Jewell Johanna, 19.36 lbs., Mar., 1915; J. N. Cook, Orland, $335.

79, Lassie Jewell Johanna De Kol, 19.36 lbs., July, 1917; J. R. Bush, $475.

80, Jane Garden Valencia, Oct., 1919; E. Burr, $500.

81, Jane Garden Melba, Dec., 1917; J. R. Bush, $475.

82, Jane Garden Rosalia Korndyke, May, 1920; E. Burr, $260.

86, Natoma Valetta Pietertje, 16.25 lbs.; Jan., 1917; J. R. Bush, $275.

CALEDONIA SHORTHORNS

Imp. Caledonia

Caledonia Shorthorns constitute one of the choicest collections of the breed owned in America. Our herd bulls, Imp. Caledonia, Gainford Matchless, grand champion at the 1919 San Francisco show and Pine Grove King stand out prominently in the West. Our females represent choice Scotch and American families, and are noted for their type and quality. We can at all times furnish foundation material and bulls suitable for any herd or for the range. Our prices are moderate and every animal is guaranteed. Visit our farm and herd. Send for special bull list.

CALEDONIA FARMS
WEST SACRAMENTO, CALIF.
OFFICE—57 POST ST. SAN FRANCISCO.

Shorthorn Cattle

My herd consists of Scotch and American families headed by the Marr Clara bull, Clarion. Just now I have a few good young bulls and a few females for sale at right prices. Market your crops through good Shorthorns.

GEO. E. DIERSSEN
Box 913 Sacramento, Cal.

Make Money

Rosebud Shorthorns

A Choice Herd of Fifty Females Headed by Milmar Stamp a Cruickshank Secret

FOUR BULL BARGAINS:

We have for sale at real bargain prices four extra good yearling bulls that are well bred and of good color. These calves are just right for the range man who wants to improve his cattle. Visit our herd or write for prices. Satisfaction guaranteed.

Edinger-Johnson Company
Hood, California

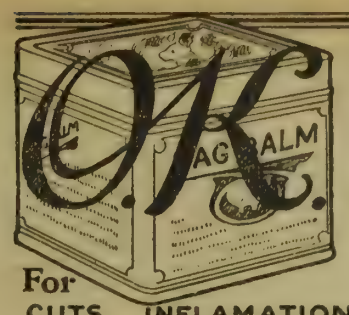
Shorthorn Bull Bargains

In order to close off the bulls now on hand, I am quoting some exceptionally attractive prices. These bulls were bred right and have been raised right to go on the range and increase your profits. Also a few good cows and heifers.

Howard W. Vaughn
Dixon, Cal.

84, Jane Garden Priscilla, Oct., 1920; Frank Helm, $335.
85, Natoma Stella Korndyke, Jan., 1917; A. L. Rambaud, $485.
87, Natoma Gelsche Walker, Mar., 1917; J. R. Bush, $410.
88, Jane Garden Propaganda Korndyke, Sept., 1919; L. Peterson, $450.
89, Jane Garden Berryessa, Sept., 1917, J. R. Bush, $425.
90, Jane Garden Lorena Korndyke, Jan., 1920; Hope Farm, $375.
91, Ravenna Walker, Feb., 1917; J. R. Bush, $350.
92, Balboa Korndyke, 13.98 lbs., Feb., 1917; J. R. Bush, $400.
93, Azalia Walker, 18.60 lbs., Mar., 1917; Hope Farm, $475.
94, Jane Garden Colantha Walker, May, 1917; Hope Farm, $500.
95, Uneeda Johanna Bonheur Gibby, 23.21 lbs., Mar., 1915; G. J. Stamm, $600.
97, Princess Cleveland Hengerveld, 22.65 lbs., Mar., 1913; J. R. Crawford, $360.
98, Canary Fobes Ruth De Kol, 22.58. Nov., 1914; J. R. Crawford, $825.
99, Jane Garden Columbia Korndyke, July, 1917; J. R. Bush, $435.
100, Pauline Model Artis, 21.00 lbs., Mar., 1916; E. Ehrig, $560.
101, Hengerveld Shadeland Sadie Vale, 14.98 lbs., Nov., 1917; J. N. Cook, $300.
102, Jane Garden Johanna Korndyke, 12.63 lbs., Dec., 1917; J. R. Bush, $300.
103, Jane Garden Mabel Murcell, 15.67 lbs., Feb., 1918; J. R. Crawford, $300.
104, Jane Garden Groceteria, 18.12 lbs., Feb., 1918; Hope Farm, $685.
105, Jane Garden Pontiac De Kol, Jan., 1919; Burr Farm, $700.
106. Jane Garden Paprika Korndyke, Feb., 1919; J. M. Crawford, $485.
107. Jane Garden Grandiflora Korndyke, Mar., 1919; J. M. Crawford, $450.
108, Jane Garden Nyssa Korndyke, April, 1919; G. J. Stamm, $360.
109, Jane Garden Albania Korndyke, May, 1919; J. M. Crawford, $510.
110, Jane Garden Isabella Korndyke, June, 1919; O'Dell Bros., Grass Valley, $500.
111, Jane Garden Madonna Korndyke, Aug., 1919; G. W. Dwinnell, $500.
112, Jane Garden Teneya De Kol, Aug., 1919; J. R. Bush, $425.
113, Jane Garden Estrella, Sept., 1919; E. Burr, $525.
114, Jane Garden Smyrna Korndyke, Oct., 1919; E. Burr, $385.
115, Duchess Marina Walker, Dec., 1916; E. Ehrig, $610.
116, Jane Garden Lolita, Dec., 1919; G. J. Stamm, $450.
117, Jane Garden Ancona Korndyke, Dec., 1919; E. Burr, $310.
118, Jane Garden Pontiac Korndyke, Dec., 1919; J. M. Crawford, $385.
119, Jane Garden Nydia Korndyke, Dec., 1919; G. W. Dwinnell, $400.
120, King Korndyke Emma Ormsby, Dec., 1919; E. Burr, $275.
121, King Korndyke Sadie Caliban, July, 1919; J. R. Crawford, $350.
122, Korndyke Julia De Kol King, Nov., 1919; Geo. H. Davis, $300.
123, Jane Garden Electa Korndyke, Jan., 1920; J. B. Rohrer, $500.
124, Jane Garden Melinda Korndyke, Mar., 1920; E. Burr, $285.
125, Jane Garden Dardanella De Kol, Mar., 1920; Hope Farm, $800.
126, Jane Garden Della Korndyke, April, 1920; E. Burr, $260.
127, Jane Garden Eureka Korndyke, May, 1920; A. E. Greene, $425.
128, Jane Garden Cordelia Korndyke, May, 1920; J. B. Rohrer, $325.
129, Jane Garden Dora Korndyke, June, 1920; Frank Helm, $350.
130, Jane Garden Catalina Korndyke, June, 1920; Burr Farm, $400.
131, Jane Garden Anona Korndyke, Aug., 1920; H. L. Redd, Sacramento, $205.
132, Jane Garden Casaba Korndyke, Sept., 1920; Frank Helm, $300.
133. Jane Garden Pura Korndyke, Dec., 1920; E. Burr, $260.
134, Jane Garden Chicona, Nov., 1920; E. Burr, $150.
135, Toyon Perfection Valdessa Soldene, Mar., 1920; E. Burr, $310.
136, Jane Garden Amanda, Jan., 1921; E. Burr, $190.
137, Jane Garden Luna Korndyke, Feb., 1921; E. Burr, $140.
138, Jane Garden Amelia, Feb., 1921; E. Burr, $115.
139, Jane Garden Valetta, Feb., 1918; J. R. Bush, $250.
140, Jane Garden Mona, Feb., 1918; Geo. H. Davis, $475.
141, Jane Garden Natoma Korndyke, April, 1918; Hope Farm, $1025.
143. Parthenia Pietertje Walker. 22.13 lbs., Oct., 1916; J. R. Bush, $535.
145, Jane Garden Virginia Korndyke, July, 1918; Burr Farm, $500.
146, Jane Garden Fatima Korndyke, Sept., 1918; G. J. Stamm. $500.
147, Lady Josephine Korndyke De Kol 2nd, 19 lbs., Oct., 1912; Hope Farm, $600.
148, Gold Leaf Model De Kol, 18.32 lbs., April, 1916; G. J. Stamm, $550.
149, Jane Garden Carma, Jan., 1921; J. M. Hampton, Jr., $300.
150, Jane Garden Novena, Jan., 1921; J. M. Hampton, Jr., $300.
151, Alcartra Walker Pontiac, 26.11 lbs., April, 1917; A. L. Rambaud, $750.
152, Vin Nutala De Kol, 20.67 lbs., Mar., 1915, Hope Farm, $700.
154, Jane Garden Cinderella Walker, June, 1920; J. B. Rohrer, $500.
155, Nutula Korndyke, Jan., 1919; G. W. Dwinnell, $500.
156, Floa Princess Walker, 24.37 lbs., Dec., 1912; Hope Farm, $650.
157, Vin Floa Princess Walker, 17.51 lbs., Oct., 1917; Burr Farm, $400.
158, Vin Leda Hartog Walker, 21.37 lbs., April, 1917; J. R. Bush, $460.
159, Jane Garden Alta Korndyke, Nov., 1920; J. M. Hampton, Jr., $200.
160, Vin Aaggie Netherland Walker, 15.85 lbs., Mar., 1918; Geo. H. Davis, $400.
161, Jane Garden Juda Korndyke, Oct., 1920; Frank Helm, $300.
162, Jane Garden Clydella Korndyke, May, 1920; E. Burr, $375.
163, Vin Nydita Walker De Kol, Sept., 1917; J. R. Bush, $500.
164, Jane Garden Oleta Korndyke, Dec., 1919; E. Burr, $260.
165, Vin Nydita Hermana De Kol, Oct., 1916, Geo. H. Davis, $275.
166, Nydita De Kol, Jan., 1919; E. Burr, $435.
167, Vin Contenta Segis Burke, 22.21 lbs., Nov., 1914; E. Ehrig, $550.
168, Toitilla Segis Burke, Feb., 1919; G. J. Stamm, $460.
169, Vin Contenta Pontiac De Kol, 15.30 lbs., Mar., 1916; J. R. Bush, $460.
170, Jane Garden Contenta De Kol, May, 1919; J. N. Cook, $350.
171, Meadmore Prilly Queen, 27.54 lbs., Mar., 1916; Hope Farm, $750.
172, Clara De Kol of Linwood, 24.08 lbs., July, 1914; G. J. Stamm, $475.
173, Rest Easy Pontiac Veeman, 29.21 lbs., May, 1915; R. D. Carpenter, Sacramento, $300.
174, Lad Dirkje Queen 5th, 23.45 lbs., Mar., 1915; Frank Helm, $325.

Aerial patrol of national forests begins on May 1. Field bases are established at Eugene, Oregon, Red Bluff and Fresno.



For
CUTS INFLAMATION
CHAPS SORE TEATS
CAKED BAG BUNCHES

BAG BALM
MADE BY THE KOW-KARE PEOPLE

Used and approved by dairymen everywhere

The real O. K. of any product is the extent of its use. Last year 50% more Bag Balm was used by dairymen than the year preceding.

Bag Balm promptly heals all cuts, chaps, scratches or inflamed condition of the udder or teats. Caked Bag responds quickly to its softening action. Very effective in treating Bunches and Cow Pox. Bag Balm comes in a liberal 65c package; at feed dealers, general stores or druggists.

DAIRY ASSOCIATION CO.,
Lyndonville, Vermont

Blood of Tremendous Milk Producers AT PUBLIC AUCTION

177--Registered Holsteins--177

167 Females **10 Bulls**

Willowmead Herd Owned by Jas. McGillivray **Sacramento, Cal.**

Wednesday and Thursday, May 18-19, 1921

Just at the close of 1920 Mr. McGillivray sold most of his 1200 acre ranch near Galt and was compelled to consolidate his Holstein holdings on his Sacramento place. The herd at present numbers 500 head of registered Holsteins and a substantial reduction in numbers is necessary. It has finally been decided to sell all of the milking herd and a few bred heifers to effect the reduction. Absolutely every cow in the herd that is in salable condition is in this sale.

85 Fresh Cows in Sale—Many Others Milking Heavy Right Now

A Large Number of Heavy Springers—Some Splendid Bred Heifers

A Very Large Percentage of the Bred Females are in Calf to One or the Other of These Two Bulls:

COLONY ZARILDA NEWMAN

Sire: AAGGIE CORNUCOPIA NEWMAN, a son of the former world's record milk cow Margie Newman, who milked 868.2 lbs. in 7 days and has a daughter that milked 763.5 lbs. in 7 days.
Dam: ZARILDA CLOTHILDE 3D DE KOL, the great Canadian cow that milked 33,153.6 lbs. in one year and over 30,000 lbs. at a subsequent freshening.

PRINCE ECHO SYLVIA SEGIS

Sire: CHAMPION ECHO SYLVIA PONTIAC, a son of the world's record milk producer May Echo Sylvia, who is also dam of the $106,000.00 bull Carnation King Sylvia.
Dam: PRINCESS STELLA SEGIS, a 29.88 lb. 4 year old daughter of King Pieter and Countess Segis, a 31.70 lb. daughter of King Segis.

THINK OF IT, 167 registered Holstein females, mostly all cows, more than half of them now fresh, many others heavy springers, and nearly half of all of them bred to one of the above bulls.

The owner is prepared to extend most liberal credit to responsible parties. Applications may now be made either by letter or in person to JAS. McGILLIVRAY, R1, Sacramento, Calif.

Every animal positively guaranteed to be a breeder: no tuberculin test certificates.

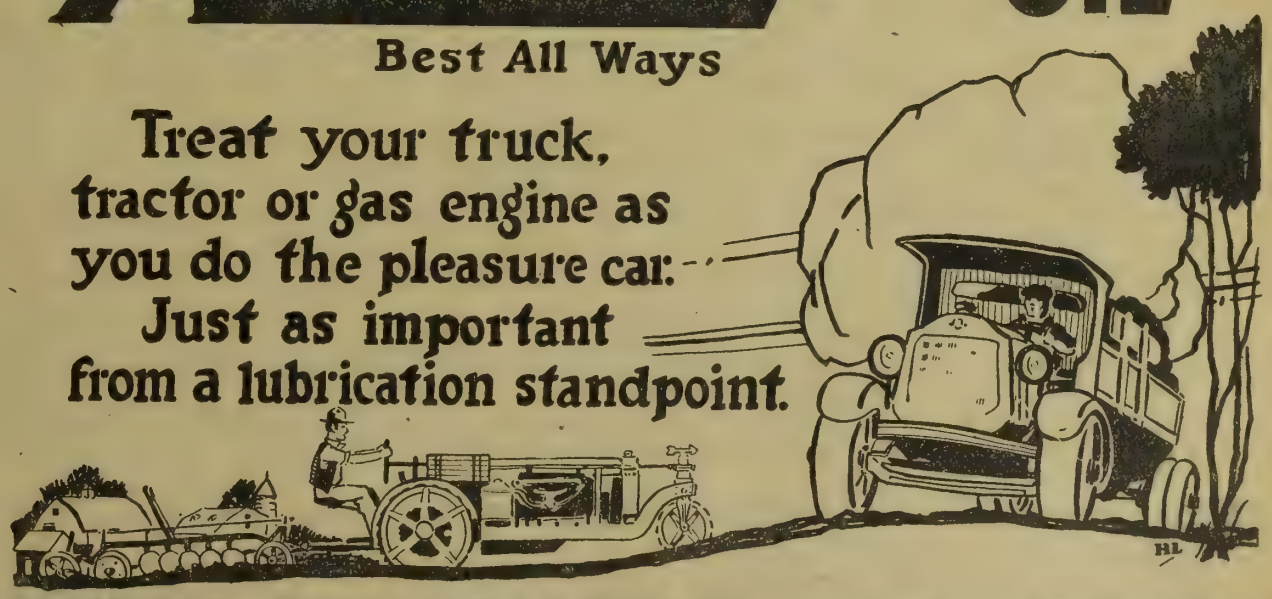
Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

ARISTO MOTOR OIL

Best All Ways

Treat your truck, tractor or gas engine as you do the pleasure car. Just as important from a lubrication standpoint.



UNION OIL COMPANY OF CALIFORNIA

EXPORT MARKETING

Exporting pure bred livestock to foreign countries is a highly complex process and breeders who contemplate entering the export field should not only take all the short cuts possible but should be extremely careful that no essential step is overlooked. All the items of expense are relatively costly and failure to attend to every detail may result in delay and added expense. South America offers an excellent market for American pure bred livestock, and during 1920 this trade amounted to nearly $700,000 as a result of efforts of the department of agriculture in cooperation with individuals and breed associations.

Recently, however, there has been a marked increase in trade of this sort and correspondingly greater interest on the part of American breeders in the possibility of further developing foreign outlets for surplus animals.

During the past three years several investigators have been sent to South America by the United States department of agriculture for this purpose, and recently a representative to act as agricultural trade commissioner, with permanent offices in Buenos Ayres, was sent to Argentina.

Among the features that the bureau's specialists urge breeders to give careful attention are the number of animals to be shipped, space on the boats, dates and hours of sailing, ports of embarkation, costs of rail and water freight, the building of stalls on boats and the proper size of stalls, the number of attendants permitted on the boats, whether attendants will be allowed free return passage, insurance, tuberculin tests, registration, viseing of documents by foreign consuls, marking, tagging and photographing the animals, billing, passports for attendants, equipment for caring for animals en route, feed in transit, and the quarantine regulations at port of arrival. In addition at least eight different documents such as tuberculin test, general health, registration, service, transfer and export certificates must be obtained and each properly filled out and authenticated.

These points are but some of the important features in the foreign marketing process. There are also numerous features of lesser importance, yet none of which can be slighted if success is to be secured. The bureau of markets has made extensive investigations of the various mechanical steps necessary in exporting livestock abroad, including approximate costs, information that is available to American breeders upon request.

The Highest Price Ever Paid in California

for ownership of a Holstein sire was for a son of Miss Valley Mead De Kol Walker, 36.80 lbs. butter in 7 days at 3 years of age, 1113.57 lbs. butter in 365 days. She held the world's records in three different classes for production and is without doubt one of the greatest individuals ever bred in the state.

The Highest Price Ever Paid for a Half Interest

in a Holstein sire in California was for another son of the same cow.

Of the six leading herds in Southern California headed by sons and grandsons of this great cow, only one has HER GRANDSON, HER BROTHER FROM THE SAME WORLD RECORD DAM, AND A BROTHER OF THAT DAM.

Los Angeles County Farm
Hondo, California

PLAN SCABIES CONTROL

That the scabies situation in California and Nevada is extremely serious and can be controlled only by the concentrated effort of stockmen, state and federal bureaus, is the statement made by Paul G. Redington of the U. S. forest service. At a recent meeting of the interested departments the following plan was agreed upon:

California and Nevada will cooperate to the fullest extent. Nevada inspectors will be deputized to exercise their authority in California, and vice versa. A similar arrangement will be in effect between California and Oregon. Particular attention will be given that part of California including the recent addition to the Modoc national forest, where sheep come into California from Oregon.

Federal and state inspectors will pass on all the sheep to be grazed within or trailed across the national forests in this district. All forest service sheep permittees must present a certificate from either a federal or state inspector showing that their sheep are clean before they will be allowed to enter the national forests. If the sheep are clean certificates "good for admission to the national forests" will be issued by both state and federal inspectors. Sheep which cross the national forests must be accompanied by a certificate.

Sheep exposed after dipping or inspection will be refused admission to the national forests until they can be inspected and passed.

Sheep which develop scabies after they enter the forests will, if possible, be isolated pending proper dipping.

POSSIBILITIES OF TUBERCULIN TEST

It is well at times to give attention to what can actually be accomplished with the tuberculin test when it is intelligently used and what valuable information may be obtained.

The following results were obtained by the California department of agriculture: In one county not a single cow that passed the first general test reacted to the second test. In another county but three herds were found affected and in each case the disease was traceable to outside sources. In still another county not a single reactor has been found due to its geographical isolation, while in an adjoining county where transportation and communication to the outside is easy it is well known that large numbers of tubercular cattle are present. In addition to these facts there are many herds in various parts of the state that have been entirely freed from the disease by the test.

HOW TO FAIL IN A DAIRY

Sometimes the best way to show how to do a thing is to tell how it should not be done. Then the way to succeed will be clearly evident. With this plan in view a West Virginia farmer gives some rules on how not to succeed with cows, a copy of which has just been received by the United States department of agriculture. The farmer humorist says:

Don't weigh your milk, for then you might have to figure and think.

Feed the cows timothy hay—it is good for race horses.

Cow testing associations are needless—they show how to save and know.

Keep the barn hot—cows are like woodchucks.

Don't have many windows in the barn—the hired man might look out.

Keep water ice cold—shivering gives the cows exercise.

Avoid heavy milkers—they consume too much valuable time.

DAIRY MEETING TO BE HELD APRIL 23

The dairymen's department of the Los Angeles County farm bureau has set the date for their big dairy meeting and picnic for Saturday, April 23. This meeting will be held at the Pellissier ranch at Whittier and will be one of the biggest meetings the dairymen have had, numerous things of interest being taken up at this time. One of the most important will be the starting of a campaign on the control and eradication of tuberculosis in dairy cattle. Dr. J. P. Iverson, chief of the division of animal industry of the state department of agriculture, will be present to outline his plans for this work. The dairy department expects to cooperate in control of tuberculosis and will undoubtedly adopt a program for this work. The dairymen will also be given an opportunity to test their ability in selection of dairy animals.

Recent sales of Anchorage Farm Berkshires include two sons of their grand champion boar, Natomas Baron Duke to H. G. McFessel, Arbuckle and C. F. McBride, Gazelle. A gilt bred to Natomas Baron Duke went to B. A. Fyle, Rogue River, Oregon. Mrs. Hardy, manager of the farm, reports a decided increase in inquiries for breeding stock.

Dispersal of
The Great Toyon Herd

135 Registered Holsteins 135

TOYON FARM

LOS ALTOS, CAL.

APRIL 20-21, 1921

A Few Attractive Features That Mean Dollars and Cents to the Wise Buyer:

THIS IS THE ONLY HERD under Federal supervision for health in California.

THIS SALE contains more of the blood of the famous sire SIR PIETERTJE ORMSBY MERCEDES than was ever before offered in a western sale, and it is close up to him, granddaughters and grandsons, greatgranddaughters and greatgrandsons.

THIS SALE contains more high yearly record breeding, in the records of females themselves, the records behind them on one or both sides, and the services carried by many of the females, than is usually found in any sale, anywhere.

FEMALES WITH YEARLY RECORDS UP TO OVER 1000 POUNDS BUTTER!

FEMALES WITH 7 DAY RECORDS UP TO OVER 30 POUNDS BUTTER!

A DAUGHTER OF THE FAMOUS 30,000 POUND 4 YEAR OLD, CASCADE FLETA JOHANNA!

A DAUGHTER OF THE $12,000.00 BULL KING KORNDYKE PONTIAC 20TH, OUT OF A 30 LB. DAUGHTER OF KORNDYKE QUEEN DE KOL'S PRINCE!

DAUGHTERS OF 1000 POUND YEARLY RECORD COWS AND 30 POUND 7 DAY RECORD COWS!

SONS OF COWS WITH UP TO OVER 1000 POUNDS BUTTER IN ONE YEAR AND UP TO OVER 30 POUNDS BUTTER IN 7 DAYS!

NO MATTER WHAT YOUR NEEDS, WHETHER FOR FOUNDATION FEMALES OR A REAL HERD BULL, YOU WILL FIND A GOOD SELECTION IN THIS SALE.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested by a Federal veterinarian and sold subject to retest by the buyer.

TOYON FARM is about 20 miles northwest of San Jose, about 8 miles southeast of Palo Alto.

Headquarters of sale will be Hotel Montgomery, San Jose. Make your reservations early as this hotel is usually full.

Auctioneers:
Col. Ben. A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Are Twin Calves Barren?

Is there any truth in the information that I have just received that a cow having twin calves, where one is a bull and the other a heifer, neither could be used for breeding as they would both be barren? — Subscriber, El Cerrito.

While this statement is not entirely new to our ears we have never heard it made by anyone who could back it with definite knowledge. There may be historical data on the subject but not that we know of. We do know that it does not hold true in the human family because we know several brothers and sisters (twins) that are both parents of beautiful children. Candidly we do not believe there is anything in the statement. The old saying that "like begets like" holds good usually in regard to numbers as well as to traits and forms. We would be more inclined to think that they would be good breeders and more likely to bear twins than others. We would like to hear from those who know.

Rabbits Ailing

I have four New Zealand nursing does that are troubled with wet tails. They seem perfectly well otherwise, having a good appetite. Their quarters are comfortable, clean and light and no draft nor anything disquieting can get to them. Their rations consist of cooked oat meal (salted) mixed with rolled barley, alfalfa hay and some green feed. Water is constantly before them. Have tried putting spirits of niter in the water but it is of no avail.—Subscriber, Los Angeles.

You seem to understand the rabbits and are giving them extra good care. We believe the whole trouble is due to your cooking and salting the oat meal. A little green feed and some carrots or beets are very good, but cooking food or giving too much green feed is too laxative. Clean hutches, clean water and dry feed seem to agree with rabbits. If you wish to hasten the growth of the little ones give them a little cow's milk on the side.

Sheep Shedding Wool

My sheep have all shed their wool during the last few weeks. They are fed green feed, dry alfalfa hay and grain. They also have access to water and salt. They are in the same pen with the hogs. What is the trouble and what is the remedy?—Subscriber, Tulare.

First, we do not believe it is good for sheep and hogs to run together. The trouble is probably due to a mite in the skin. Would advise dipping them in a solution of zenoleum, using half a teacup of the zenoleum to a bucket of water. Dip them again in about a week. Sheep often suffer from liver trouble at this time of the year and need something bitter that will arouse a healthy action of the liver. They like dried thoroughwort as well as a cat likes catnip. It is very bitter but they like it so well they will fight for it. About the best thing you can get for them is aloes. Dissolve an ounce of aloes and two ounces of hard soap in a quart of hot water and sprinkle it on the hay for a dozen sheep. A few doses like this every spring will improve the sheep enough to pay well for the trouble.

Barley Beards

My horse has a place on the side of the throat that has been open and running for about two years. The discharge is very offensive. Have lanced it and used disinfectants but it does not heal. What is best to do for it?—Subscriber, San Jose

When barley beards work through it develops just such a case as you describe. The discharge is always very offensive. Probably there is still an opening inside that allows a few beards to enter occasionally, and probably there is a pocket between that and the outside opening, at one side of the canal, that is full of beards. The outside opening should be enlarged and the place cleaned out. If you can find the place where it opens inside it should be scraped, then it will heal. Then by washing out the cavity once a day with a solution of permanganate of potash, 20 grains to the pint of water, it will soon heal. If a veterinarian is near you had better get him to dress it a few times for you.

Retention of Afterbirth, Etc.

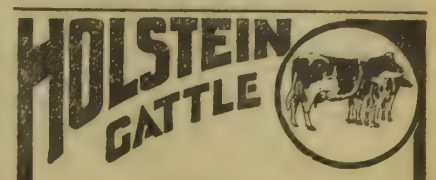
I have a cow that a year ago retained the afterbirth for two weeks after calving and became very thin in flesh and gave very little milk. She seems all right now and gives quantities of milk although she is quite thin. A swelling came on the side of her head below the ear, extending down to the lower point of the jaw. It broke and discharged freely. The opening is at the upper part of the swelling and it continues to discharge. Am wondering if it is due to barley beards or foxtail. What would you advise?—Subscriber, San Jose.

Retaining the afterbirth indicates some constitutional trouble. It may be tuberculosis, but her coming fresh again this year all right partly offsets that theory. The abscess on the side of the head would keep her thin in flesh. It may be due to barley beards or foxtail coming through from the mouth. Probably there is a pocket below the opening and it will not heal while that is there. A probe should be passed through the opening and down through the cavity until you find the bottom which will probably be near the skin. Make a large opening there so it will have good drainage. Wash it out once a day with a warm solution of permanganate of potash, 20 grains to the pint of water, syringing the solution in it at the top and being sure it all comes out at the bottom. It should heal very soon after you give it good drainage. If you do not feel like doing it yourself get someone to do it for you who is familiar with such work.

NINETEEN YEAR OLD GUERNSEY MAKES RECORD

Phebe D. of Maplelawn, a Guernsey cow almost 20 years of age, owned by J. H. Seaman, Glens Falls, New York, has recently completed an Advanced Register record of 7,467.2 pounds of milk and 416.7 pounds of butter fat. She is the oldest cow of the Guernsey breed to complete an Advanced Register record. Her exact age at the beginning of her record was 18 years and 7 months. Phebe D. of Maplelawn has another record of 9,891.63 pounds of milk and 522.98 pounds of butter fat, which was completed two months before she reached her fifteenth birthday. The first calves from this remarkable cow were not registered and records concerning them are not published. Beginning in October, 1909, she has dropped a calf on an average of each 13 months, with the exception of the year 1918.

Beaver in the Salt River are doing so much damage to trees that a special permit has been granted for trapping them in certain districts of Arizona.



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60——REGISTERED HOLSTEINS——60

Santa Anita Rancho OWNED BY ANITA M. BALDWIN Santa Anita, Cal.

TUESDAY, APRIL 26, 1921

The herd at Santa Anita Rancho has multiplied itself from a splendid foundation to a size larger than the Rancho will at present accommodate, and a reduction in numbers will be made through this, the first individual public sale of this famous breeding establishment.

The highest record cows in the herd are included in the sale list, as well as daughters of many of them sired by the great bulls that stand at the head of the herd.

Breeders generally are familiar with the high character of the breeding operations at Santa Anita Rancho, and the especial care that has always been exercised in the matter of breeding animals sold, with the view of building up a steady patronage of satisfied buyers.

Besides the wonderful individuals that comprise the sale list, an outstanding feature of the offering is the fact that a considerable number of the high class females carry the service of the $41,000.00 bull King Korndyke Pontiac Acme, one of the very greatest young sires the breed has yet produced.

THE LIST OF FEMALES INCLUDES:

A 34 POUND granddaughter of King of the Pontiacs, now on yearly test.

A GRANDDAUGHTER of King of the Pontiacs with 26.02 lbs. butter in 7 days as a senior 2 year old, heavy with calf to King Korndyke Pontiac Acme.

A 35 POUND COW that milked 112 pounds in one day, bred to King Korndyke Pontiac Acme.

SUNDRIE SUNBEAM GIRL, the famous cow that made 1033 lbs. butter from 28,905.9 lbs. milk in one year after dropping triplets, all of which are living, and she has recently freshened again, increased her former 7 day record and is milking well over 100 lbs. per day.

A 22 JUNIOR 3 YEAR OLD daughter of Sundrie Sunbeam Girl, heavy with calf to Prince Cornucopia Walker, 36 lb. son of Prince Gelsche Walker.

A 27 POUND daughter of the 11.17 lb. yearly record cow Mosetta Mutual Paul Johanna. Now on yearly test.

A DAUGHTER of the above 27 lb. cow, by Prince Walker Cornucopia.

A 24 POUND daughter of the 1117 lb. yearly record cow Mosetta Mutual Paul Johanna. Now on yearly test.

A DAUGHTER of the above 24 lb. cow, by Prince Walker Cornucopia.

A BEAUTIFUL 27 POUND daughter of Johanna McKinley Segis. Now on yearly test and will finish the day after sale with right around 1000 lbs. butter.

A 22 POUND JUNIOR 4 YEAR OLD daughter of the above 27 lb. cow, sired by a son of Tilly Alcartra and bred to Prince Walker Cornucopia.

A 2 YEAR OLD daughter of the above 27 lb. cow, bred to King Korndyke Pontiac Acme.

A GRANDDAUGHTER OF DE KOL OF VALLEY MEAD, heavy with calf to King Korndyke Pontiac Acme.

A DAUGHTER OF PRINCE WALKER CORNUCOPIA, out of a 17 lb. 2 year old, heavy with calf to King Korndyke Pontiac Acme.

A DAUGHTER OF PRINCE WALKER CORNUCOPIA, out of a 30 lb. junior 4 year old daughter of Merci Lad Korndyke Burke.

TWO DAUGHTERS OF THE 36 POUND COW Alba Sadie Cornucopia Creetia that made 866 lbs. butter in one year. They are full sisters, by Merci Lad Korndyke Burke.

A DAUGHTER OF PRINCE WALKER CORNUCOPIA, out of a daughter of Lady Hiske Walker, 34 lb. 4 year old daughter of Prince Gelsche Walker.

A 29.78 POUND COW that milked 681.6 lbs. in 7 days, 100.7 lbs. in one day. Bred to King Korndyke Pontiac Acme.

A 28 POUND COW now fresh, and her daughter by Prince Walker Cornucopia.

A 28 POUND COW, now on yearly test.

A 19 POUND JUNIOR 2 YEAR OLD daughter of Merci Lad Korndyke Burke, now on yearly test.

A GRANDDAUGHTER OF DE KOL OF VALLEY MEAD, out of a granddaughter of King of the Pontiacs. Heavy with calf to King Korndyke Pontiac Acme.

A 19 POUND JUNIOR 3 YEAR OLD daughter of Merci Lad Korndyke Burke, out of a daughter of King of the Pontiacs, heavy with calf to King Korndyke Pontiac Acme.

TWO DAUGHTERS of the above 3 year old, full sisters by Prince Walker Cornucopia, one of them bred to King Korndyke Pontiac Acme.

A 22 POUND JUNIOR 4 YEAR OLD granddaughter of Tilly Alcartra, bred to King Korndyke Pontiac Acme.

A DAUGHTER of the above heifer, by Prince Walker Cornucopia.

A 17 POUND 3 YEAR OLD daughter of Prince Gelsche Walker, out of a 656 lb. yearly record granddaughter of King of the Pontiacs.

A 20 POUND JUNIOR 3 YEAR OLD daughter of Merci Lad Korndyke Burke, out of a 738 lb. yearly record 4 year old, second dam a 919 lb. yearly record cow. Will be fresh before sale.

A DAUGHTER of Merci Lad Korndyke Burke, out of a 905 lb. yearly record daughter of a 1003 lb. yearly record cow. Heavy with calf to Prince Walker Cornucopia.

A DAUGHTER of the above cow by Prince Walker Cornucopia.

A 19 POUND JUNIOR 2 YEAR OLD daughter of Merci Lad Korndyke Burke, now on yearly test and will finish before sale with around 22,000 lbs. milk, bred to Prince Walker Cornucopia.

A DAUGHTER OF MERCI LAD KORNDYKE BURKE out of a 21 lb. granddaughter of King Segis Pontiac. Heavy with calf to Prince Walker Cornucopia.

TWO DAUGHTERS of the above cow, full sisters by Prince Walker Cornucopia, one of them bred to King Korndyke Pontiac Acme.

A DAUGHTER OF PRINCE WALKER CORNUCOPIA, out of a 21 lb. 4 year old daughter of the 36 lb. cow Alba Sadie Cornucopia Creetia.

THE LIST OF BULLS INCLUDES:

MERCI LAD KORNDYKE BURKE, the senior herd sire. He is by De Kol Hengerveld Burke, and out of Winnie Korndyke Cornucopia De Kol, 1201.06 lbs. butter from 31,034.2 lbs. milk in one year. She was the first cow to make 1200 lbs. butter in California, and her combined milk and butter production was a world's record when made. This great sire was Grand Champion at 1920 California State Fair, and has a splendid list of proven daughters, all under mature age, one of them with over 30 lbs. butter and over 600 lbs. milk in 7 days as a junior 4 year old.

PRINCE WALKER CORNUCOPIA, one of the junior sires. He is by Prince Gelsche Walker, whose splendid worth as a sire is too well known to require further comment here, and out of Alba Sadie Cornucopia Creetia, the noted cow that has twice made over 34 lbs. butter in 7 days, her best record 36.18 lbs., and she made 866.28 lbs. butter from 18,848.4 lbs. milk in one year. She is a daughter of Sir Sadie Cornucopia, son of Sadie Vale Concordia, the first 30 pound cow, and rated as one of the breed's great foundation cows. PRINCE WALKER CORNUCOPIA is the highest record son of Prince Gelsche Walker, is a high class individual, with a splendid lot of young daughters, and is just now 4 years old. He would positively not be sold except for the fact that in the reduction of the herd the entire service can be handled by King Korndyke Pontiac Acme.

A SON OF PRINCE WALKER CORNUCOPIA out of a daughter of the $12,000.00 bull King Korndyke Pontiac 20th that has just finished a yearly record of 635.2 lbs. butter from 15,677.7 lbs. milk made at 19 months of age.

A SON OF PRINCE WALKER CORNUCOPIA out of a 35 lb. dam now on yearly test.

A SON OF PRINCE WALKER CORNUCOPIA out of a 28 lb. dam.

A SON OF PRINCE WALKER CORNUCOPIA out of a 19 lb. junior 3 year old daughter of Prince Gelsche Walker.

A SON OF PRINCE WALKER CORNUCOPIA out of a 19 lb. junior 2 year old daughter of Merci Lad Korndyke Burke now on yearly test.

OTHER SONS OF PRINCE WALKER CORNUCOPIA out of dams with records up to over 22 lbs. butter in 7 days as 3 year olds.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

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Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch —767 S. Central Avenue, Los Angeles, Cal.

50,000 Vines, rootings, Thompsons, Emperors, Sultana, Muscats, $30.00 a 1000. Fruit trees, berry plants, farm and garden seeds, Box 501, Fowler, California.

For Sale—Dwarf Red Milo Seed. Selected stock. Heavy producer. Eight cents per lb. delivered C. O. D. or check. C. E. Newman, Chowchilla, California.

Sweet Potato Plants—Yellow Jersey, $3.50 per thousand. F. O. B. W. E. Van Gorder, R. 5, Box 91, Santa Ana.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

Sweet Potato Plants — Large or small lots. 16551 West Sherman Way. A. L. Feldschan, Van Nuys, California.

California Wonder Corn — More ears. Larger yields. Send for circular. James McKee, Riverside, California.

Plant Rhodes Grass Now—Write Imperial Valley Seed House, El Centro.

For Sale—Sweet Potato Plants $4.00 per 1,000. H. Beatty, Rd. 3, Santa Ana, California.

Durango Cotton Seed—See display ad of Boston Land Company in this issue.

MACHINERY

Mr. Farmer Here's Your Chance For Cheap Implements. 1 new No. J. A. John Deere Disk or 6-shovel cultivator for $75.00. 5 No. J. A. John Deere second cultivators, disk or 6-shovels used one season, first class condition for each $60.00. 1 No. 919 John Deere corn and bean planter, new $65.00. 1 No. 212 John Deere corn and bean planter, new $70.00. 3 No. 236 John Deere cotton and corn planters, new, each $70.00. Address, Wm. Mumby Hardware Company, Dos Palos, California.

Owing to Illness Have Had to Give Up My Farming Interests and will dispose of my equipment, consisting of a Trundaar Tractor, 3-4 Gauge Moline Engine Disc Plow, 6 ft. Moline Double Disc Harrow Gardiner Combination Furrower and 9 ft Cultivator, 4 row Ventura Bean Planter 2 row Planet Jr. Bean Cultivator, No. 2 American Bean Thresher, 2 100 gal Gasoline Tanks and 2 50 gal. Oil Tanks. Will sell as a whole or singly at less than half cost. J. B. Reeve, 329 West Amerige Ave., Fullerton, California. Phone Pacific 523-W.

For Sale 50 rebuilt windmills, 50 new and used tanks, 50 brass cylinders, rods, plunger pumps 1-in. to 30-in. capacity.

Why pay more? When you can save so much these times. Send for bargain sheet. Demmitt Co.'s. Office 120 North Main, Los Angeles. 15191.

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SPECIAL SALE

The largest roofing dealers in the West
GUARD ROOFING COMPLETE
1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35
PIONEER SANDED ROOFING COMPLETE
1-Ply $1.70; 2-Ply $2.20; 3-Ply $2.65
Roof Paint Special, 40c a gal., $2.00 for gal. can. We carry a full line of roofing and house paints.
Prompt deliveries on Mail Orders.
ANGELUS ROOFING & PAPER CO.
764-766-768 So. San Pedro St.
Phone B'way 5401. Los Angeles, Calif.

TREES

For Sale—All kinds of citrus nursery stock, one and two year buds, fine roots. Y. Yamaguchi, Upland, 10th Street and Cucamonga Avenue. Phone 386-W.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

5,000 Valencias; 2,000 Eureka lemons; 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

Lone Hill Citrus Assn., San Dimas, California. W. B. Ames, president and manager. Growers and dealers in citrus nursery stock from selected buds, choice orange and lemon trees at $1250 per thousand. Prompt delivery.

For Sale — 10,000 Florida Sour Orange Seedlings, very fine. Two year old Valencia Orange and Eureka Lemon Trees. W. V. Skillman, R. F. D. Box 387, San Fernando, California.

For Sale—Navel and Valencia trees for spring and summer planting, exceptionally fine selected buds. Address: Paul Smith, Whittier, R. F. D. No. 1, Phone Whittier 4371.

We Have Citrus Trees, Berry Plants, Tomato Plants, Thompson Seedless Grapevines. California Wonder Corn and Elephant Grass are big producers. Send for catalog. Bishop's Nursery, Highland.

Florida Sour Seed-Bed Trees, six to twelve inches high. Straight roots. Stocky trees. Highest quality. L. A. Tuttle Nurseries, Route 1, Pasadena.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

Budding. Orchards Top-Worked. Results guaranteed. L. A. Tuttle, R. 1, Pasadena.

TURKEYS

Turkeys — "Goldbank Boy." Champion Giant Bronze young tom. First Prize Cockerel at the New York, Madison Square Garden Show, the premier show of America, with 4311 poultry exhibits, held January 18th to 22nd, 1921, has just been imported by us, arriving at our mountain ranch February 26th. His sire, "Goldbank VIII," was grand champion at the same show, winning first in Cock class. We have mated this young champion bird to a limited number of twenty and twenty-one pound fancy, highly colored, eastern bred hens, also just imported. No eggs of this strain for sale this season at present.

A thirty-six pound yearling son of "Copper King V," the famous thirty-eight pound yearling giant bronze grand champion of the 1919 Madison Square Garden Show, will head our other flock—having mated him to our choice twenty pound hens. Egg prices reasonable. Two young toms of this last strain on hand for immediate delivery. For further particulars address: Bronze King Mountain Farm, Box 308, Calistoga, Napa County, California.

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

"Goldbank" Strain — Giant Bronze turkey toms. Partridge Plymouth Rock chickens. Chicken and turkey eggs in season. M. M. Reiman, Planada, California.

For Sale—White Hollands, Quality, Size and Vigor. Tom $12.00; eggs 50c each. Blue ribbon flock header. L. A. Robinson, Hemet, California.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St., Pomona, California.

Mammoth Bronze Turkey Eggs 30c; R. I. Red and Black Minorca eggs 10c. W. Duvall, Franklin Avenue, Pomona, California.

FARM LAND FOR SALE

CALIFORNIA IRRIGATED LANDS Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 609 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

To Close an Estate—12 Acre Orange Grove 11 years old. Finest condition; on paved streets in the fastest growing city in California. Land alone worth price asked. Price $1,500 an Acre Cash. Address: E. B. Sellars Real Estate Co., Exeter, California.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192 Indio, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

5 Acre improved irrigated ranch, alfalfa, oats, orchard and berries, R. D. 1 Box 4, Los Molinos, Calif.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Settlement on Partner's Death

I have a lease on crop shares. I have a partner who shares with me. In case of death does my wife get my portion or does the partner succeed to all of it?—Subscriber, Bridgeville.

In case of the death of the partner the partnership business is wound up by the surviving partner, who must account to the estate of the deceased partner for his interest. He is required to wind the matter up without charge to the estate. The wife, if she is the sole heir to the estate, would, therefore, receive the net interest of the deceased partner.

Soldier's Exemption

Does the exemption from taxation for military service of $1,000 apply to personal property, to real property, or to both? I was honorably discharged from the navy in 1912.—Subscriber, El Centro.

The exemption applies to either real or personal property, but it applies only to veterans of wars in which the nation has been engaged. It, therefore, does not apply to a person who was honorably discharged from the military service in time of peace and had no service in time of war.

Private Telephone Wire

A telephone line runs diagonally across my property. The line chafes a young cherry tree. Is the owner required to move the line or am I required to trim the tree?—Subscriber, Stockton.

In the ordinary case, such as the above, either the wire has been run across the field by the license of the owner or merely through carelessness. In either instance owner may revoke the license and require the owner of the telephone line to take some other route. If the owner of the telephone line purchased the right of way and has a grant therefor, the owner cannot, of course, intrude upon his grant and would be obliged to protect his trees accordingly.

HENDERSON REMAINS PRESIDENT OF MILK PRODUCERS

Following the adoption of a resolution by directors of the Northern California Milk Producers Association in which J. M. Henderson, Jr., was asked to reconsider his resignation as president of the association, Henderson announced he would remain at the head of the organization. The resolution, which was adopted by unanimous vote, follows:

"Whereas, It has been stated in the public print that J. M. Henderson contemplates retiring as the active head of the Northern California Milk Producers Association, and it is believed by the members of the association undersigned that it will be a great loss to the association and the dairy industry generally, if Mr. Henderson shall retire from the active leadership of the association, and we keenly appreciate the sturdy defense Mr. Henderson has made against the incessant attacks upon the association and has without flinching successfully withstood personal criticism and assaults upon his own honest intentions and purposes in connection with the association, which criticism and assaults, if they had had any basis in fact would through their persistency and virulence, have shown any wrongful, improper or selfish motive or act on his part, and we have the fullest confidence in Mr. Henderson's high and patriotic motives in all his ability and integrity. Now, therefore, be it resolved, that we extend to Mr. Henderson an expression of our most profound thanks and appreciation and that we most earnestly request him to reconsider his expressed desire to retire from active leadership of the Northern California Milk Producers Association."

Elmer McNear of Dixon and L. S. Torrey of Arbuckle have been chosen new directors of the association.

TEAGUE TREES

Ask the man who has planted them and he will tell you that Teague Trees are unequaled in growth and productiveness.

They are the best that can be produced.

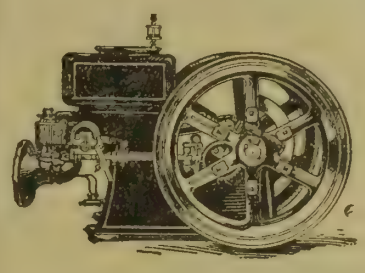
If you intend planting CITRUS TREES it will pay you to come and see our stock and let us figure on your requirements while we still have a good assortment to select from, as the supply of good trees is limited.

Avocados, Feijoas and other Tropical fruit trees in all of the recommended varieties.

Send for our new descriptive price list and tell us what you intend to plant.

The R. M. Teague Nurseries
Box A San Dimas, California
Founded in 1889 by R. M. Teague

A Mechanical Masterpiece



Dependable—Durable
Efficient—Economical

The Hercules Engine

1½ to 12 hp.
For All Ranch Work
Die Cast Interchangeable bearings.
Sold by local dealers everywhere.

Factory Distributors:

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Machinery, Supplies, Pipe and Fittings

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LOS ANGELES
228-238 Central Avenue

DURANGO COTTON SEED

From one of our best test fields, resulting from three years' selection, starting with carefully bred California acclimatized seed. We rogue for less spreading type of plant, permitting close planting; for productiveness and for larger bolls which open wider, fluff more and pick easily; also and especially for early maturity and for lint length and strength. We receive premium for uniformity lint length, strength and color. Seed cotton from which these seed selected ginned over 32% More net income per acre growing this type Durango than any other kind or type of cotton known to us. Our seed purchased in carload lots by Cotton Associations. We ship to Arizona, New Mexico and East. Inspected and approved by Government officials, State Entomologists and Quarantine officers. Ask any of them. By the bag, approximately sixty pounds, five cents per pound, f. o. b. Westhaven. Check must accompany order. No more carload lots. Telegraph for ton prices. BOSTON LAND COMPANY, Westhaven, Fresno County, California.

PERFORATED TREE PROTECTOR

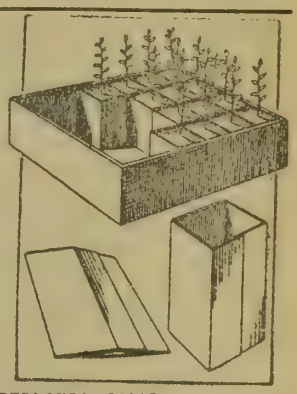
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

COLLAPSIBLE PLANTING POTS

Why not raise your early

Tomatoes, cabbage, chili, and egg plant for home use or for market. Do you know that you can start Cucumbers, Cantaloures, Melons of all kinds in these pots in flats until they have three and four leaves, then plant pot and all, have melons two or three weeks earlier for market. Just the thing for Propagating Eucalyptus and Olive cuttings.

Write for samples and prices of both Pots and Protectors. State which you are interested in.



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MAIL IT TODAY
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SEED
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Order Seed by Mail. Save 20%

We have prepared a special price list saving 20% on all vegetable and flower seed sold by mail.

This is done during the rush season to relieve our busy salesmen.

Fill out the coupon below and compare our prices with others.

Mail orders of any size carefully and promptly filled.

Los Angeles Seed Co.,
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Please send me your new 20% money saving price list.

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Ancestry will tell-in stock or seeds

Morse's Seeds are bred from selected plants. Their pedigree assures a full, true-to-name yield. They are especially adapted to coast soil and climate.

Try Morse's Siberian Radish
The acme of quality

Morse's Vegetable and Flower Seeds are sold in packets by all good stores. Send to us for new catalog.

C. C. MORSE & CO.
729 Front Street, San Francisco

Seeds in any amount from a packet to a carload. Write to us for quantity prices

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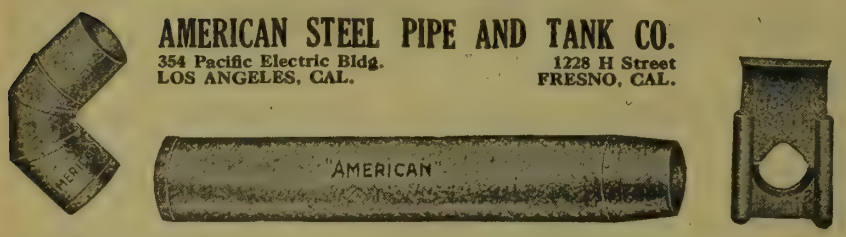
PEDIGREED
SEEDS

WRITE US FOR PRICES ON
Tanks, Well Casing, Riveted Water Pipe and Surface Irrigation Pipe with Double Lock Seam

AMERICAN STEEL PIPE AND TANK CO.
354 Pacific Electric Bldg. LOS ANGELES, CAL.
1228 H Street FRESNO, CAL.



KROGH PUMP AND MACHINERY COMPANY
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Los Angeles Agent, J. B. Van Horn Co.
Krogh Pumps are Absolutely Water Balanced
No End Thrust Possible No Set Collars Used
The No Trouble Pump
Fitted With Ring Oiling Bearings
Renewable Babbitted Bushings
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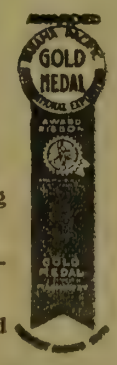

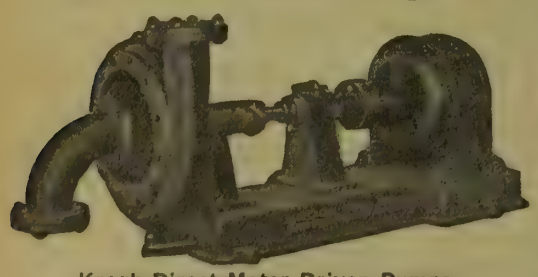

Krogh Direct Motor Driven Pumps

We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

When Writing Advertisers Mention California Cultivator.

ADVENTURING WITH CHICKENS

(Continued from Page 511.)

this house, never to come out till they have served their time as layers and are ready to go to market for potpie. He is going to raise the whole bunch at once around one of the big brooder stoves. "I haven't time to nurse them," said Will with a grin. "I'm a farmer, not a poultryman, but I've raised a thousand chicks that way more than once. I ought to save 90 per cent of them, and my time is worth more than the other hundred."

That is one way to look at it. For my part, I shall be ashamed if I cannot raise 95 per cent out of every 100 chicks.

January 29.—I was interrupted here by a telephone call from the breeder who was to send us our chicks the tenth of February. He said an order had been cancelled, leaving him with 500 on his hands. If we could take them the next day he would make us a little reduction in the price. Would we? Why not? The house was ready, brooder and heater installed, straw on the floor, and a warm January sun streaming in at the windows. "Bring them along," I cried, and rushed to tell Bob.

That was a week ago, and we still have 450 left of the 500 chicks, but some of them look rather "peaked," as Grandma used to say. Pride, I fear, had to be punished.

They were the loveliest things when they came, not a droopy one in the lot. I hustled them into the brooders, 100 to each, and Bob watched the thermostats. That night, according to the book, they should have had nothing to eat. "The yolk of the egg, which they take into their intestines the last day in the shell is sufficient food for three days." I know it by heart, you see. Well, I fastened them in under the hover and left them there a while, but presently two or three found their way out, and it wasn't long till every chick in every one of the five brooders was out in the playroom. They looked hungry to me and I ran over to Mrs. Doolittle. "I don't know," she said. "I always feed them myself at the end of 48 hours, but the man who wrote the book ought to know." "What I don't know is," I argued, "how long the oldest have been out of the shell. I understand they were kept in the incubator two whole days after the hatch was over. That would make those that came out first nearly four days old. I think they ought to be fed."

The upshot was that I ran back to the brooder house and scattered bulk rolled oats, the kind we used to have for breakfast at home, over the sand in the playrooms. They ate a little but not enough to hurt them, and I fastened them back under the hover.

Next morning when I went to give them their breakfast of chopped hard boiled egg mixed with bread crumbs and rolled oats I saw two or three in each brooder standing around without much enthusiasm for eating, and the next morning there was a dead chick or two in each and a few more droopy chicks. This morning I found 12 dead and tonight I am afraid I shall lie awake dreading what the morning may disclose. Mrs. Doolittle came yesterday and gave them the once over. She says she thinks the trouble is not in the feeding but in the heating. Her theory is that if food is put before the chicks 12 hours earlier than they are supposed to be ready for it, they will not eat. She says chicks never do eat till they are ready, and that all this talk about not feeding them before the yolk is digested is pure buncombe.

Tom kept the heat in all the brooders at 95 degrees, according to the book, but we noticed some of the chicks peeping that first night. I thought it was because they were babies, but Mrs. Doolittle says chicks never cry if they are perfectly comfortable. The thermometer, she says, is no guide at all to go by, because while some of the chicks may be hardened enough to bear as low a temperature as 95, there are others that need 105, and it is better to give more heat and let those that don't like it come out from under the hover a little if they wish. "When you see them all lying around, under the hover and outside of it, and sticking their heads out as if they wanted a breath of fresh air, you know they are warm enough, no matter what the thermometer says," is her dictum. "You can't raise chicks by rule any more than you can babies."

Verily, when you once begin to ask for advice you get loads of it. I had another visitor yesterday, a Mrs. Moore who lives down the street toward the car line. She has had a lot of experience and she says she makes it a rule to run the heat up to 105 the first few days just at bedtime. She says chicks always feel the chill of evening just as we do, and if they are thoroughly warmed when they go to bed they will sleep better and be in no danger of chilling later. It is on the same principle as our taking a hot water bag or stove lid to bed with us. When our feet get toasty warm we can kick the hot water bag ers. Mrs. Moore runs the heat up for an hour and then lets it drop to 95 or lower for the rest of the night. out of bed and throw off the top cov- Indeed, she is very soon able to let it go a good deal lower at night and to turn it off entirely during the day. "The sooner you can get chicks used to doing without heat," she says, "the better for everybody. Keep them thoroughly warm the first four days, then drop the temperature as fast as you can."

Why four days? Neither she nor Mrs. Doolittle could tell me, though they agree that those first four days are critical. If the chicks have not been chilled before that time they are not likely to be. They may, to be sure, get coccidiosis, or aspergillosis, or mites, or lice, or bronchitis, or roup, but they will not die of chill.

Well, we live and learn. I have 450 of my 500 chicks left, and I am going to keep them if I have to sit up with them all night. I keep telling myself:

"'Tis better to have tried and failed
Than never to have tried at all."

With love to all the folks, your chastened Bessie.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, March 28, 1921. Report for week ending March 27:

In the twenty-first week of the egg laying contest at Storrs the 1,000 hens produced 4,760 eggs, or a yield of 68 per cent. This is an increase of 486 eggs more than last week's production, 431 eggs more than for the same period last year and 633 eggs more than for the six year average.

A pen of White Leghorns owned by Hollywood Farm, Hollywood, Washington, was an easy first for the week with a production of 59 eggs.

The four leading pens in each of the principal varieties are as follows:

Plymouth Rocks

W. H. B. Kent (Barred), 744; Rock Rose Farm (Barred), 633; Ernest W. Picker (Barred), 615; Jules F. Francais (Barred Rocks), 533.

Rhode Island Reds

Charles H. Lane, 842; F. S. Chapin, 770; H. S. Bickford, 760; Deer Brook Poultry Farm, 711.

White Leghorns

James O. Le Fevre, 766; A. P. Robinson, 735; L. E. Ingoldsby, 701; Lion Head Poultry Farm, 685; Hollywood Farm, 685.

Other Varieties

Obed G. Knight (White Wyandotte), 846; H. P. Cloyes (Buff Wyandotte), 678; A. E. Hampton (Black Leghorns), 516; Harry D. Emmons (White Wyandottes), 454.

Poultry Queries

Conducted by Jean A. Koethen

Making Chicks Roost

Kindly tell me how to make young Leghorn chicks go on the roost. Mine were hatched February 13 and are old enough to roost. I had 150 in a brooder, but they were overcrowded and I have not been able to wean them satisfactorily.—Subscriber, Santa Ana.

The best way I have found to make young chicks roost is to put them in the house or coop a little while before they are ready to roost, not attempting to make them roost, but putting them to bed in comfortable boxes under the roosts, with straw under and a blanket or quilt or burlap sack over them. As soon as they are ready they will go on the roosts at night without any urging, but before this you

Sick Baby Chicks?

Germozone operates just as these people say. It is preventive as well as curative, and satisfaction is absolutely guaranteed. Twenty years on the market. Sold by drug and seed stores at most towns.

Wm. E. Shepherd, Scranton, Pa., wrote—"Two weeks after we started last spring we were a mighty discouraged pair. Every day from three to six chicks dead. A neighbor put us next to Germozone and we are now sure if we had had it at the start we would not have lost a single chick." Ralph Wurst, Erie, Pa.—"Not a case of white diarrhoea in three years." C. O. Petrain, Moline, Ill.—"I never had a sick chick all last season." Mrs. Wm. Christiana, Olive Ridge, N. Y.—"Have 800 chicks now 5 weeks old and not a single case of bowel trouble."

GERMOZONE is a wonder worker for chicks, chickens, pigeons, cats, dogs, rabbits or other pet or domestic stock—for roup, bowel trouble, snuffles, gleet, canker, swelled head, sore head, sores, wounds, loss of fur or feathers.

If no dealer, order by card. Postman will collect. No extra charge. Handy as phoning. 75c and $1.50 pkgs. Baby Chick Book FREE.

Geo. H. Lee Co., Dept. F30, Omaha, Neb.

Baby Chicks

All the Popular Breeds Every Day

Baby Ducks, Baby Turkeys

We can supply Baby Chicks in any quantity. Best quality. Place your order now to insure prompt delivery. Can ship to any point within seventy-two hours' ride from Los Angeles. Hatching Eggs, Fireless Brooders, Poultry Supplies, Remedies, Feed, Seed, Feeders, Fountains for sale.

We are the SOLE AGENTS of this County for the Pioneer Incubators and Brooders. Send for Price List.

Visitors Welcome.

PIONEER HATCHERY

320 So. Spring St., Los Angeles, Calif.

"World's Largest Hatchery" Established 190

Kills Mites and Lice

Wegner Medicated Poultry Roost

The greatest proposition ever offered to the poultry raisers of this country.

Write us for full information and our introductory trial offer.

We want a Live Wire Poultryman to represent us in every poultry district.

E. W. BADGER SALES CO.

Manufacturers and Coast Distributors, Long Beach, California.

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Baby Chicks

Largest assortment of baby chicks in the West. Hatched in the RIGHT way. Can ship Express or Parcel Post. We carry a complete line of poultry supplies. Used incubators on hand. Fireless brooders that are made to care for chicks properly. Chicks shipped safely in these brooders. Breeding and Pet stock of all kinds. Write us your wants. Send for price list. Dogs, cats and rabbits.

FANCIERS' EXCHANGE

640 S. Main St., Los Angeles, Cal. Bdwy. 2824

Big Money Boring Wells

Have water on your own farm. In spare time make wells for your neighbors. It means $1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

Outfits for Getting Water Anywhere

Earth augers, rock drills and combined machines. Engine or horse power. *Write for easy terms and free catalog.*

LISTER MFG. COMPANY

Box 716 Clarinda, Iowa

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We can supply plants—all sorts for large fields. Plant also peaches, plums, prunes, pears, figs, apples, apricots, asparagus, artichokes, etc., for your own table and pleasure. We have a good assortment of fruits of all sorts. Write for price list. J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Cal

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will find them working their way out from under the cover. When you go to the coop at bedtime and find all the chicks on top of their blanket instead of under it, you may know they are ready to roost. Never force them. Keep them warm as long as they need warmth and let them roost when they wish to. If you have a droppings board or solid, clean floor under the roosts in your little house I think you will find some way of keeping the chicks warm there without the bother of putting them in boxes. Put plenty of straw under them and fix some kind of frame to hold their covering. A hover made of strips of felt or flannel tacked to a thin board would answer nicely.

Prevent Precocious Production

My pullets five months old are beginning to lay. How can I delay maturity and keep them from laying peewee eggs?—Subscriber, Riverside.

You cannot keep them from laying some peewee eggs, but you can delay maturity by discontinuing the laying mash for a month and substituting a maintenance mash of bran and bone meal, 95 per cent bran and 5 per cent bone meal. After a month let them have the laying mash again.

Poultry Doctor Book

Can you tell me where I can get a good reliable treatise on poultry diseases?—Subscriber, Hamilton City.

"Poultry Diseases and Their Treatment," published by the Main Agricultural Experiment Station, Orono, Maine, is the best book of the sort I know of. There is a very good government bulletin entitled "Important Poultry Diseases," by Dr. Salmon, which may be had free by writing the Department of Agriculture, Washington, D. C., and our own agricultural experiment station at Berkeley publishes a number of bulletins on special diseases, such as chicken pox, coccidiosis, and worms. Dr. N. W. Sanborn has written a little book called "The Farm Poultry Doctor," which is published by the American Poultry Advocate, Syracuse, New York, for 50 cents.

Slacker Hens

My White Leghorn hens, eight months old, seem healthy, but they do not lay many eggs, and when they do lay, the eggs have soft shells. A Plymouth Rock hen that is in this flock lays right along and her eggs have firm, hard shells. What makes the difference, and how shall I make the Leghorns lay as they should?—Subscriber, San Diego.

Are your hens supplied with grit and oyster shell? Lack of shell material seems to be a more serious matter with Leghorns than with hens of the heavier breeds. Many heavy hens will lay right along, and lay eggs with splendid hard shells, with no shell making material whatever outside of what is in their grain, but Leghorns and other Mediterraneans require more help. If your Leghorns have grit, shell, clean water and a good laying mash before them all the time, greens several times a day and a quart of mixed scratch grain at night to a dozen hens, and are free from insect pests, they will lay at this season if there is any "lay" in them. If they do not lay they are slackers and should be treated accordingly.

Chick Troubles

What ails my chicks? They seem to be in perfect health and are growing, but some of their droppings are soft and brown and others contain a reddish mucus. I feed commercial chick feed in the morning in litter, chick feed mixed with hard boiled egg or meat at noon, chick feed at night, cut alfilaria twice a day, chick mash before them till after noon. They are nearly three weeks old. How can I teach them to eat wheat and what is a fair percentage to raise out of 100 chicks? I have lost 13.—Subscriber, Lancaster.

You are keeping them too long on nursery feed. Cut out the egg and keep a growing mash before them all day. As they have been on chick feed alone so long you may have to try some smaller grain than wheat at first.

(Continued on Page 539.)

The Future of the Brood

THE first three weeks usually decides the profit or loss in the rearing of chicks. The highest death rate obtains in this period because the digestive systems of the chicks have not yet fully developed.

Blended for this critical time, OLYMPIC Chick Mash *with Dried Buttermilk* is one of the most easily digested as well as the greatest growth promoting chick rations.

OLYMPIC Chick Mash *with Dried Buttermilk* eliminates the danger of White Diarrhoea, and assures maximum assimilation of health and body building elements. For best results use OLYMPIC Baby Chick Scratch along with OLYMPIC Chick Mash, feeding each at intervals prescribed in our FREE BOOK of Poultry Feeding Instructions.

OLYMPIC Chick Mash contains Cornfeed Meal, Linseed Oil Meal, Meat Meal, Oat and Barley Flour, Alfalfa Meal, Flour Middlings and *Dried Buttermilk*. The lactic acid supplied in *Dried Buttermilk* disinfects the alimentary canal and removes dangerous irritants.

At the end of three weeks change the mash to OLYMPIC Growing Mash *with Dried Buttermilk*, and the scratch gradually to OLYMPIC Growing Chick Scratch—until at five weeks they are on a full ration. This in turn can gradually be replaced with OLYMPIC Scratch when the birds are nine or ten weeks old. About two weeks before they are ready for laying, change the mash to OLYMPIC Laying Mash.

Ask your dealer or write for booklet, "Instructions on Poultry Raising and Feeding"

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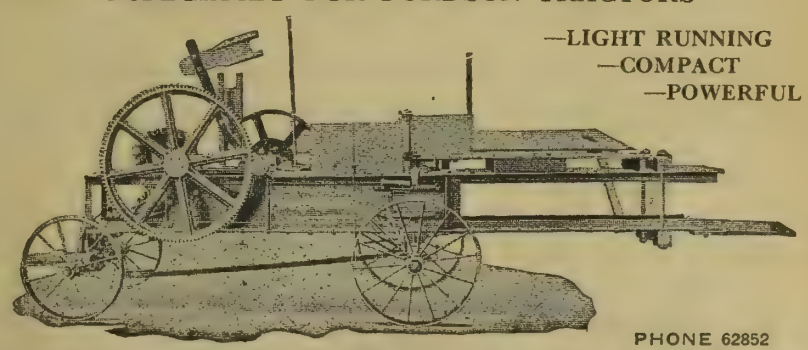

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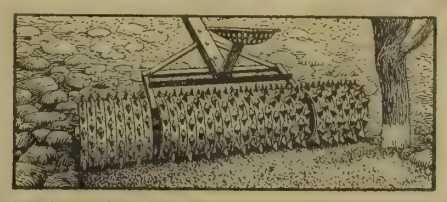

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DIRECT FACTORY TO FARMER

All sizes sold at pre-war prices.

Write for Circular.

California Plow Company

140 Polhemus Street, San Jose, Calif.

Los Angeles Markets

Los Angeles, April 13, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price, 41 cents.

Apr.	6	7	8	9	11	12
'21 ...	38	38	38	..	..	41

CHEESE

Brokers' prices:
California flats, 20@23.

EGGS

Fresh extras (case included): Produce Exchange closing price 27 per dozen. Case count Produce Exchange closing price 26. Pullets, closing price 25 per dozen.

Dairy Exchange price last week on extras:

Apr.	6	7	8	9	11	12
'21 ...	28	28	28	..	..	27

There is practically no shipping at this time; the product is now going into storage. New York quotations are now 37@38 for California whites. It is hoped that bottom is touched but no prophets are willing to hazard a guess.

POULTRY

Price to producers: Hens, lt., 24; heavy 24@25; colored, 32; broilers, 25@40; roasters, 40; old roosters, 11; fryers, 48; ducks, old, 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 13@18; old, 9.

LIVESTOCK

Los Angeles, April 12. — Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 10.00; 175 to 225 lbs., 10.50.

Cattle (on foot, gross weight): Steers, good, 8.50@9.00; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Bulls and stags, 4.00@4.50. Calves, 125 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 4.00@5.00; lambs, 8.00@10.00.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe Avenue. Receipts from the interior for 24 hours ended at 10 a. m. Tuesday were: 63 hides, 45 pelts, 450 lbs. tallow.

Green and green salted hides: No. 1 heavy hides, 50 lbs. and up, 4 per lb.; No. 1 light hides, 25 to 50 lbs., 3½ per lb.; No. 1 kips, 15 to 25 lbs. 5 per lb.; No. 1 calf skins, under 15 lbs., 8 per lb.; No. 1 slunks, 10@30 each; No. 1 bull hides, 3 per lb.; No. 1 horse hides, over 50 lbs., 1.50 each; No. 1 horse hides, 40 to 50 lbs., 1.00 each; No. 1 horse hides, 30 to 40 lbs., 60 each; ponies and glues, half price; No. 1 grubby hides and skins, 1½ less; No. 2 hides and skins, 2 less; glue hides and skins, half price.

Dry flint hides—No. 1 hides, 16 lbs. and up, 8 per lb.; No. 1 kips, 6 to 16 lbs., 9 per lb.; No. 1 calf skins, under 6 lbs., 10 per lb.; No. 2 hides and skins, 2 less; glue hides and skins, half price.

Pelts—Large, long wool, 40@70 each; medium, 20@40 each; short wool and shearlings, 5@20 each.

Goat skins — No. 1 common, 10@30 each; No. 2, 5@10 each; badly damanged and small kids, worthless.

Tallow—No. 1 white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool—According to quality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock April 12, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market firm. Stocktons: Burbanks, quality poor, 1.75@2.00; few best 2.25@2.40. Idaho: Russets mostly 2.25@2.35. New potatoes: 6½@7 per lb. Sweet potatoes: Supplies liberal, market steady. Best mostly 2.00@2.25 lug. Arkansas and Texas, 7@8 lb.; jobbing sales, mostly 6½@7 lb.

Onions: Supplies heavy, market dull. Stocktons: White Globes, cold storage stock, 75@1.00; Browns, mostly 35@65 per cwt. sacked.

Garlic: Local best mostly 12@15 lb.; poorer 8@10.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock April 12, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 75@1.25; poorer wide range.

strong. Local: 15@17 per lb. Northern: 10@13 per lb.; jobbing sales, 9@11.

Beets: Doz., 35@40; sk., 1.75@2.00.

Cabbage: Field crate best mostly 75@1.00; poorer, 60; best high as 1.25.

Carrots: Doz., 35@40; sk., 1.00@1.25.

Cauliflower: Supply moderate, field cr., best, 2.25@2.50; poorer low as 1.75; few best high as 2.75.

Cucumbers: Hothouse, best, 2.00@2.50 dozen.

Lettuce: Local field crate quality poor, 1.50@1.75; best mostly 2.00@2.25.

Peas: Local: Best 11@12 per lb.; jobbing sales 10@11 per lb.

Radishes: 20@25 doz.

Rhubarb: Crimson Winter, best bx., 75@1.00; Strawberry bx., 1.10@1.25.

Spinach: Doz., 20.

Squash: Summer, mostly 1.60@1.70; best high as 1.75.

Tomatoes: Mexican, per lug, best 3.50; repacked lug, 3.75. Much poor stock at wide range in prices.

Turnips: Per doz., 30@35; sk., 90@1.10.

CITRUS FRUITS

Grapefruit: Supplies liberal, market firm on good stock. Local: per box, market pack 2.00@2.25, special packed brands 2.75@3.25.

Lemons: Supplies heavy, market dull, wide range in prices. Local: packed box 1.50@2.25, few high as 2.75, loose 75@1.00 per box, per lug mostly 40@50.

Oranges: Supplies heavy, market dull. Navels, market pack, large sizes 3.00@3.50 small low as 1.75, special brands, small sizes 2.75@3.25, large sizes 4.00@4.25. Packing house culls 25@50 per box, few best 75.

HONEY

Supplies heavy. Poor wire inquiry. Movement slow, market weak. Carlots f. o. b. usual terms; few sales White Orange Blossom 13@13½; White Sage 12@12½; Light Amber Alfalfa 6½@7; Light Amber Sage 7½@8½; White Alfalfa 7½@8½. Hawaiian White 7½; Light Amber 6; Honey Dew Honey 5.

Beeswax sacked in less than carlots, per pound, Hawaiian, light color 35; domestic, light 32@34; dark low as 26.

Producers seem more willing to sell at lower prices and supplies are cleaning up in some sections. The local demand for small lots at higher prices is helping to absorb the surplus. The new crop will probably be heavy in another month, due to the favorable season. It is estimated that approximately 10 per cent of next year's crop will be comb, but supplies are now exhausted. San Diego County reports 17,000 colonies registered now, and in thrifty condition.

GRAIN AND FEEDS

Grain Exch. price bid April 12:
Barley: Carlots, 1.26¼.

HAY

Alfalfa Growers of California report under date of April 11:

There were 380 tons received on the Los Angeles tracks the week ending April 9, with 60 tons held over as against 280 tons the week before.

The alfalfa market passed through another week without material change in receipts, demand or prices, and also without activity, the result of the still continued declining tendency of the markets for all other farm products, which is of course bound to have its influence on the alfalfa market and in fact on business in all lines.

Rabbit Alfalfa	30.00
No. 1 Dairy	21.00
Standard	18.00
Stock	15.00
Rabbit Alfalfa	36.00
No. 1 Dairy	24.00
Standard	21.00
Stock	16.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@30.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@16.00
Straw	10.00@13.00

San Francisco Markets

San Francisco, April 12, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 39

Dairy Exchange prices extras this week and year ago:

Apr.	5	6	7	8	9	11
'21 ...	37	37	37	37	37½	39
'20 ...	..	59	61	61	61	..

Rcts. wk. ending April 11, 3,567 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Ore. Y. A.	35
Ore. Trip	36
Cal. Y. A.	22½
Cal. Flats	22

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	29½
Extra Pullets	27½
Undersized	22½

Apr.	5	6	7	8	9	11
'21 ...	31	29½	29½	29½	29	29½
'20 ...	..	44½	44½	44½	43½	..

Rcts. wk. ending Apr. 11, 630,793 dozen.

POULTRY

Wholesale prices are:

Hens: Colored, 25@27; White Leghorns, 25@27; strictly young roosters, 40@44; old roosters, 20@22; fryers, 55@60; broilers, small, 38@42; large, 48@52.

Ducks: 30@35.

Squabs: 60@65 per lb.

Belgian Hares: Alive, 23@25 per lb.

Pigeons: Old, 3.00@3.50 per dozen.

Jackrabbits: 3.00@3.50 per dozen.

LIVESTOCK

Wstern Meat Company prices are:

Cattle: Steers, No. 1, 8@8½; steers, second quality, 7@7½; steers, thin, 4@5½; cows and heifers, No. 1, 6@7; cows and heifers, second quality, 5@6; cows and heifers, thin, 3@4.

Calves: Light weight, 8½@9½; medium, 8@9; heavy, 7@8.

Lambs: Yearlings, 8@8½.

Sheep: Wethers, 6@7; ewes, 3½@4.

Hogs: Hard, fat and grain fed, weighing 100 to 200 lbs., 10½; 200 to 300 lbs., 10; 300 to 400 lbs., 9½.

No. Hogs	Ave. Wt.	Dock	Price
Modesto, April 5			
105	165	...	$11.15
80	206	...	10.30
54	205	...	10.25
72	245	...	1.20
5	420	60	7.75
Four cars, 40 consignors, $6,550.49.			
Hilmar, April 6			
10	157	...	10.15
41	173	...	10.00
28	206	...	10.00
13	264	...	9.00
8	380	110	7.00
1	550	220	5.00
One and one half cars, 25 consignors, $1,976.65.			
Chowchilla, April 7			
101	145	...	11.05
7	109	...	11.00
99	170	...	10.90
80	209	...	10.80
60	205	...	10.35
12	274	100	9.35
14	355	230	8.10
2	495	400	6.10

Four cars, 37 consignors, $7379.41.

Total for the week, 9½ cars, 102 consignors, $15,906.55.

HIDES AND PELTS

No. 1 heavy hides, 60 lbs. up, 3; do, medium, 45 to 60 lbs., 3; do, light, 30 to 45 lbs., 5; do, native bulls, 2; No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 5; No. 2 wet salt kip, 15 to 30 lbs., 3; No. 1

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A & M

Selected Strain

DWARF MILO MAIZE

is the produce of the same fields located in the same section where our seed has been grown for a number of years.

Each season previous to harvest our own representative inspects the fields and every precaution is exercised in order that there may be no off-type seed in the stock which we select for seed purposes.

We are Proud

of the reputation we have gained on Dwarf Milo Maize seed and it is very gratifying to have the many unsolicited favorable expressions from our customers each season in which they state that the seed was all we claimed for it and more.

When in the market for Dwarf Milo Maize, think of the A. & M. Selected Strain and

Ask Your Local Dealer

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Aggeler & Musser Seed Co.

Los Angeles

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Guaranteed Seed of the Hubam or Hughes Variety

Makes growth in one season that ordinarily clovers do in two. Yields under cultivation two tons hay or 300 to 500 pounds of seed. Price $1 for trial package or $10.00 per pound. A pound will seed an acre. Make a big profit growing seed for yourself and neighbors. Order before small supply is exhausted from The Henry Field Seed Company, Shenandoah, Iowa, or direct from The Grower Who Guarantees. The DeGraff Food Company, Degraff, Ohio.

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Rubber Boots For Ranchers Irrigation and Work

$3.98

A wonderful value in Hip or Knee Length Rubber Boots made of REAL gum Rubber with heavily reinforced seams. Made to order of the English Government for the British Army at actual COST OF MORE THAN WE ARE SELLING THEM FOR. Will stand all extremes of heat and cold and made to give extra long wear. Finest quality pure gum rubber with extra heavy soles. This is one of the very finest BARGAINS we have ever been able to offer our customers and the stock is limited so get your order in very early. Nothing better can be worn by ranchers or men who work in irrigated districts, rice fields, etc. This quality of Hip rubber boot would usually cost you $7.50 to $8.00. Remember you can get the full HIP boots for $3.98 or the shorter knee length boots for $3.29. Be sure to mark which kind you want on the coupon below. WE DO NOT WANT YOUR MONEY IN ADVANCE. We take all risk because these boots are such wonderful values. Fill out coupon NOW and mail at once if you want some of these boots before they are sold out.

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Send me.....pairs of Rubber Boots as marked below, postpaid, at once. I will pay postman for them on arrival. If I am not entirely satisfied I will return boots and you will refund my money immediately.

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Squaw Mountain Sudan Seed

Plant Squaw Mountain Sudan Seed, utilize your summer fallow. Ten pounds per acre, through your grain drill, will furnish green feed through the summer and late fall for horses, cattle, hogs, or turkeys.

The land may be prepared for barley or wheat in the fall by disking. You will have no stalks to contend with—the stock will eat it clean.

Plant some in the back lot for your chickens.

Plant Squaw Mountain Sudan Seed year after year. It is free from Johnson grass.

Less than 100 lb. lots 15c per lb.
Less than 500 lb. lots 10c per lb.
Less than 1000 lb. lots 9c per lb.
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All above prices f. o. b. Murrietta.

Valley Land and Seed Co.
Murrietta, Cal.

ADMIRAL PRESSES

Motor and Belt Presses
Horse Presses
See or Write
California Implement Co.
122 No. Los Angeles Street
LOS ANGELES, CAL.

wet salt calf, trimmed, 7½; No. 2 calf, 2 per lb. less.

Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Wet Salted Horse Hides: No. 1, large, skinned to hoof, 2.00; No. 1, medium, skinned to hoof, 1.50; No. 1, small, skinned to hoof, 50@1.00; No. 1, colt, skinned to hoof, 25@50.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good, 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20;

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, 2.00@2.35 for No. 1; do, Oregon Burbanks, 2.25@2.50. Idaho Gems, 2.35@2.65. Sweet potatoes, Nancy Hall, 5.00@5.60 per 100 pound.

Onions: Australian brown, 35@50 per bag.

Garlic: New, 6@8 lb.

VEGETABLES

Wholesale selling price:

Asparagus: Lb., field run, 6@8; fy., graded, 7@10; green, 4½@6.

Artichokes: Cr., 5.00@7.00.

Beets: 1.00@1.50 sk.

Beans: String, Coachella Valley and hothouse, 40@45.

Carrots: 75@1.00 sk.

Cauliflower: Doz., 40@75.

Cucumbers: Hothouse, small, 4.00@5.00 box of 2½ dozen; cr., 3.00@3.50; large, 2.50@3.00 per dozen; English, 2.50@2.75 per dozen.

Cabbage: Lb., 1.

Celery: Cr., 3.00@4.00.

Eggplant: Lb., 10@20.

Lettuce: L. A. cr., 2.25@2.50; Imp., 3.50@4.00.

Onions: Green, per lug, 1.25@1.50.

Peas: Large, 5@7 lb.; small 5@6; Bay, 7@9.

Parsnips: Sk., 2.00@2.25.

Peppers: Bells, Southern, 5@20 lb. for green; Florida, 20@30; Mex., 15@25.

Rhubarb: Alameda, extra choice, 1.25 2.00.

Squash: Imperial Valley Summer, 1.50 @1.75; Cream squash, 60@75; Hubbard and Marrowfat, 1.75@2.25 sk.

Spinach: Lb., 3@5.

Tomatoes: Mex., 3.00@4.00; do., repacked 4.00@5.00; L. A. cr., 3.00@3.25.

Turnips: Sk., 50@1.00.

FRESH FRUITS

Avocado: California, dozen, 3.00@7.00.

Bananas: Lb., 9@10.

Pineapples: 4.50@6.00.

Strawberries: Imp. Valley, 3.75@4.00 cr.; Central Cal., 1.50@1.75.

Loquats: Lb., 12@15.

CITRUS

Navel oranges, 2.65 @ 4.75; lemons, 2.00 @3.50 per box; grapefruit, new crop, 2.00 @3.50; slightly more on extra fancy; tangerines, 1.50@3.50 per half orange box.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 17 lb.; Sunmaid, seeded, 36 15-oz. pkgs. 22 lb.; seedless Sultanas, 25-lb. bxs. 18 lb.; Thompson Seedless, 25-lb. bxs. 21 lb.; do, 48 15-oz. bxs. 22 lb.; 3-cr. L. M., 25-lb. bxs. 19 lb.; 2-cr., do, 18 lb.; 1-lb. clusters, 20-lb. bxs. 5.40 box.

Apricots: Fancy 25 lb. boxes, 22 lb.; extra choice, do, 19 lb.; choice, do, 16 lb.; standard, do, 15 lb.

Peaches: Blue Ribbon brand, 48 11-oz. to cs., $8 cs.; Blue Ribbon brand, 24 2-lb. bxs. to cs., 9.00; fancy, 25-lb. bxs., 17 lb.; ex. ch 25-lb. bxs., 13; choice 25-lb. bxs., 12.

Pears: Fancy, 25 lb. bxs., 18; extra choice, 25 lb. bxs., 12; choice, 25 lb. bxs., 10.

Figs: Fancy black, 25 lb. boxes, 12½ lb.; extra choice, do, 10 lb.; choice, do, 8½ lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 4-oz. white, 3.25 box; 50 6-oz. white, 3.00 box; 12 10 oz. white, 1.25 box; 20 8 oz. 1.75 box; fancy 4-layer, 10 lb., 2.00 box.

Prunes: 30-40s, 25 lb. boxes, 12½; 40-50s, do, 11 lb.; 50-60s, do, 9½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8 lb.; choice, do, 7 lb.

BEANS

Below California Bean Growers Association shippers prices choice recleaned.

Large Whites	3.45
Small Whites	3.40
Pinks	5.75
Mexican Reds	7.05
Red Kidneys	8.75
Henderson Bush	5.20
Cranberries	6.75
Bayos	9.00
Blackeyes	6.15

GRAIN

Sales grain exchange, April 12:

Wheat: Milling, 2.15@2.20; feed, 2.05 @2.15.

Corn: Cal. Yellow, 1.35@1.45; White Egyptian, 2.25@2.35.

Oats: Red feed, new crop, 1.40@1.50. Seed, 1.65@1.75.

Barley: Feed, 1.07½@1.12½; off grades lower; shipping, 1.20@1.35.

Milo: Cal. Red, 1.75@1.85; Eastern Red, 1.50@1.60.

Kafir: Eastern, 1.45@1.55.

HAY AND FEED

Alfalfa Growers of California report under date of April 11:

No. 1 Dairy	19.00
Standard Dairy	17.00

Under date of April 8 A. W. Scott Co. says:

Receipts past week 1,443 tons as compared with 1031 tons the preceding week.

Excessive receipts of hay during the past week together with an extremely light demand have caused the market to rule somewhat lower in price with receivers anxious to sell and in most cases willing to accept a reduction from asking prices in order to move cars and to avoid storing. The flurries and uncertainties of grain markets have apparently caused many hay buyers to believe that the hay market may drop still lower and they will make no purchases at all unless they are entirely out and must renew their supplies. Throughout the country districts prices have been maintained and holders of hay have been apparently not anxious to reduce prices in order to effect sale. Alfalfa has been much weaker. Reports of early cuttings and consignments from Imperial Valley and Arizona points into the Southern market have greatly weakened Los Angeles prices and reflected this weakness throughout upper California as far as San Francisco.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00
Straw	10.00@15.00
Barley, ground	33.00@35.00
Barley, rolled	29.00@30.00
Bran, Red	34.00@35.00
Bran, White	36.00@38.00
Millrun	38.00@40.00
Middlings	47.00@50.00
Linseed Meal	60.00@65.00
Cocoanut Meal	26.00@27.00
Alfalfa Meal	28.00@29.00
Cottonseed Meal	40.00@46.00
Sugar Beet Pulp	30.00
Molasses, Tanks	23.00
Molasses, Barrels	26.50
Milo	40.00@45.00
Corn Meal	40.00@45.00

Citrus Markets

Los Angeles, April 13, 1921.

Valencias are going forward rather earlier than usual and are commanding fair prices. Navel season is waning but the quality is exceptionally fine, and, excepting for the great number of small sizes, are being disposed of satisfactorily. Daily shipments of oranges are sometimes running as high as 200 cars. Mikes and Sweets are somewhat embarrassed by the great number of small sizes.

Lemon market indifferent and unchanged.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 16,083 cars; lemons, 3,270; total, 19,353. To same date last season: Oranges, 14,312; lemons, 2,770; total, 17,082. From Central California to date, this season: Oranges, 4,448; lemons, 127; total, 4.575. To same date last season: Oranges, 4,006; lemons, 281; total, 4,287. From Northern California to date this season. Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

April 12

New York: 32 or., 2 mixed, 6 lem. Nav. 2.35-4.85, Val. 3.45-3.95, Sweets., 2.85-3.00, Rubys, halves 1.65-1.75, Mikes 2.50, Tange., 2.75-3.20, lem. 1.40-2.95.

Philadelphia: 8 or., 1 lem. Nav. 3.40-4.30, Sweets, 3.00-3.40, Seeds 2.90, Ruby, halves 1.65, Mikes, halves 1.50-1.85, lem. 3.00-3.50.

WEATHER REPORT

San Francisco, Cal., April 9, 1921.

Stations	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	.04	43.34	40.03	58	36
Red Bluff	.00	25.38	22.02	78	36
Sacramento	.00	15.61	17.62	72	42
San Francisco	.01	22.11	2..16	69	43
San Jose	.00	13.70	15.14	72	34
Fresno	.00	7.23	8.42	78	36
San Luis Obispo	.00	17.38	18.35	72	34
Los Angeles	.14	9.93	14.35	78	44
San Diego	.04	4.54	9.05	66	44

POULTRY QUERIES

(Continued from Page 537.)

Cracked Indian corn and Kafir or Egyptian corn may be more to their liking, and a hopper or box of very coarse feed meal will be a help in weaning them away from the fine chick grain. Some poultrymen use the feed meal instead of mash and find it very satisfactory. If you can give the chicks a mash moistened with sour milk once a day they will grow more rapidly. Alfalfa is better green feed than alfilaria.

A

38.40 Lb.

Five-Year-Old Granddaughter of

Pontiac Korndyke

the highest 7 days record cow ever sold at public auction west of the Rocky Mountains, is one of the features of the

Complete Dispersal

The Victory Herd

70 Registered Holsteins

Hillcrest Ranch

Carruthers, Cal.

Wednesday, May 11, 1921

This sale is necessary to dissolve the partnership existing between H. E. Spires and J. M. Crawford, and presents a very desirable herd of cattle of attractive breeding. Included in the offering are

24 GRANDDAUGHTERS OF KING SEGIS PONTIAC COUNT, the famous bull owned by Senator Hackney in Minnesota.

SIR PIEBE SEGIS PONTIAC, sire of above heifers, will sell. He is by King Segis Pontiac Count and out of a good yearly record dam.

KING PONTIAC ALCARTRA PRILLY, the junior herd sire, also sells. He is by the Bridgford three times grand champion King Segis Alcartra Prilly and out of a 36 lb. daughter of Spring Farm King Pontiac that has finished a year with over 26,000 lbs. milk and almost 1000 lbs. butter.

Guaranteed breeders and tuberculin tested.

Write for catalog.

Management

California Breeders Sales and Pedigree Co.

C. L. Hughes, Sales Manager, Sacramento, Cal.

Auctioneers:

Col. Ben A. Rhoades, Los Angeles.

Col. Geo. W. Bell, Tulare.

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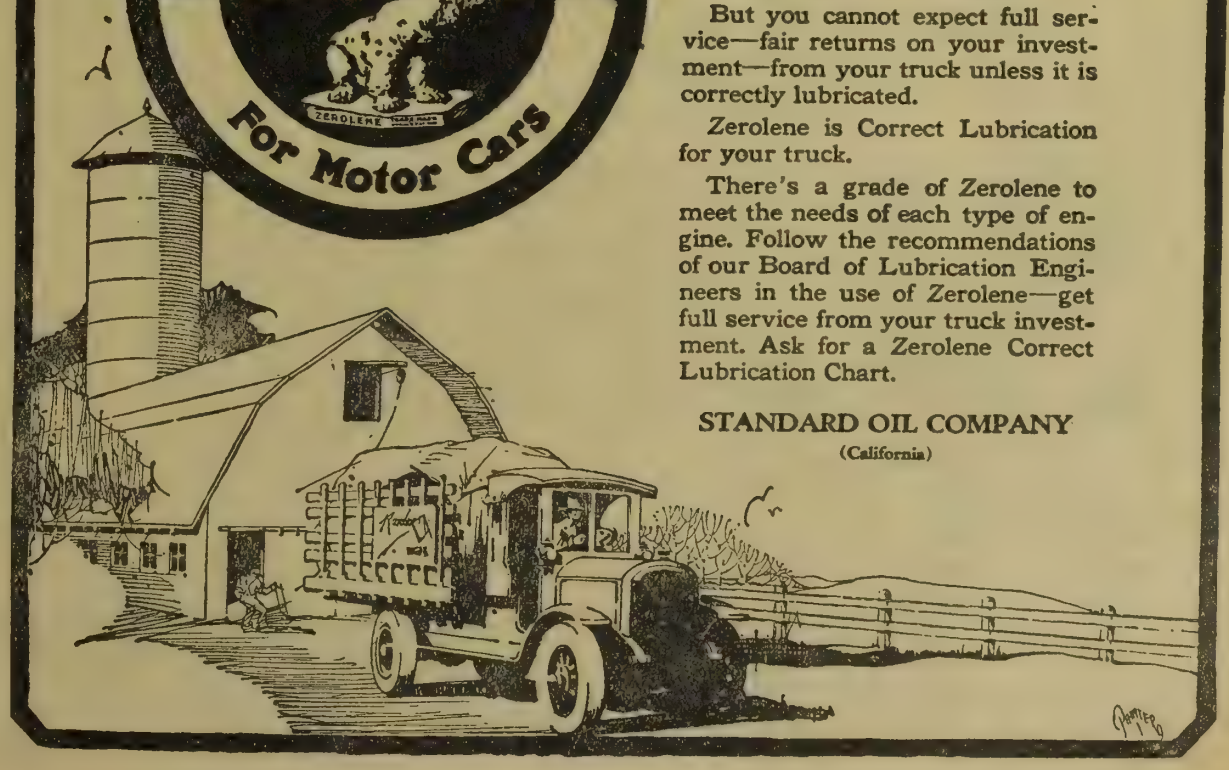
A grade for each type of engine

The Standard Oil ZEROLENE For Motor Cars



Better truck lubrication

Your truck is an investment.

But you cannot expect full service—fair returns on your investment—from your truck unless it is correctly lubricated.

Zerolene is Correct Lubrication for your truck.

There's a grade of Zerolene to meet the needs of each type of engine. Follow the recommendations of our Board of Lubrication Engineers in the use of Zerolene—get full service from your truck investment. Ask for a Zerolene Correct Lubrication Chart.

STANDARD OIL COMPANY
(California)

what do you buy—"feed or feel"?

Even the most expert poultryman can't tell the quality of a feed simply by looking at it or feeling it. Because a feed can be light or dark, fine or coarse, and yet not vary one-tenth of one per cent in net feeding value.

That's about the least important feed test in the world—texture! For example: Some wheats grind up rather coarse — others rather fine. That makes a big difference in "feel." But does it make a difference in feed value? No!

YOU can set it down as a pretty pat rule that the "feel" of a feed means *nothing*. Texture is about the least important thing in the world when you buy feed. Color is about the least important thing, too. Feed value is the *most* important thing. For *feed value* is the thing you're buying—nothing else and nothing less.

Experience has taught us that proprietary feeds cannot be manufactured in an economical way if color and texture are strictly adhered to. A change in the manufacture of different colored corns, different colored wheats, different colored sorghums or different colored meals immediately shows a change in the color of the by-products. But here's the essential point: *there's no change in feeding value.*

So, why fuss over the "feel" of a feed when the thing you're paying for — the thing your hens are praying for — is feed value? Seasoned poultrymen who use SURELAY year in and year out know this. They know that, regardless of "looks" or "feel," SURELAY is a uniform quality-feed that makes hens pay by making them lay. And that's the only test that interests them—or you!

You can't "go wrong" on SURELAY because our daily laboratory tests make sure that every batch of the feed "goes right" in the blending. That cuts out guess-work in the making and guess-work in the feeding.

Thousands of successful poultrymen have witnessed the profit-performance of SURELAY season after season. They have quit worrying over color or texture. As a matter of fact, they have quit worrying over the feed question altogether—thanks to the uniformly high standard of Sperry Feeds.

That's why we're anxious to bring *you* into the fold. If you haven't seen our booklet, "Make Hens Happy," mail the coupon for a copy of our new edition. You needn't bother to write a letter—although we're ever ready to discuss your feed-problems with you.

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SPERRY FLOUR CO.
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Please send me, without obligation, your booklet "Makes Hens Happy."

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"There's a Sperry Feed for every stock and poultry need, and remember every sack is guaranteed."

CALIFORNIA CULTIVATOR

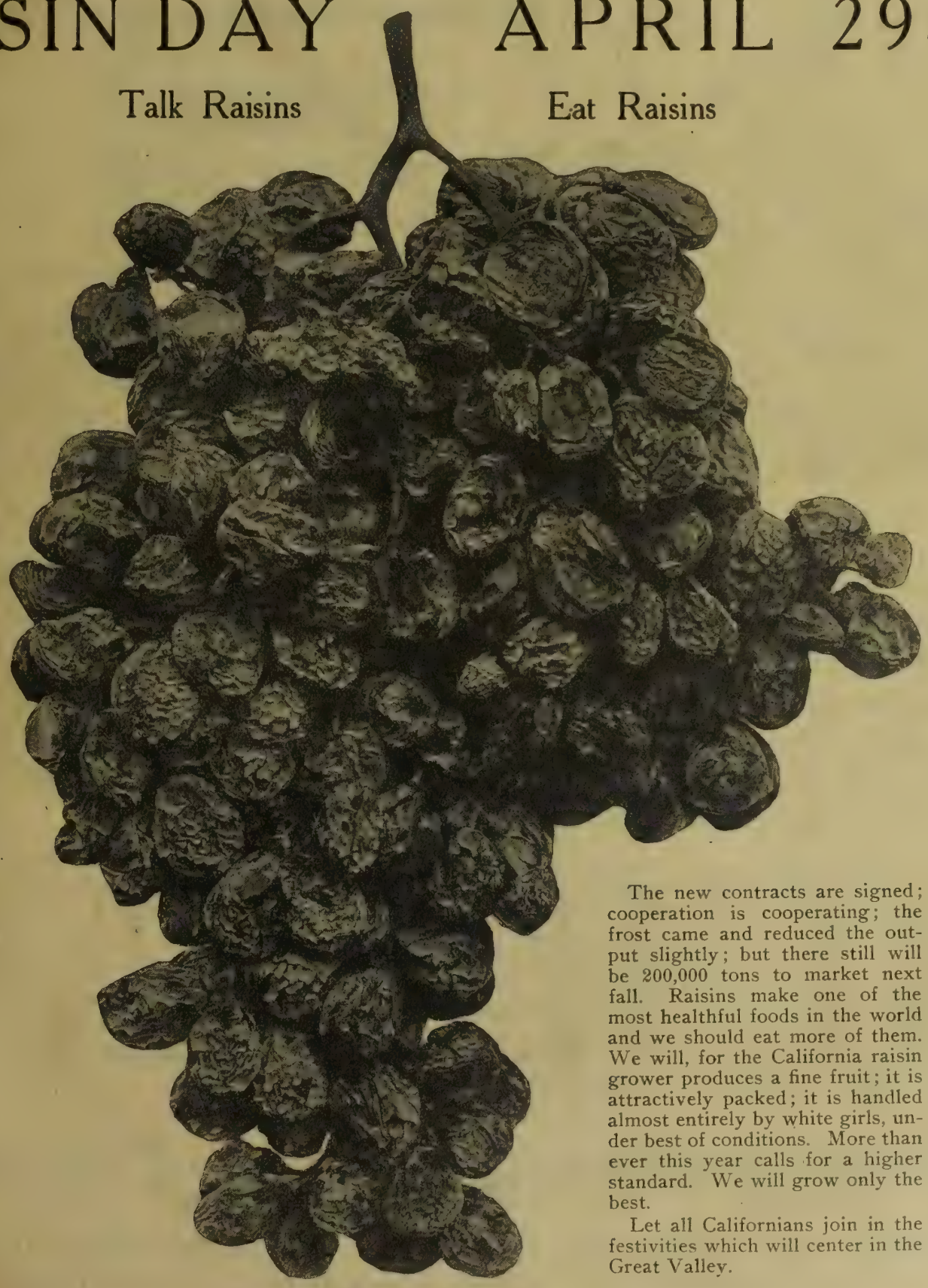
and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — April 23, 1921 — No. 17

RAISIN DAY APRIL 29-30

Talk Raisins — Eat Raisins



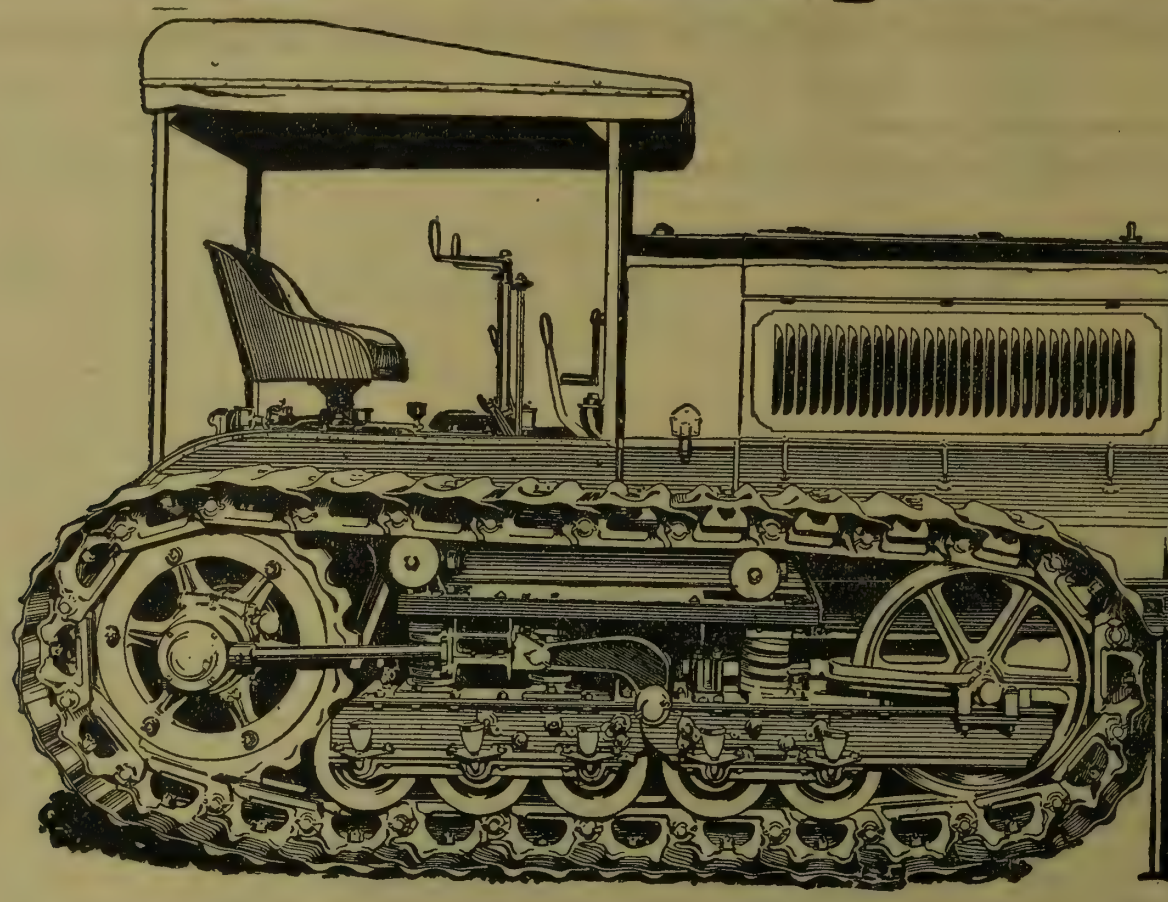
The new contracts are signed; cooperation is cooperating; the frost came and reduced the output slightly; but there still will be 200,000 tons to market next fall. Raisins make one of the most healthful foods in the world and we should eat more of them. We will, for the California raisin grower produces a fine fruit; it is attractively packed; it is handled almost entirely by white girls, under best of conditions. More than ever this year calls for a higher standard. We will grow only the best.

Let all Californians join in the festivities which will center in the Great Valley.

Tractor Values

from now on, will be measured by a new and higher standard—the standard set by the

New Western 10-Ton "Caterpillar" Tractor



A new era in tractor building is opened—a new standard of economy and performance set—by this newest Holt tractor, the Western 10-Ton "Caterpillar" Tractor. You have learned of the fame and marveled at the achievements of the famous 5- and 10-Ton models, on two continents, in every kind and condition of work. Now, in the Western 10-Ton, you have a machine particularly developed to meet your conditions.

It has liberal power—more than 60-horsepower. It has economy—its operating expense is far less than that of higher-rated tractors. It has long life and low upkeep—no other tractor can even approach the new Western 10-Ton in this respect. It is the product of Holt experience, unequalled in breadth and variety, developed along common-sense engineering lines.

If you want a tractor that is powerful, that is economical, that has wide adaptability, that is long-lived, built to the highest standards of material and construction, able to do your work, *when* you want it done and *how* you want it done, at lowest cost per horsepower hour—if you want these things, then the Western 10-Ton "Caterpillar" Tractor is your certain choice. Investigate it now, fully and carefully—the nearest Holt branch will give you complete information.

The Holt Manufacturing Company

STOCKTON, CALIFORNIA PEORIA, ILLINOIS

SPOKANE, WASH. SAN FRANCISCO, CALIF. LOS ANGELES, CALIF.

California Cultivator

Vol. LVI, No. 17 Los Angeles, April 23, 1921 One Dollar Yearly

What Will the 1921 Harvest Be?

WITHOUT question California's crops will be materially reduced this year. Even hay and grain, excepting possibly alfalfa, will show reduced tonnage. This is partly on account of heavy rains preventing seeding in the north and insufficient rains preventing full crops in the south. Then came the nippy frosts in almost every section of the state, and fruits of vineyard and of orchard have been greatly reduced. The reports directly from producers last week and on this and other pages of this week's Cultivator give better information than any comment we may make. Apricots, one of the earlier fruits, show very severe reduction.

We realize that our request for figures from the producers was made so early that close estimate of percentage of crop has been impossible. We appreciate, however, the effort of so many of Cultivator readers to give to the best of their knowledge for the benefit of all.

Geo. P. Weldon, Chaffey Union High School, Ontario, San Bernardino County

Almonds: Not grown commercially.

Apples: Just blooming; condition normal.

Apricots: Light; four days rain while the fruit was in the husk resulted in the development of the cottony mold fungus (Sclerotinia libertiana), which was responsible for the rotting of a great deal of fruit. Frost in certain sections recently seriously damaged what was left.

Cherries: Not grown commercially in this district. Have received no reports from Yucaipa.

Peaches: Local severe injury by frost; most of the district escaped and in the escaped portion condition is very nearly normal. Thrips are scarce as compared with last year. Local hail today (April 11) did slight injury.

Pears: Not grown commercially in district.

Prunes: Not grown commercially in district.

Grapes: Too early for report.

I am doing the best I can in estimating the condition of the various fruits which are grown in this district. The effect of the frost was such as to very materially interfere with the prospects in part of the district, however, in the major portion of our district the temperature ranged about freezing point during the cold nights and only very slight damage resulted.

I hope a little later to be able to give you a line on the condition of apples and grapes, but at present, while things are promising, I could not even make a guess as to what the crop will be.

J. P. Dargitz, Soulsbyville, Tuolumne County

Almonds: Not grown here. Walnuts frost killed.

Apples: Promise of full crop on most orchards. Few orchards on high ground all frozen.

Apricots: Few grown. Badly frozen.

Cherries: Few grown. Apparently unhurt.

Peaches: Most orchards 90 per cent frozen.

Pears: Promised well, but 75 per cent frozen.

Prunes: Not grown here.

Grapes: Few grown. Apparently unhurt.

The freeze of April 4 was accompanied by high cold north wind which seemed to make it worse on high, exposed points, while the lower ground frequently escaped injury—the very reverse of what we usually expect.

Paso Robles Press, Paso Robles, San Luis Obispo County

Almonds: 80 per cent. Damaged by frost on lower levels. Tonage greater than last year on account of new acreage coming into bearing.

Apples: Normal.

Apricots: Normal.

Cherries: Normal.

Peaches: Normal.

Pears: 75 per cent. Damaged by late frosts, or would have been above normal.

Prunes: 75 per cent. Damaged by late frosts, or would have been above normal.

Grapes: 70 per cent.

District would have had enormous crops but for late frosts.

California Prune and Apricot Growers, Inc., H. C. Dunlap, Field Manager.

Beginning in the north, have report of considerable damage about Chico in prunes, almonds and peaches. So far, this is the only real damage in French prunes. In all other districts Sugar prunes and Imperials seriously damaged by frosts. Too early to really estimate prune crop. Fruit just arriving at the stage now where frost, hot dry winds and other weather conditions can have very injurious effect. It will be nearly a month before we attempt to estimate prune crops at all.

On apricots we find a very considerable damage, both the result of brown rot and light setting, and also through recent frosts. This especially in the coast districts. Alameda County, extremely light setting. No frost. Santa Clara County, both frost and brown rot injurious and spotted crop condition. Will take a survey to estimate. San Benito County, 50 per cent frost damage. Monterey and Santa Cruz Counties about a 25 per cent setting. Ventura County very light setting and heavy frost damage. Crop reported to be nearly a failure. Farther south some frost damage, especially about Hemet 50 per cent loss; also, Nuevo and a few other points. Small acreage at Banning has a bumper crop. San Joaquin Valley crop also reported good. Generally state's crop in apricots light—possibly not even equal to last season.

H. H. Warner, State Department of Agriculture

Although it is yet too early to determine definitely the extent of damage resulting from the cold nights the first part of this month, the following observations are the result of a brief survey of only a few of the producing districts in Southern California made by representatives of the state and federal government.

Around the Van Nuys and Lankershim sections in San Fernando Valley the apricot crop was very badly damaged. Practically all the fruit was killed in some orchards and in others a small proportion will probably remain on the trees. In general the prospects in this section are for a very light early crop of ordinary quality and practically no fruit ripening later. The injured apricots have not yet begun to drop from the trees, but where the temperature was unofficially reported as 26 degrees on one night it is hardly possible for much of the fruit to survive.

Practically the same thing may be said of the peach crop in this part of the San Fernando Valley, although on account of the heavy set on some orchards 25 per cent of a normal crop may be expected. In the higher parts of the valley much less damage was experienced although in these districts many of the orchards have a much lighter crop than last year.

Potato vines in the Van Nuys and Lankershim sections which had attained a height of six or eight inches were frozen to the ground. These are sprouting out again, however, and it is not believed that, taking the San Fernando Valley as a whole, a material reduction in yield will result. The crop will no doubt be delayed for a week or ten days, at least, and there is some doubt as to the quality of the potatoes resulting from this serious freezing injury to the vines. There is roughly around 6,000 acres of potatoes planted in the San Fernando Valley as compared with approximately 3,000 last year.

Some slight damage to the apricots in the district east of Ontario was noted, as well as some freezing injury to peaches, but on the whole this section suffered less than some others. Undoubtedly some damage to the grapes has been done in the Wineville district, but probably the ultimate tonnage will not be seriously affected. Reports indicate that practically all of the early varieties of apples in the Oak Glen district were lost and that not over 50 per cent of the estimated yield on Rome Beauties and Stayman Winesaps will be secured. Unofficial reports from the Yucaipa section show that damage to the apples there has been overestimated but that, on the other hand, some cherries in the Beaumont district have been injured.

It is to be regretted that owing to the curtailment of funds for the U. S. bureau of crop estimates this year there is no man available in Southern California for checking up officially the extent of this frost damage to deciduous crops and the vegetable industry. Reports coming in from different sources are many and varied, but it is believed that the above information, so far as it goes, represents a fair estimate of the damage in districts mentioned.

Donald L. Currier, Horticultural Commissioner, San Benito County

Almonds: 80 per cent. Hurt by frost.

Apples: Hurt by frost. Crop may run 80 per cent of normal.

Apricots: 50 per cent to 15 per cent loss, due to brown rot; 35 per cent to frost.

Cherries: 75 per cent. Injured by frost.

Peaches: 90 per cent. Some frost injury.

Pears: 75 per cent. Have been hurt by frost.

Prunes: Looks like 100 per cent for French and Imperial; Sugar about 50 per cent; due to frost damage.

Grapes: Too early to state.

These figures may change as the season advances but are as close as I can estimate at the present time.

F. W. Waite, Horticultural Commissioner, Imperial County

Almonds: Not commercially grown.

Apples: Not commercially grown.

Cherries: Not commercially grown.

Peaches: Not commercially grown.

Pears: 100 per cent.

Prunes: Not commercially grown.

Grapes: 100 per cent.

No snow, no frosts; some damage to tomatoes by winds, also retarding cantaloupes and watermelons.

Fred G. Stokes, Horticultural Commissioner, Lake County

The frost of April 4 and 5 hit the prunes badly in some sections, but certain orchards escaped and it will take more time to ascertain the real damage.

Almonds are in the same condition, the higher levels being all right.

Apricots, peaches and cherries cut little figure as we have no commercial acreage, but on the lake side we have sufficient to fill local demand, etc.

No new apple acreage is being planted out and many old and unprofitable apple trees have been taken out and given way to Bartlett pears, of which we have a yearly heavy increase, planting out 53,322 pears this year and 60,000 pears last year; prunes, 17,000 last year, 20,994 this year.

The frost has hit the pears badly in a few places but in Big Valley and in the main big pear orchards there should be a big crop. Pears are very hardy and at present, even in those orchards where the pears have been frosted, they appear to be still growing and many should pull through.

In another week or two I shall be able to give a more definite and positive report.

C. G. Marchus, San Pasqual, San Diego County

Apricots: One-fifth crop. Our season started about ten days earlier than usual. The second and main bloom, which was nearly perfect, had just set when the frost of March 26 and 27 destroyed it completely, leaving the scattered first bloom, which was far enough advanced to escape. My neighbor, who has the early Newcastle, has a full crop, as his fruit was large enough to withstand the frost. If other sections have been injured as we have, there should be no trouble in disposing of the fruit at a fair price this year.

(Continued on Page 550.)

Agricultural News Notes of the Pacific Coast

Northern California

Alameda County farm bureau is staging evaporator demonstrations.

Woodland, Yolo County, will hold her Floral Pageant, May 4, 5 and 6.

Wool growers of Ukiah have organized a pool for marketing the 1921 clip.

Petaluma is shipping from one to two carloads of eggs a day to Los Angeles.

Chico farm center is discussing Mariout and reporting generally satisfactory returns.

In the week ending April 2 there were 20,485 dozen eggs shipped from San Francisco to Hawaii.

Berry growers of Paradise, Butte County, have organized and incorporated a marketing concern.

Work is progressing on the building for the poultry housing and feeding demonstration at Hayward.

The site of the experimental vineyards at Oakville, Napa County, will be purchased by the federal government.

The Stockmen's Protective Association gathered recently at Livermore, Alameda County. They discussed range and market.

Motorists and especially users of pumping plants and tractors are greatly relieved over the defeat of the gasoline tax measure.

Officers have been elected for the management of the annual farm products show at Hayward this fall. M. J. Madison is president.

Some farms at Delhi are still open to settlers, while others will be ready for settlement early in the autumn, probably in September.

San Francisco markets report heaviest receipts of vegetables and farm truck crops which have been seen on that market for many years.

The poultry department of the Sonoma County farm bureau has appointed a committee to encourage organization and work of poultry clubs through the county.

The weather bureau reports frost damage north of the delta region less than first anticipated; Sacramento Valley barley, wheat and oats in exceptionally fine condition.

The farm bureau of Sonoma County is determined to check the meanderings of the Russian River which cause much apprehension and dissension among owners of river lands.

The Pacific Dehydrators League has formed a permanent organization, electing J. B. Howell of San Francisco, president; C. A. Sheppard, San Francisco, secretary-treasurer pro-tem.

The farm bureau center at Paradise, Butte County, is organizing for rural fire protection. Carts equipped with two and a half gallon fire extinguishers are to be installed in various portions of the district.

L. LeRoy King, a real estate and insurance agent of Roseville, Placer County, in a complaint filed with the railroad commission asked for an order compelling the telephone company to restore to him the number under which he was listed before changing his office temporarily. He says the number was used by himself and by his father before him for many years and that the change, therefore, has injured his business.

Central California

Raisin Festival next week, April 29-30.

Santa Cruz reports good catches of salmon.

Oakdale, Stanislaus County, will celebrate her May Day picnic on Saturday, April 30.

Ceres will soon vote on an additional issue of sewer bonds.

Stanislaus County farmers are discussing wage reduction.

The annual farm picnic is being held in Davis today, Saturday, April 23.

The West Joaquin irrigation district is planning a 208,000 acre irrigation scheme.

Farm Bureau Federation motor trip will be held this year in the San Joaquin Valley.

Tulare County lemon and orange growers are making fight for fair tariff and freight rates.

Manteca cannery is running full handed on asparagus. About 30,000 cases will be packed.

The headquarters of the Santa Cruz County farm bureau is with the chamber of commerce at Watsonville.

San Joaquin Valley cotton growers are formulating a plan through which it is hoped to dispose of the 1920 holdover crop.

Santa Cruz farm center is making a fly eradication campaign. Poultrymen especially are building fly-tight manure pits.

Directors of the Turlock and Modesto irrigation districts have authorized building of workmen's camps at site of the Don Pedro dam.

Grain elevators are soon to be built by members of the Hanford, Corcoran and Stratford farm centers of Kings County at the towns named.

The Modesto Morning Herald is calling to the attention of Stanislaus people the advantages of naming county roads and numbering farm houses.

The San Joaqnin County Fair Association is planning to have some buildings erected in time to house part of the exhibits at the fair in October.

The campaign in the Turlock district for new members in the Tri-County Farm Bureau Exchange grain department will close May 1. Already over 500 have signed up.

The Prune and Apricot Growers Association has recently sent several carloads of small sized fruit to Germany and Belgium. The association reports many inquiries from abroad, especially as to prunes.

The Stanislaus County branch of the Milk Producers Association has elected J. E. Thorp, president and C. B. Hagemann of Ripon, vice-president. It is reported disturbed conditions will hereafter become peaceable.

A new center of the Santa Cruz County farm bureau has been organized at Pleasant Valley with E. A. Hitchings, director. Meetings will be held on the third Wednesday of each month at the Pleasant Valley school house.

Kern County farm bureau is holding vineyard demonstrations. Farm center meetings at Shafter, April 27; Arvin, 29; board of directors, 30. Home department meetings: McFarland, April 25; Kern-Delta, 26; Rio Bravo, Wasco and Shafter, 28.

Southern California

Coachella Valley is now harvesting nearly 2,000 acres of onions.

Sierra Madre will hold its seventh annual flower festival, April 28-30.

Southern California fair at Riverside has chosen dates October 11-16.

Banning, Riverside County, held its annual flower show, Friday, April 14.

Simi Valley, Ventura County, is building a new walnut packing house.

San Diego reports great increase in number of vessels out of that harbor.

Coachella Valley is making great plans for its date festival, October 21-23.

Lima bean growers are now getting their third payment on 1920 shipments.

Commissioner Coy of San Bernardino County is conducting rodent control campaign.

Colton, San Bernardino County, is planning for spring festival and industrial exposition.

Imperial Valley is growing about 1,400 acres of tomatoes and 2,000 acres of watermelons.

Honey bees are now busy in all orange growing sections, making orange blossom honey.

Little Bear Valley, San Diego County, is organizing the newest farm center of that county.

The San Dimas Exchange has been making many shipments of lemons to New York via Panama Canal.

Imperial Valley cotton acreage will be reduced by at least 60 per cent. Alfalfa and fruit are both coming back.

Poultrymen of Orange County are suggesting the advantages of forming a poultry department in the county farm bureau.

Notwithstanding California's great raisin production Spain shipped 22,000,000 pounds into this country during the past year.

San Joaquin Valley milk producers received 31.89 cents per gallon for milk delivered in 1920 in Fresno city, as against 28.11 cents for 1919.

The first carload of Riverside lemons shipped by water to New York, on the Liberator, has been received in good condition after a 23 day passage.

California Fruit Growers Exchange has passed resolutions commending ex-Senator Johnson's valuable aid in the effort to secure protection for citrus fruits.

Chief Quarantine Officer Strong of California and State Entomologist Mote of Arizona recently canvassed the cotton seed situation of the Imperial Valley.

Definite information as to amount of injury to the walnut crop because of the late frosts will not be available for some days yet, but some sections report serious injury.

Officers of the California citrus institute are Dr. J. T. Barrett of the citrus experiment station, president; R. S. Vaile, citrus experiment station, secretary; W. H. Fleet, Rancho Sespe, vice-president.

Imperial Valley cantaloupes will require about 11,000 cars. The largest planting in any one district is in Brawley, 6,403 acres; Westmoreland, just west of Brawley, 3,345 acres; Heber, 3,000 acres; El Centro, 2,100 acres.

The Coast and General

The cotton crop of Lower California is estimated at 80,000 bales.

D. B. Heard of Phoenix will represent the cotton growers of Arizona at the World Cotton Conference at Liverpool in June of this year.

Thirty-five miles of wire has been purchased by the state for fencing 3,200 acres of land owned by the Arizona state industrial school at Fort Grant.

A rabbit drive was conducted at Nutrioso, Arizona, by the county agent and a representative of the U. S. biological survey. About 300 rabbits were killed.

State Game Warden Joe Prochaska is introducing clams into some of the streams of Arizona where he believes conditions will be favorable for propagation.

Reports of the livestock sanitary board show that the number of cattle slaughtered in Arizona last year was 80,896, and the number shipped out of the state, 178,303.

The birth rate in Arizona for 1920 was reported as 24.4 per thousand. The death rate, excepting those who died from tuberculosis contracted outside the state, was 13.3 per thousand.

It is estimated that there are 25,000 wild goats on Guadalupe Island. These are owned by the Mexican government and in 1920 several shipments of live goats were made to the United States.

Serious damage has been done to deciduous fruits in Arizona by cold weather. Cotton planting is in progress in irrigated sections and many fields are up and the plants looking exceedingly well.

There are some 30,000 cattle in the Ensenada district of Lower California. These supply local demand for beef and a few are marketed in the United States. There is no dairying industry and the small amount of cheese made is consumed locally.

Ernest A. Leitzel of Glendale, Arizona, again claims the championship for the most cotton per acre. For 1920 his yield was a little over 1¼ bales to the acre. This is not quite equal to his record breaking crop for 1919, but is, so far as learned, the best yield for 1920.

Experimental sowings of hemp are being made in the prairie provinces of Canada. Kentucky seed has been used, but a large importation of seed from Italy will be tried out this year. Good crops of good quality have been secured in Saskatchewan, Alberta and Winnipeg.

In the Thatcher district of Arizona, where precipitation has been greatly deficient and range and stock have been in a most unsatisfactory state for months, the United tSates weather bureou reports cattle dying from lack of feed and water. Stock are still being fed in the Ft. Bayard (New Mexico) section.

Freight rates on sheep from the Arizona winter pastures to the summer grazing grounds have been reduced to 37 per cent. This was brought about by the action of the state corporation commission upon presentation of facts relative to the sheep industry by Hugh Campbell, president of the Arizona Wool Growers Association.

Grain Sorghums for California

By Geo. W. Hendry

Prof. Hendry gave in the Cultivator of April 9 directions for planting and care of sorghums in California. Below he describes a number of the best grain sorghums. Saccharine sorghums, broom corn and other members of the family will be touched upon in later issues.

THE durra varieties are less valuable than other sorghums for forage and silage production. Among the well known varieties of this group are Standard, Dwarf and White Milo, Standard and Spur Feterita, and Brown and White Egyptian corn. All of these varieties are well adapted to California conditions and produce large yields of grain under favorable conditions. These plants, varying in height from five to seven feet, have dried pithy stalks which contain a low percentage of sugar and are frequently acid. The heads of this group are ovoid in shape, possess large flattened seeds and are pendant with the exception of Feterita in which the head is erect.

Dwark Milo

Milo was introduced into the United States between 1880-85 and was first grown in South Carolina and Georgia. It came probably from Africa, but this is not certainly known. No sorghum brought since from Africa has been exactly like Milo. Dwarf Milo is a name given to the low growing strain which has been developed in the regions of scant rainfall. It has been bred for dwarf stature and erect heads by continual selection.

Average yield per acre at Davis for four years, without irrigation, has been 3,575 pounds per acre, compared with 3,041 for Standard Milo, 3,176 for White Milo, 1,015 for White Durra (White Egyptian), 3,151 for Brown Durra (Brown Egyptian), 2,909 for Feterita (Sudan Durra), 1,962 for Dwarf Black Hulled Kafir, 782 for Red Kafir, 2,404 for Pink Kaoliang and 2,542 for Shallu, Egyptian wheat.

At Kearney Park, Fresno County, Dwarf Milo has yielded 1,739 pounds per acre, compared with 1,731 for Standard Milo, 177 for White Durra (White Egyptian), 1,817 for Feterita, 429 for Black Hulled White Kafir. It is the best of the Durra varieties yet cultivated in this state and is second to Black Hulled White Kafir corn in popularity in the grain sorghum districts of the Southwest. Its principal defects are its heavy stooling, its tendency to gooseneck, its non-uniformity in height and its low fodder value.

White Milo

White Milo is closely related to Yellow Milo, being simliar in nature of growth and general appearance. The chief difference is in the white seed and white chaff or glumes of the White Milo. It is being distributed by California seedsmen, and in variety tests at Davis, extending over four years, it has averaged 3,175 pounds per acre, White Durra (White Egyptian) 1,015, Brown Durra (Brown Egyptian) 3,151, and Feterita 2,909.

As a fodder crop it is very similar to Dwarf Milo maize, and has produced a slightly higher tonnage of fodder per acre than either the Dwarf or Standard Milo varieties. It also exceeds Feterita in this respect. It is, however, inferior to Kafir varieties, and to the saccharine or sweet sorghums in the yield of fodder per acre. Its chief defects are a tendency to lodge, and its non-uniformity in height. No strains of dwarf stature have as yet been developed.

Feterita

The name Feterita was first used by the office of foreign seed and plant introduction for a sample of seed obtained from B. Nathan Co., Alexandria, Egypt, in 1901. The name Sudan Durra has also been applied to it.

Feterita resembles Milo in habit of growth, except that it is taller and the heads are uniformly erect, and the seeds are slightly bluish white in color. It differs from ordinary White Egyptian corn (Jerusalem corn) (White Durra) in having naturally erect heads, black glumes and plumper seed. The seed of Feterita shatters more than Milo, but less than Common White Durra, if the crop is allowed to stand in the field until over ripe.

In comparative variety trials over a period of four years at the university farm, it has been proven to be less productive than Dwarf Milo, Standard Milo, White Milo, or Brown Durra. Its average yield per acre of seed has been 2,909 pounds per acre, compared with 3,575 for Dwarf Milo, 3,041 for Standard Milo, 3,176 for White Milo, and 3,135 for Brown Durra. It is one of the most difficult of the grain sorghums to obtain a stand with. It makes a tall growth, and is leafier, more succulent, and has a higher forage value than Standard Milo.

White Durra

White Durra, quite commonly called "Jerusalem Corn" or "White Gyp" corn, is similar to Brown Durra. The plant is coarse in stalk and leaf, the head is gooseneck or pendant, the kernels are almost covered with a heavy hairy hull. Because of the coarseness of the plant it is not adapted for growing for forage purposes.

Over a four year period without irrigation at the university farm at Davis it has yielded 1,015 pounds of grain per acre, compared with 3,575 for Dwarf Milo, 3,041 for Standard Milo, 3,176 for White Milo, 3,151 for Brown Durra.

At Kearney Park, Fresno County, it has yielded 177 pounds per acre, as compared with 1,817 for Feterita, 1,731 for Standard Milo, 1,739 for Dwarf Milo. The low yields have been caused to a large extent by insect and bird damage and loss by shattering.

Brown Durra

Brown Durra is similar to White Durra in its general appearance but shatters less and has given a higher yield of grain at Davis. Under conditions which cause White Durra to yield 1,200 pounds seed per acre Brown Durra has yielded 3,200 pounds of seed per acre, and the difference is largely due to the fact that it shatters less and is damaged less by birds. Birds seem to prefer the white seeded varieties in the field and are more destructive at the time when the seeds are in the milk. The brown seeded varieties contain a higher percentage of tannin in the seed coat at this stage of development, and it is thought that this is objectionable to the birds. Brown Durra usually brings a lower market price than White Durra. Both Brown and White Egyptian corn are grown throughout California but are practically unknown in the grain sorghum districts of the middle west and the southwest. They are poorly adapted to harvesting with machinery and are objected to because of their tendency to shatter, lodge, sucker and form goosenecks.

Kafir Group

The Kafir varieties are grown more extensively than the Durra varieties in the sorghum producing districts of Kansas, Nebraska, Oklahoma, Indian Territory, and Texas, but because of late maturity cannot be successfully grown in California. As a group they may be regarded as a dual purpose type of sorghum, being intermediate between the grain sorghum or Durras and the saccharine or forage sorghums. In California they are less productive as grain crops than the Durras, but a larger quantity of forage is produced by them. They cannot, however, equal the saccharine sorghums in forage production, although they do exceed them in grain production. They are intermediate between grain sorghums and saccharine sorghums in height, and possess more leaves and a more succulent stalk than the Durras, but do not equal the saccharine sorghums in this respect. Most of the varieties originated in the Orange River Colony of Africa and take their group name from the native tribe of that region.

Black Hulled White Kafir

Black Hulled White Kafir was introduced into the United States about 1876, probably from northern Africa. It immediately found favor in place of other varieties of Kafirs because the seed lacked the astringent taste of the other Kafir varieties. The name has been given because of the white seeds with shiny black hulls. It is a moderately tall growing plant, growing from five to eight feet in height and is very leafy.

Grown at the university farm without irrigation over a four year period it has yielded an average of 1,962 pounds of grain per acre and is the fifth highest in production. In some sections it is used quite extensively for ensilage purposes, but in total tonnage of forage produced it has been out-yielded at the university farm by Honey and other forage sorghum varieties.

It is by far the most important variety of Kafir corn cultivated in the United States and has made the best showing of any of the varieties under California conditions. It is not recommended for this state, however, since better results may be secured by growing the purely grain sorghums for grain production or the saccharine sorghums for forage production. Other varieties of Kafir corn, such as Red, are very similar to the Black Hulled White Kafir but are even later in ripening and have not yielded as satisfactorily at Davis. A great many varieties of Kafir corn have been grown experimentally at the university farm, but none of them have shown special promise.

Milo Grain Growing and Drying

Very often milo fails to ripen sufficiently to thresh before fall weather sets in and must be artificially dried either before or after threshing. Last season this was accomplished at the university farm by running the threshed seed through a fruit evaporator until the moisture content was reduced to a point making it safe to sack. In the illustration a drying shed used by F. P. Bouery of Merced and designed to protect the heads from rain and dew while drying is illustrated. Double cropping, which necessitates late planting and results in late ripening, makes such methods necessary. Upper picture gives view of temporary shed. It is made by nailing 24-foot planks to posts made of car stakes, with grape stakes spread over without nailing. Roofing paper used for roof. Shed 240 feet long by 11 feet wide. Heighth 10 feet, in front and 8 feet in back. 2 feet between stories. 3 posts per span, with 30 spans 8 feet apart.

Lower picture shows field planted with Select University Farm Dwarf Milo Maize Cal. No. 59. This strain is the result of four years head-to-plat selection. With dwarf milo the objective has been to develop a strain showing uniformity of height, erect heads, dwarf stature and single stalks. The strain is still far from perfect and is susceptible of futher improvement, yet it is superior to any strain of dwarf milo yet grown at the university farm. It stools less than unselected stock, carries more of its heads erect, and is as uniform in height as any strain could be which has as many nodding heads and stools as much as it does. It yielded at the rate of 2,837 pounds of recleaned seed per acre testing 58.7 pounds per bushel. It is regarded as inferior to White Yolo Maize Cal. No. S-60. Further improvement of this strain should be directed towards single stalk character and erect heads.

OLIVE TARIFF

J. J. Hoey, secretary of the California Olive Association, who arrived in Washington, D. C., from Los Angeles on April 11, reports by wire to the California Olive Association that there is every indication that the emergency tariff bill will be passed as it stands with the import duty on olive oil reduced in the conference to 40 cents a gallon in bulk and 50 cents a gallon in five gallon containers, and the duty on olives in solution, 25 cents a gallon, and on olives not in solution, 3 cents a pound.

The drafting of a permanent tariff bill is now in the hands of a subcommittee composed of Representatives Longworth, Copley and Hadley. A fight is being made by the California delegation to restore the original schedule of 60 and 70 cents on oil and 5 cents a pound on olives not in solution.

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and LIVESTOCK and DAIRY JOURNAL

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

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J. W. Mills — J. B. Neff
Fred M. Reed — Louis B. Stanton
G. E. Gordon — M. E. Bemis
A. R. Gould — E. L. Koethen

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

If one can enjoy a piece of music a second, or perhaps a hundredth time, or look at a beautiful painting many times before its full beauty is appreciated, we feel we are justified in repeating at least once the photograph shown on the cover of this issue. The cluster of raisins was a wonderful work of nature and the photograph is a wonderful work of art. This same cluster of raisins honored Raisin Day five years ago by appearing upon the Cultivator cover. We never saw a finer product from California vineyards.

* * *

In 1873 California produced 120,000 pounds of raisins. The imports of raisins that year were 35,271,312 pounds. Ten years later production had increased to 2,800,000 pounds, while the imports had also increased to a total of 51,487,389 pounds. That was about the highest point imports ever reached. Since that time our own production has increased and imports decreased until in 1919 it required an importation of 119,969 pounds, valued at less than $35,000, in addition to California's production, to supply the entire United States.

* * *

Now the farmer goes to market in his airplane. At least one did, according to report. We hope our subscribers will recall that some ten years ago a special spraying number of the California Cultivator showed an admirably worked out scheme of orchard spraying by the use of a dirigible. This is recalled, not for the purpose of claiming any rights of invention but to remind our flying farmers that the Cultivator wishes to be considered in the advance in the matter of these suggestions.

* * *

This is the year in which there is going to be a keen demand for high grade fruit on the top of the box—likewise in the middle and on the bottom. For a time we feared the demand for canning fruits this year would be materially lessened because of the great holdover. The holdover is now rapidly disappearing and the consuming public will soon be asking: "What are we going to eat next year?" If the demand should be greatly increased, still there is requirement for a large quantity of the finest; if the demand is lighter, still the best always goes.

* * *

C. J. Fawcett, wool marketing director of the American Farm Bureau Federation, reports large sales of the 1920 wool pool during the last week. Through the National Wool Warehouse and Storage Company at Chicago, 610,000 pounds were sold. Fifty thousand pounds were sold from the Michigan pool. Only 60,000 pounds remain in the Ohio pool.

* * *

A Ventura County paper reports: "Hundreds, perhaps thousands, of tons of onions have been dumped in the wide bed of the Santa Ynez River." "The onions were harvested, sacked and stored in warehouses, but the growers have become willing to abandon and dump rather than pay further warehouse charges." Now comes word of the consolidation of two bureaus of the department of agriculture. The bureau of crop estimates now becomes a part of the bureau of markets. It appeals to us that proper coordination of these forces for good should prevent clogging the Santa Ynez River with decaying onions. Something is rotten in Denmark as well as in Santa Ynez.

* * *

The strike of the English miners appears to be broken. Packingtown strike in this country is emphatically broken; the men are all back at work. Now if somebody would put a stick of dynamite under Yap the world would be quite peaceful-like.

* * *

The Cultivator monthly award for the month of March in the State Dairy Cow Competition has been reported by Prof. Woll as made to F. F. Pellissier of Whittier. The average per cow for the five in the winning team was 75.70 pounds fat. Particulars as to each cow's production next week.

* * *

CLOSER COOPERATION

Producers will be more greatly benefited by closer, more intensive cooperation, but we fear that sometimes cooperators reckon backward and become competitors with their own best interests. We believe it is to the best interests of the family of the farmer that it shall have access to right social, educational and religious conditions. No finer center of such conditions can be found than that existing in the progressive, up-to-date little town. Such a town cannot exist without support, both morally and financially, on the part of those who live in the community about the town.

Again, and in a larger way, there should be cooperation between different communities. To illustrate, may we take a case in point—not entirely imaginary: Two separate communities in California, large producers of poultry products; in each a large and efficient cooperative egg marketing association. One of these associations considers present conditions unfavorable to immediate disposal of eggs, hence cold storage gets the greater portion of its output. This has resulted in a sustained market, prices running, say, two or three cents above those in the other community. This higher price is exceptionally attractive, and two cars, or sometimes as high as three cars, of eggs per day are shipped from the district of the second association for marketing in the district of the other which is engaged in storing. This puts an almost unbearable burden on one association and in the end cannot materially benefit the other.

We need closer cooperation and a little more long headed observation of the fact that the immediate penny is not larger than the more distant dollar.

DAIRY CONFERENCE

Under direction of the American Farm Bureau Federation there will be held in Chicago on May 3 and 4 a National Dairy Marketing Conference. Two days will be required to discuss matters of interest to dairymen, but more particularly distribution and marketing in the larger cities and especially the disposal of skimmilk, whey, and other wastes of creamery and factory.

The first day of the conference will be devoted to hearing 15 minute reports by delegates of marketing associations now operating in some of the larger cities and also by delegates from seven smaller cities. On the second day the discussion will center on the problem of creating associations for unorganized territory, and the cooperative marketing of butter and cheese.

COURSES IN COOPERATION

President Howard of the farm bureau has been appealing to state universities and colleges of agriculture, asking that courses be established to train young men in the various phases of cooperative marketing. Replies have been received from over 30 colleges. All express the keenest interest in such courses. Thirteen give definite assurance that such courses will be established. Twelve report that they already offer such courses. Three of the latter express a hope of improving the courses now offered. Only two colleges have replied negatively. These give "lack of funds" as the reason.

Why not? Cooperation is becoming an essential to the American producer. If our children can be instructed in its principles they should be able to cooperate more quickly and far more effectively.

QUARANTINE BOARD

The Western Plant Quarantine Board will meet June 7-12 in the city of Vancouver, British Columbia. Readers of the Cultivator may recall that in June, 1919, a full account of the organization of this body was given. The organization was perfected at the time of the State Fruit Growers Convention held in Riverside. George H. Hecke was elected chairman; Charles A. Park of Salem, Oregon, vice chairman; Harold R. Hagan, Salt Lake City, secretary-treasurer. Mr. Hecke is still chairman and will preside at the coming Vancouver meeting. The organization is today in a stronger position than ever and is one great factor in the success of federal quarantine.

Naturally, these two years, being the first years of the organization, have been critical, and much constructive work has been necessary to bring into line the quarantine officers of the 11 Western States, British Columbia, Hawaii and Lower California, who comprise the membership of the board. The object of the board is the mutual protection of agriculture and horticulture in the West through uniform quarantine regulations and enforcement when and where practicable. Since its formation there has been a more friendly spirit in evidence among the western quarantine officers, and there is a tendency to get together and consider all phases of the problems affecting the states concerned before quarantine is resorted to. This by no means deters quarantine action where the same is necessary, but it has several times been responsible for the solution of problems without invoking quarantine authority. The good that can result from such an association can hardly be overestimated. Mr. Hecke and other officials of the association should be supported in the effort to protect horticulture of the western seaboard and the entire country.

EDUCATIONAL FEATURES ON PICNIC DAY

The annual picnic at the Davis farm school will be held April 23.

An effort is being made to emphasize the educational side of Picnic Day this year as never before. This institutional event was originally founded with the idea of bringing the citizens of the state in close contact with the working machinery of the school, to afford all taxpayers, as well as those primarily interested in agriculture, an opportunity to visit the university farm at its best. Every department is doubling its efforts this year to display its best products and exhibit concrete and valuable matter pertaining to the various phases of agricultural science.

The pomology division has planned a particularly interesting program. The offices and experimental laboratory will be open all day. Here results of experiments in pruning, spraying and care of orchards will be shown in concrete manner. Many examples of disease and insect control will be shown by specimens, charts, etc.

The animal husbandry division is planning a number of educational features. A preliminary stock judging contest is now being conducted. About 60 students are in this contest, which will continue until Picnic Day. By this means the highest 20 men are chosen to participate before the public on Picnic Day.

It is planned to have a "fitting team" of four men perform before the crowd during the time when the stock judgers are looking their animals over.

A unique feature being planned is a "debate" between a team of three selected vocational high school teachers and three U. S. students. This debate will deal with some class of livestock not previously known to the contestants, a good and a bad individual, to be brought into the judging tent before the crowd.

The agricultural engineering division will have many types of up to date farm machinery and tractors on the floor. A liberal use of placards and display of signs will insure an understanding of the exhibits.

The irrigation division will have a splendid display of concrete pipe and accessories at the out-of-doors irrigation laboratory, by the reservoir. There will be a display of all types of delivery gates and measuring devices, both concrete and timber. Such instruments as are needed in ordinary irrigation surveying will be shown and explained.

The veterinary science division will give information concerning many kinds of diseases and the methods of treating them will be shown by means of specimens and charts. A display of useful veterinary instruments for the farm will be valuable.

The soil technology division will display samples of soil from all parts of the state, hard pan and rock formations, samples of fertilizers; numerous soil survey maps; soil moisture testing apparatus, including soil auger, oven, etc.; various types of drainage tile; charts, placards and bulletins pertaining to soil problems.

The poultry husbandry division will show how eggs can be preserved at home in water glass. A striking exhibit will show the difference in profit between good and poor chickens, and proper and incorrect feeding and care. Charts will be used to show value of correct breeding, culling, electric lights in laying houses, and feeding. There will be a ration exhibit; also blueprints and models of poultry structures and equipment.

The agronomy division will show many types of field crops. The important varieties of wheat, barley, oats, sorghums, corn, etc., will be completely labeled with cards containing descriptive matter concerning culture and adaptation, time of planting, rate of seeding, yield, etc.

Frost Injury to Young Fig Trees

By Ira J. Condit

THE severe frost which occurred on the night of April 3 did considerable damage to fig trees, especially to young orchards. The new growth was just at that tender stage which made it susceptible to severe injury. In the Clovis district where the most serious effects have been noticed the new shoots on Calimyrna trees were two to three inches long. These were not only killed back but the tips of last year's wood were also injured. While older Adriatic trees, which are ten days to two weeks earlier in leafing out than the Calimyrna, had some of the leaves frosted, the damage is only slight. The effect of the frost on caprifigs is now beginning to show up, ten days after the cold night occurred. Figs, which a few days ago appeared to be green, firm and in good condition, are turning yellow, shiveling up, or showing yellow stems. The caprifig crop on young six year old trees in the Clovis district is practically a total loss. Even on full bearing caprifig trees in Wolter's Colony district some of the loss was as high as 60 per cent. Although mamme figs do not show superficial injury, the insects inside are not as active as they would have been under more favorable weather conditions, especially as the days and nights have continued cold and windy.

Frost is no respecter of persons or districts. While we read of frostless and thermal belts where no injury has ever occurred, such places are occasionally hit sooner or later, although possibly not as hard as the open valley. This was well exemplified in Southern California in 1912-1913, the winter of the "big freeze" when the foothill districts suffered as severely as the valleys. This does not mean that caprifigs will not thrive better and be safer from injury in the foothills than in the valley, for there is no doubt that the air drainage on the slopes gives almost perfect protection except in rare instances when cold winds actually freeze the fruit and branches as they did in 1913.

The second or main crop of figs comes on the new wood of the present season's growth. In case this new wood has been frosted and killed, the dormant buds low down will start out and produce both leaves and fruit. These buds, however, will be slow to start. Unless favorable growing conditions exist they will not set figs until three or four weeks later than the crop would have set had no frost occurred. In case of Calimyrna this may make the figs too late to caprify or if caprified too late to mature properly in the fall. The buds, moreover, which start may be numerous and the resulting growth, instead of going into one or two strong vigorous shoots, will go into a few weak ones. This should not be the case in strong growing trees where there is plenty of moisture in the ground. In most cases the frost will simply retard the development of the buds and the setting of the fruit, acting as an early summer pruning.

There is no evidence to show that anything will be gained by pruning off the injured twigs at the present time. In the first place it is very difficult, if not impossible, to determine just how far back the injured tissue extends. One can cut off the tip and cut again, then keep cutting until seemingly healthy wood is found; even then he cannot be sure that the buds below are going to push out. Again, it is impracticable to prune off the frosted twigs on any extensive scale, especially if the work has to be entrusted to careless workmen. So far as I can learn, there is no danger to the rest of the branch from leaving the frosted tip on.

Many growers seem to fear that "sour sap" will develop and that the whole tree will die. If any case of sour sap in a fig tree develops I shall be glad indeed to have it called to my attention. The frozen tissue may and undoubtedly will furnish an excellent medium for the development of two or three forms of die-back organisms; these fungi are already present in the orchards and infection will probably take place. No serious injury from this source, however, need be feared. Sour sap is a trouble which affects stone fruit trees in the spring of the year and appears to be due entirely to climatic conditions resulting from a combination of unseasonably warm, balmy weather in winter followed by a marked change to colder weather. The cold weather checks the flow of sap and other functional activities of the tree, causing stagnation and finally fermentation. It is possible that such a condition might result with the fig tree, but it is not at all probable.

While the cases are not exactly parallel the experience of the lemon and orange growers in 1913 may be of some value in the present instance where serious frost injury has occurred to fig trees. Most citrus growers followed the advice of experiment station men not to prune until the extent of the damage became celarly defined. In case pruning was done immediately or shortly after the freeze it was found that a second pruning had to be done later in order to completely remove the dead branches. The results obtained in experiments tried out in various places demonstrated conclusively that early pruning of citrus trees after a freeze is unnecessary, does no good, and increases the expense, as a second pruning is necessitated. No trouble from so-called "sour sap" resulted from leaving the dead tissue in the tree. On account of the exposed bark being liable to sunburn many growers whitewashed the trunks and main branches with a wash made according to the following formula: Take 30 pounds of quicklime, 4 pounds of tallow, 5 pounds of salt, and mix together. Slake slowly and blend. Dilute with enough water to make mixture flow well.

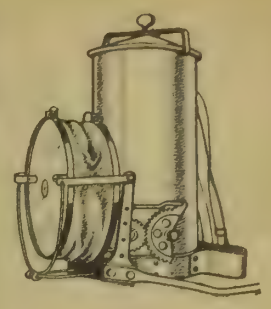
TENNESSEE WINTER BARLEY

Tennessee winter barley has come to occupy an important place on the grain lands of the Sacramento Valley because of its suitability for fall planting on heavy adobe soils under conditions which would result in the drowning out of common or Mariout barley. Distributed from the university farm some ten years ago, it has long since passed through the experimental stage and many of the best grain growers are placing reliance in it. J. W. Gibson of Winters stated to Professor G. W. Hendry of the university farm that 250 acres of his rice land five and one-half miles northeast of Winters is carrying a heavy crop of Tennesee Winter this season and that he has not been successful in producing common barley on this tract previously because of poor drainage and "drowning out." The Tennessee Winter was planted October 25 and the ground remained wet and soggy throughout the months of November, December and January. As is the habit with this variety, the young plants looked stunted and sickly during the wet weather but resumed a normal growth during the warm weather of February and March and made a vigorous top growth without showing any injurious effects such as common barley does under such circumstances. Tennessee Winter barley is the best of the common barleys for such conditions and is capable of standing about as much "wet feet" as wheat without injury.

CROPS TO PLANT NOW

In investigating frost injury it was found that a few bold planters lost crops of beans, melons, tomatoes, and one, a small field of chili peppers. But all are agreed it was not advisable to plant any of these crops at such an early date. Even now it is too early for some of them.

So to those who have lost through frost there remains plenty of time, even to the 15th of May, to plant: beans, cantaloupes, peanuts, peppers, sweet potatoes, tomatoes and watermelons. This presumes water for irrigation is available. If one has no water Kafir corn and milo will grow if soil is in good shape; milo will grow if anything will. If soil is fine, that is, well pulverized, and holds moisture well, millet will grow and it will prove the shortest season crop we have. From time of sowing to hay harvest is but ten to 12 weeks.



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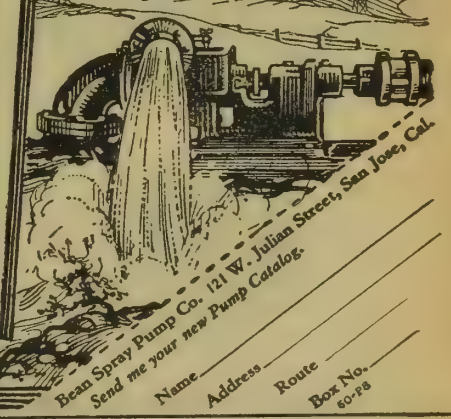

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Mail orders of any size carefully and promptly filled.

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More Complete Organization Among Date Growers

By Paul Popenoe

ORGANIZATION has been announced of the California Date Growers Cooperative Association. The members are all in either the Imperial or Coachella Valleys. R. H. Postlethwaite of Coachella is chairman of the organization and George M. Beach of Thermal is secretary.

The young date industry of the state has had a number of organizations, most of which have been useful for a season and then succumbed. The present organization takes in a larger acreage than any of its predecessors, and its members have planned to avoid difficulties by starting slowly.

For the present the organization will confine itself to serving as a clearing house for information among its members and seeking to promote cooperation between the date growers of various parts of the Southwest; and also between the date growers and the various state and federal agencies interested in the subject.

A special effort will be made to get the federal department of agriculture to carry out and publish information as to important research work.

As soon as possible the association will undertake to aid its members through cooperative packing and marketing. It is asserted that this is now the principal problem facing the date growers of California and that it can best be solved by cooperation similar to that which exists in other California fruit industries.

A committee on program of work, which was appointed by the association, has laid down half a dozen problems as particularly requiring attention in the near future. On most of these it is believed that there exist data among the various private growers of the Southwest which, if properly brought together and analyzed, would enable some useful conclusions to be drawn.

Culture of the Palm

Much is yet to be learned about the suitability of various types of soil and various degrees of alkali concentration to the date palm in general and to the different standard varieties now grown. Although no data have been published on this subject in California there are available growers records covering a period of a score of more of years, under widely varying conditions.

It is said that a proper study of these might throw much light on the problems before ranchers in the San Joaquin Valley, some of whom are beginning to look for other crops to plant on land that has become excessively alkaline. If an early ripening date with high alkali resistance can be found, it would be well adapted to such localities.

Adaptability of Varieties

More than 200 varieties of date palm imported from the old world have been tried out in the Southwest. It is believed that a careful study of these, and especially of growers and packers records of the varieties that have been grown commercially, would clear up many problems which are now matters of controversy among the growers.

Seedling Palms

The number of seedlings started in California up to the present has been estimated as high as 250,000. Most of these have been neglected or abandoned, and the number of seedlings set out in orchard form and well cared for at the present time perhaps does not exceed 50 or 60 acres.

Pollinating Dates

Dates require artificial pollination. As a rule pollen bearing plants are in full bloom when the female, or fruit bearing, plant begins its bloom, but to provide for emergency growers usually preserve pollen from one year to another in order to secure perfect pollination.

Strong statements have been made both for and against the seedling as a commercial proposition. No records have been published, however, to show what an ordinary seedling orchard will actually do, or to show whether the so-called pedigreed seedlings are any better than other seedlings. It is believed that the healthy growth of the date industry will be promoted if facts and figures on this point are substituted for the opinions now circulating.

Possibilities of Mixed Farming

Since the date palm does not require all of the growers land or time, it has seemed possible that some type of mixed farming, or of supplementary cropping, might be advantageous. The association proposes to get any authentic information that can be secured, which will throw light on this point.

Supply of Labor

The date harvest comes from August to November, when a considerable supply of seasonal labor is necessary. The association will study the possibility of helping its members to get this supply, possibly by some cooperative arrangement with industries elsewhere in the state, as for example the citrus industry, whose principal supply of labor is not needed in the autumn.

Standardization of Pack

This is one of the problems bound up with the questions of marketing. Owing to the newness of the date industry, and the large number of seedlings now being marketed, there is no uniform practice in regard to size, type or quality of pack put out by California growers. Standardization is one of the first and most difficult problems to be attacked.

While no census of the date industry exists, it is probable that the acreage of imported varieties in California does not exceed 400.

The most widely grown of the early ripening varieties are Khadhrawi, Ghars, Khustawi, Tazizaut and Halawi.

Of the mid-season dates, Zahidi, Maktum, Dubaini and Yatimeh are best known.

Among the late ripening varieties Tafazwin, Deglet Nur and Thuri have been most widely planted.

Some of the superlative varieties of Arabia, such as Barhi, Khalaseh and Asharasi are also grown, but in limited numbers so far.

There are probably several hundred ranchers in the state who are growing dates with more or less idea of selling them, but a large part of these have seedlings, or only a few palms of standard varieties.

The largest plantation in the United States, containing more than 100 acres of dates of imported varieties, is near Thermal, in the Coachella Valley. One of 80 acres is established near El Centro in the Imperial Valley.

Palms flowered very early this spring, some of them in February, and the profusion of bloom indicates an unusually large crop, particularly as much additional acreage will bear this fall for the first time.

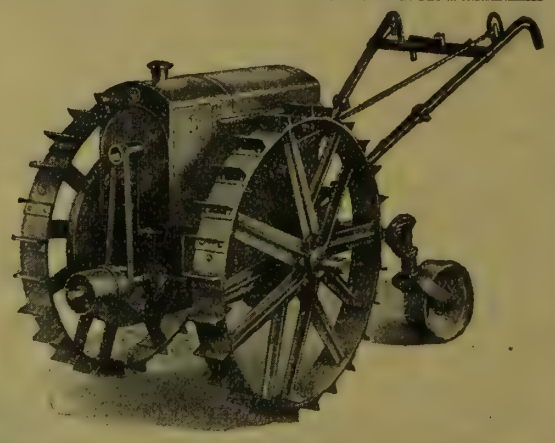
CALIFORNIA RAISIN FESTIVAL

Fourteen cities and towns in the San Joaquin Valley will be represented by their best voices in the mammoth chorus of 1,000 for which the large Fresno Auditorium is being practically remodeled. Besides Fresno, singing contingents are coming from Porterville, Lindsay, Exeter, Dinuba, Reedley, Orosi, Hanford, Lemoore, Selma, Fowler, Clovis, Kerman and Parlier. For the two festival performances on Friday, April 29, entirely separate programs will be given in the afternoon and evening. An idea of the repertory now being rehearsed may be had from the inclusion of the Halleluiah Chorus from the "Messiah," the Inflammatus from "Stabat Mater," the Barcarolle from "Tales from Hoffman," Waltz from "Faust," the Toreador song from "Carmen."

At the Fresno Auditorium special seating arrangements are being made for both performers and public, to insure that every person will hear per-

NEW BRITAIN TRACTOR

ALL PURPOSE ECONOMICAL FARM POWER UNIT



N. B. Tractor working close to trees in walnut orchard.

N. B. Tractor plowing. Note quality of work and deep straight furrow.

Consider the Diversified Utility of the Tractor You Buy

The ever increasing demand for Farm Power in small units of diversified utility and moderate investment is met with the N. B. Tractor.

It is made by the New Britain Machine Co., one of the nation's foremost manufacturers for thirty-three years.

The N. B. Tractor is of the garden type and is adapted to all light farming operations, plowing, discing, harrowing, furrowing, land leveling, etc. Its belt attachment makes its power accessible for pumping, sawing wood, filling silos, running cream separators, or any work requiring six horse power.

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The application of Farm Power in small units permits of a division of investment, and enables the farmer to accomplish many duties without loss of time or expensive tie-ups of equipment.

SPECIFICATIONS:

The N. B. Tractor has a six horse power, two cylinder, 2¾ inch by 4 inch cycle motor cast en bloc, Kingston carburetor, 2¾ inch high tension magneto, Thermo siphon cooling system and centrifugal circulating and splash lubrication. Plain, ball and roller bearings.

The N. B. weighs seven hundred fifty pounds. Length, including handle bars, ninety-eight inches; width 28 to 33 inches; height thirty-nine inches with ample clearance.

It is four wheel type, two drive wheels, thirty-two inches high, with internal bull and pinion gears and interchangeable rims—the rear wheels are small castor wheels which facilitate turning and ease of operation.

This little tractor has highest quality materials and all the scientific engineering features to make it a dependable, versatile and powerful unit.

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fectly. Further to perfect the acoustics, a large sounding board will be put up, and a new platform is being erected for the chorus. Tickets are on sale now with the various members of the chorus throughout the valley.

With 4,000 additional grandstand seats, and all of the lower seats in the box section raised to a much higher level, the Fresno Speedway Association has provided more and better accommodations for the coming championship race than have been afforded at any previous event. These improvements, coupled with the announcement that no machines will be allowed in the oval on Saturday, April 30, when the Raisin Festival Classic is run, are assurances that all of the disagreeable features of other events have been completely removed. An unobstructed view for the spectators, whether they occupy the highest priced seats or remain in the oval, is assured. Nothing has been spared that would make for greater comfort or for a greater degree of safety.

LEMON AND ORANGE CROPS OF SOUTHERN ITALY

The lemon and orange crops of the Naples consular district for the season of 1921 promise to be unusually good. This improvement is in contrast to the conditions of the preceding year, when the yield of both fruits was much below the average. The lemon crop of this year is estimated at 100 per cent above the average as compared with that of 1920, which was 30 per cent below normal. Approximately the same figures are given for the orange production.

Stimulated by the high exchange and depressed freight rates, large shipments of both fruits are anticipated. In 1920 the exports of lemons to the United States were valued at $87,600. Relatively small quantities were sent to Great Britain and France. The value of the oranges exported to the United States during the past year was $18,645. This figure indicates something of a revival in the trade with the United States, for of recent years nearly all of the Italian oranges have gone to France and England, because of tariff restrictions, distance, etc., and what many regard as the inferior quality of the Italian fruit as compared with the American product.

The price of lemons at present is ranging in the vicinity of 25 lire per box, and that of oranges is from 30 to 35 lire a box, depending on the quality. As the season for the largest shipments during the spring months approaches the prices may be expected to advance. (At current exchange $1 equals 27 lire.)

PLANTING A LESSON

On April 14 Farm Adviser Hodgson of Los Angeles County closed a series of 16 citrus topworking demonstrations. At each meeting a preliminary talk was given as to the value of topworking. Records were quoted of individual tree yields of some orchards over a period of several years, showing how the non-producing trees had cut down the profits, and by a comparison of figures how topworking of the drones should result in greatly increased yields and financial returns. Many of these demonstrations were made in remote districts, among settlers new to citrus growing and where the budding over of poor trees will soon teach a valuable lesson.

The buds used were furnished by the bud supply department of the California Fruit Growers Exchange, taken from trees of the highest performance found in the state. It is safe to say, then, that when these topworked trees come into bearing they will produce more and better oranges than any others in the several orchards. It may be that in future years we shall find orchardists gradually topworking all their trees to buds taken from the performance-record trees started by Mr. Hodgson. The great value of this work will be proven in years to come, though all visitors admit there is much learned at the meetings. At the last two meetings a citrus grower from New South Wales was present and stated it was a valuable experience to him.

CLAREMONT POMOLOGICAL CLUB

A horticultural club which has been responsible for some of California's best agricultural statutes, and one which has held, regular meetings for a period of over a quarter of a century, is the Claremont Pomological Club. It will hold its next regular meeting on Saturday, April 30, at the clubhouse on the J. B. Coulston place, with Mr. Coulston as host for the club. Mr. Coulston's place is just off the Foothill Boulevard on the road between Glendora and San Dimas, with a wonderful view over hill and valley. It will be an all day session, the forenoon being devoted to memorial to Dr. Cook, the speaker being C. C. Teague.

Because of the especially long life of this organization address will be made by C. C. Chapman of Fullerton on "Why the Club Has Lived."

Some five minute reminiscences of its early history will be given. W. A. Johnstone will refer to its pioneer work for good roads, he having been a member of its good roads committee in early years. F. L. Palmer will speak of the work of the club a quarter of a century ago in securing enactment of legislation which saved millions for the producers of the state. E. O. Essig will give talk on "How the Club Found Mealy Bug and Eradicated it in the Claremont District in 1909." C. B. Messenger, member of the original Pomona Home Telephone Committee, will recall instances of perfecting that farmers' organization which has today thousands of telephones in rural homes of that section. M. E. Jaffa, of the University of California, will discuss "Fruits of 25 Years Ago and Now." Geo. H. Hecke, director of state department of agriculture, will refer to some of the work of the department for the citrus industry. G. Harold Powell will discuss "Cooperation and Fruit Tariffs." Other informal talks will be made by Prof. C. B. Sumner, one of the charter members of the club, Prof. J. T. Barnett of the citrus experiment station, and Ernest Braunton.

CUBA COOPERATES IN FIGHT AGAINST CITRUS BLACK FLY

Fears of tropical fruit and vegetable growers and shippers, due to the American quarantine against the citrus black fly, effective April 1, are rendered groundless through the hearty cooperation of the Cuban government and West Indian growers, according to a report made by Dr. W. A. Orton, United States department of agriculture specialist and member of the federal horticultural board, after his return from the West Indies.

The quarantine order, which was promulgated by retiring Secretary Meredith after hearing all interests concerned, is directed particularly against the importation of foliage and parts of plants and other rubbish carrying the black fly pest, and the contamination of cars by coming through regions which are infested. The black fly does not attack fruit and is not seriously in evidence in the principal fruit growing regions, so that precautionary measures centered around the prevention of contamination of fruit cars en route to ports and the exclusion of foreign materials in the cars.

TWO OLD BUREAUS MAKE ONE NEW

In combining the bureau of markets with the bureau of crop estimates of the United States department of agriculture, which has been approved by congress and will become effective July 1, George Livingston will remain chief and Leon M. Estabrook will become associate chief. The new bureau will be known as the Bureau of Markets and Crop Estimates.

According to law the county horticultural commissioners have the power to refuse delivery of all shipments of nursery stock unaccompanied by a manifest showing the contents of each shipment, the name of the locality where the contents were grown and a statement of the contents therein, together with the name of the shipper.

The number of students registering in the University of Arizona for 1920-21 is 1,014.

"Some Growth—
For A Year"

"I blasted between the rows in this orchard last fall and look at this year's growth—look at the fruit, too. I tell you these trees are in prime condition *now*. And last year they looked as if they were through. It certainly pays to cultivate with

HERCULES
FARM DYNAMITE

"The Hercules Powder Co. publishes a 68-page book called 'Progressive Cultivation.' Send for it *today*. It tells you all about the use of explosives on the ranch and in the orchard—how to plant trees, cultivate bearing orchards, clear land, dig ditches and do many other heavy jobs around the place."

Mail the attached coupon *today*—and "Progressive Cultivation" will be sent you free of charge.

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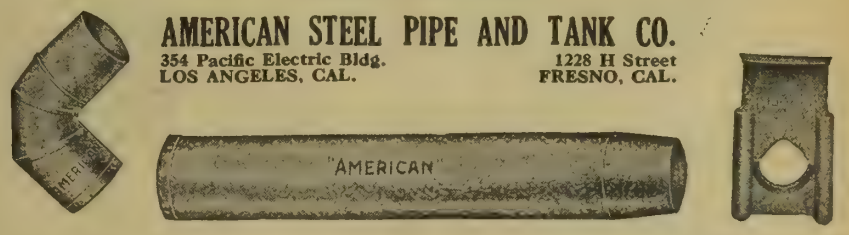

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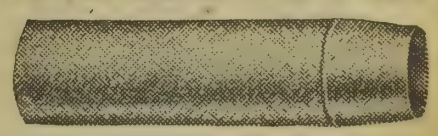

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Ask the man who has planted them and he will tell you that Teague Trees are unequaled in growth and productiveness.

They are the best that can be produced.

If you intend planting CITRUS TREES it will pay you to come and see our stock and let us figure on your requirements while we still have a good assortment to select from, as the supply of good trees is limited.

Avocados, Feijoas and other Tropical fruit trees in all of the recommended varieties.

Send for our new descriptive price list and tell us what you intend to plant.

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PAYNE'S 1921 Garden Guide

Write Today For Your Copy
Of This 68 Page FREE Book
Telling How and When to Plant
—SEEDS—PLANTS—TREES—SHRUBS—
CALIFORNIA WILD FLOWERS
Seventeenth Annual Catalog, Illustrated

Theodore Payne 345 So. Main Street Los Angeles

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

WHAT WILL THE HARVEST BE?

(Continued from Page 543.)

M. Sharp, Vacaville, Solano County

Almonds: 60 per cent.
Apples: 100 per cent.
Apricots: 35 per cent.
Cherries: 100 per cent.
Peaches, 75 per cent.
Pears: Dropping badly. Cannot estimate yet.
Prunes: 100.
Plums: 100.
Grapes: 100.

A. H. Call, Horticultural Commissioner, Ventura County

Apricots: 20 per cent of crop. Would have had about 50 per cent of crop if not for frost.

Mrs. Clara K. Graham, Ramona, San Diego County

Apples: Too early to tell.
Apricots: Poor crop.
Cherries: None.
Peaches: Have set heavily; need to be thinned.
Pears: Setting well.
Prunes: None.
Grapes: Good.
The cold snap did no harm to my fruit.

Arthur E. Beers, Horticultural Commissioner, Merced County

Almonds: Prospects of full crop.
Apples: No commercial orchards.
Apricots: 90 per cent.
Cherries: No commercial orchards.
Peaches: Prospects for largest crop we ever had.
Grapes: Increased acreage, full crop, no frost damage.

Santa Ana Register, Santa Ana

Apricots: Crop about same as last year. Fruit on old trees damaged by rains. Young trees will bear good crop. Frost did no damage whatever in Orange County. About 800 acres to apricots in county. Fifteen cars of dried fruit shipped in 1920.

Redlands Facts, Redlands, San Bernardino County

Almonds: Not more than 50 per cent crop—damaged by frost.
Apples: Very few apples in Redlands; good crop what there is. Fair crop for Yucaipa. Heavy damage by frost in Oak Glen.
Apricots: Good prospects now for an excellent crop.
Cherries: Good.
Peaches: Good.
Pears: Only fair.
Prunes: Good.
Grapes: Only fair; some damage by frost.

P. F. McKinney, San Jose

The damage to apricots in this vicinity by brown rot was greater than ever before. I find it was quite serious in Alameda County also. The frost also took heavy toll. The present estimate is for about 30 per cent of a crop. The frost also damaged the sugar prunes, as well as the French prunes. It is too early to estimate the entire prune crop.

California Peach and Fig Growers, J. F. Niswander, General Manager

Reports from various parts of the state indicate that caprifigs were severely damaged by the frost. It is believed that the supply of Capris for the season will be very limited, which will mean a short crop of Calimyrna figs. The frost also did some damage to the Black Mission and White Adriatic figs. If the caprifigs have suffered to the extent now indicated, we would not expect more than 50 per cent of the normal crop.

Fresno Republican, Fresno

Grapes: The ravages of the grape leaf hopper, following close upon the recent frost, threaten to further reduce the raisin crop this year. Hopper damage has been reported to the California Associated Raisin Company from many sections of Tulare, Fresno, Madera and other San Joaquin Valley counties. Where the frost hit the hardest, the hopper menace is most dangerous as the swarms of adult insects are concentrating upon the replacement growth. If they are in sufficient numbers, their feeding may slow down to recovery of the damaged vines. The adults will also soon lay eggs to hatch out the numerous summer brood.

Observers everywhere are agreeing that 1921 promises to be a leaf hopper year for the vineyardist. It has been about 40 years since there were any serious ravages by this pest, but while the recent frost is the most spectacular reducer of crops, the damage done by the leaf hopper promises to be far from negligible. In fact, the over wintering adult hoppers are more numerous throughout the valley than ever before observed in the early part of April.

A long distance telephone message to L. R. Payne said that a 50 per cent loss had been sustained in Yolo, Yuba and Sutter Counties, where in some instances vineyards were 100 per cent destroyed. The normal crop of that territory, said Payne, is about 6,000 tons.

Pears and Apples: Dispatch from Bakersfield, April 7—Official information was received here today through the county horticultural commission that the 1921 Tehachapi pear crop, which was in process of formation in the trees when the temperature suddenly dropped below freezing point Sunday night, has been practically annihilated by frost and snow.

Though it is impossible to accurately estimate the financial loss resulting from the cold weather killing the future crop, it has been unofficially calculated that the damage, figured in cash, totals almost $50,000. Last year approximately 10,000 boxes of pears were exported from the Tehachapi district, a large percentage of which were sold for $5 and $5.50 a box. The crop last year was only 25 per cent of normal, having been depleted by freezing weather coming late in the season.

The mercury registered 24 degrees Fahrenheit, lowest point, Sunday night at Tehachapi, and 28 degrees last night, it was officially reported today to Horticultural Commissioner Harold Pomeroy. Thirty-two degrees Fahrenheit is freezing. Snow fell in the mountain district yesterday and frosts mantled the high valley both last night and Sunday night.

Early ripening varieties of apples grown at Tehachapi were also damaged by the cold, according to today's reports, though the later varieties are believed to have survived the low temperatures in healthy condition. There is approximately 950 acres of bearing pear trees in the valley, with 350 acres of younger trees not yet bearing.

Tulare Register

According to reports coming into the office of County Horticultural Commissioner Shepard, Tuolumne County will have a bumper crop of apples and other fruits this season. Already it is estimated the county will produce over 30,000 tons of apples. This estimate is declared to be large, considering the crop of the last two years has only averaged 15,000 tons.

California Fruit Distributors, Sacramento, Wilmer Sieg

It would be simply impossible to give you any definite facts at the present time. To the best of our knowledge and belief apricots are seriously hurt both by the cold weather and perhaps by some of the fungus that affected them last year.

Grapes are to some extent hurt in the San Joaquin Valley and to a very limited extent at Lodi, but nobody yet knows the extent or the chance for rejuvenation, so any report at the present time would be rather premature.

The tree fruits, especially in the Sacramento Valley, are in splendid condition, but the old Chinaman used to say that "plenty of flowers little fruit," and we have had an abundant blossom. It will be two weeks at least before anyone can tell what amount of fruit is going to hold, but the crop prospects are, in my opinion, generally good ones and we should mature a quantity of fruit. However, any statement made as to crops at the present time carries with it an element of doubt and in about two weeks we believe better predictions can be made.

U. S. Weather Bureau

The Summary of Weekly Weather and Crop Conditions for week ending April 13 refers to the damage from frosts and cold winds:

Newcastle, Placer County: A heavy north wind during the early days of the week, together with a little frost towards the close, marked the unfavorable aspect of the week's weather.

There is a tendency for fruit buds just setting to fall, but if any real damage was caused in this respect by the wind it is too early to determine it as yet. Of some varieties of plums, however, only a few buds are left. Meadows are in excellent condition; pastures and ranges are good; oats continue excellent, the dry winds and frost doing no damage to these.

Hopland, Mendocino County: Some frosts during past period but little damage done to fruit and hops. Hops are favorable.

Ducor, Tulare County: This has been a hard week on wheat and barley, all late sown, non-irrigated grain drying fast as the result of the drying north winds in early part of week. Winter wheat and barley in fair condition but spring wheat is poor.

Centerville, Alameda County: Frost destroyed many buds on apricot trees in this district. Prunes unharmed. Excellent growing weather this week.

Ontario, San Bernardino County: Hardly any rain since the middle of March. Irrigation of orchards has just been started. Light frost in middle of week caused no damage. Citrus fruit in excellent condition. Navel oranges being picked to full capacity of packing houses.

Julian, San Diego County: The apple crop of Julian is practically all lost for this year. The extent of the damage caused by frost Monday morning is now apparent. The apple trees were in bloom.

Los Alamos, Santa Barbara County: All crops badly in need of rain. High wind and frost damaged fruit to a moderate extent. Almond growers claim very little damage by frost; apricots and late peaches seem to have suffered most. Winter wheat, oats and barley in good condition with fair growth during past week.

John McNab, Fillmore, Ventura County

The recent cold spell and frosts have hit the walnuts with a hard blow on the Sespe Avenue of the county. In the walnuts orchard after orchard along the avenue is hard hit. Go down into the office of the farm adviser and take a look at the limb of a walnut tree I brought in. All the young leaves are black with the effects of the frost and the young nuts are in like condition.

Yucaipa News, Yucaipa, San Bernardino County

The cold wave of the first three days of this week has resulted in no damage to apples in Yucaipa, according to the opinion of the growers and of Horticultural Inspector Brooks, and former Inspector Taylor, who have given the valley a thorough inspection for results from the cold wave. No evidence of damage was found, except possibly in a few low spots where the temperature was lower than average. As to the effect on the apple crop at Oakglen, opinions vary from destruction of the entire crop to little damage done. The general view seems to be that the earlier apples have been damaged pretty severely and that the Rome Beauties have not been injured. The bulk of the acreage in that section is set to this variety.

W. A. Shepard, Auburn, Placer County

Almonds: Full crop.
Apples: Full crop.
Apricots: Half crop.
Cherries: Half crop.
Peaches: 90 per cent.
Pears: 75 per cent.
Plums: 50 per cent.
Grapes: Full crop.

Frost did not hurt this section at all. North wind hurt the plums some. A good many trees dying from sour sap.

(Above report from investigations of E. S. Culver, Auburn Fruit Exchange.)

Chico Chamber of Commerce, Frank Durkee, Secretary

Little early yet to tell frost damage to peaches. Almond condition very spotted. Some orchards have excellent crop prospects.

Almonds: Crop spotted. Some orchards have good stand, others practically total failure; partly due to frost.

Apples: Good crop reported in Paradise district.

Apricots: Not raised commercially in this district.

Cherries: Good crop reported from Paradise; only small acreage in Chico section.

Peaches: Pretty badly damaged in Chico district by frost; few weeks will tell how much. Some believe crop 75 per cent gone.

Pears: Good crop reported from Paradise; no frost damage there.

Prunes: Only slightly damaged in Chico district; heavier damage reported in Gridley section.

Grapes: Not raised commercially in Chico; heavy damage reported from Thermalito and southern parts of county.

J. F. Benton, Horticultural Commissioner, Humboldt County

Apples: Trees thrifty, bloom heavy. Cold rain during bloom productive of scab. Some frost damage.

Cherries: High cold wind did some damage.

Peaches: Frost following extreme heat did considerable damage.

Pears: Indications fair; damage by frost and scab will result from cold rain during blossoming period.

H. J. Ryan, Horticultural Commissioner, Los Angeles County

Frost Damage Report.—Deciduous fruit and walnut crop conditions, Los Angeles County, April 15, 1921:

1,251 acres pears reported 88 per cent crop.

4,335 acres apricots reported 38 per cent crop.

5,100 acres peaches reported 51 per cent crop.

20,501 acres walnuts reported 40 per cent crop.

Frost damage was very irregular. At some points the temperature was reported to be 26 degrees Fahrenheit. Some additional loss may have been sustained the nights of April 13 and 14. No report can be made on this at the present time.

E. W. Curtis, County Agent, Tehama County

Early this week I sent you a statement of the condition of fruit crops in Tehama County as regards frost injury. At the time of sending this report it was approximately correct, but on Wednesday of this week there occurred a severe frost which has caused damage that has not yet been estimated. It will be ten days or two weeks before the extent of the damage can be determind, and I will send you more complete information as soon as I can gather the data.

Press Dispatches

From many sections of the state reports of frosts coming on April 14, subsequent to the making of many of the above returns, show still greater injury, e. g., after the April 14 frosts Commissioner Beers of Merced reported 100 per cent destruction of cantaloupe crop in Turlock section and 80 per cent damage to tomato crop in Merced.

Watsonville reports damage of between 25 and 50 chests of strawberries per acre; Pajaro Valley loss in excess of $75,000.

Sacramento reports great loss to early figs; thin ice in many sections.

Frank H. Buck Company, Lodi, J. N. Ballantyne

As to crop prospect of this district wish to explain that any report made now may be changed later. Some of the estimates are from inquiry rather than observation, but will give some little idea of conditions.

Almonds are very light in most orchards, and nearly all varieties, and will probably run about 25 per cent. One report this morning was given me to the effect that the brown rot has been quite prevalent in many of the orchards. Excessive rain during blossom time proved quite detrimental.

The brown rot has also been quite extensive in apricot orchards, many trees being absolutely bare. Some trees show a full crop, but total tonnage will probably not exceed 25 per cent of normal.

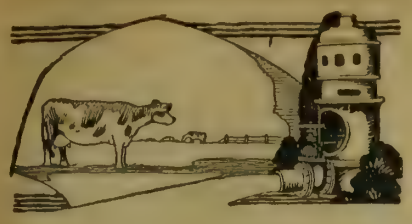
Cherries will probably average between 50 and 75 per cent.

While I have not had a complete report on peaches the majority show a very good setting and will probably run from 75 to 90 per cent of normal, although some of the Muirs are reported exceptionally light.

The pear acreage is small in this district, but showed an exceptionally heavy blossom and I would think will proably average around 75 per cent.

Some varieties of plums and prunes have dropped badly, while others seem to be in pretty good shape, and taking all varieties into consideration, 60 to 70 per cent may be about right.

(Continued on Page 555.)



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is a BYRON JACKSON achievement.

Perfectly machined, free from destructive vibration, rugged in construction, these pumps in themselves have built a distinctive fame around the name of Byron Jackson.

Their dependability, low cost of operation and ability to develop a maximum volume of water are features constantly broadening the circle of influence of Byron Jackson deepwell turbines.

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Wherever water is to be lifted

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Why Pay More?

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Plant Squaw Mountain Sudan Seed, utilize your summer fallow. Ten pounds per acre, through your grain drill, will furnish green feed through the summer and late fall for horses, cattle, hogs, or turkeys.

The land may be prepared for barley or wheat in the fall by disking. You will have no stalks to contend with—the stock will eat it clean.

Plant some in the back lot for your chickens.

Plant Squaw Mountain Sudan Seed year after year. It is free from Johnson grass.

Less than 100 lb. lots 15c per lb.
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More than 1000 lb. lots 8c per lb.
All above prices f. o. b. Murrietta.

Murrietta Valley Land and Seed Co.

Murrietta Cal.

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USE

EL-ROY

READY TO USE

Gopher Poison

Sure death to Gophers, Squirrels, Rats, Mice and all Rodents. Grains and fruits prepared thoroughly saturated with the poison and ready to use. Note the pleasant odor. It attracts the gopher.

Conveniently Packed in Cartons.
Prices 35c and $1.00

ROY GOPHER TRAPS

Are Sure

Quickly set, simple, big time saver. Sets automatically. Strong spring, absolute grip.

Price 25c Each
Quantity Prices on Request

El-Roy Box Trap

The Most Popular on the Market
Price 35c.

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Enclosed please find remittance for (number of traps)....

Kind.....

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Also For Sale by Hardware, Drug and Seed Stores

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TREAT YOUR SOIL WITH TORO BRAND AGRICULTURAL SULPHUR

It will increase your crop in some instances up to 500%, prevent wire worms, smutty grain and potato scab. For Lime-Sulphur Solution use DIAMOND "S" BRAND REFINED FLOUR SULPHUR. For dry dusting use ANCHOR BRAND VELVET FLOWERS OF SULPHUR. Sold by leading dealers. For rodent control use CARBON BISULPHIDE. Write for circulars 6, 7 and 8, prices and samples.

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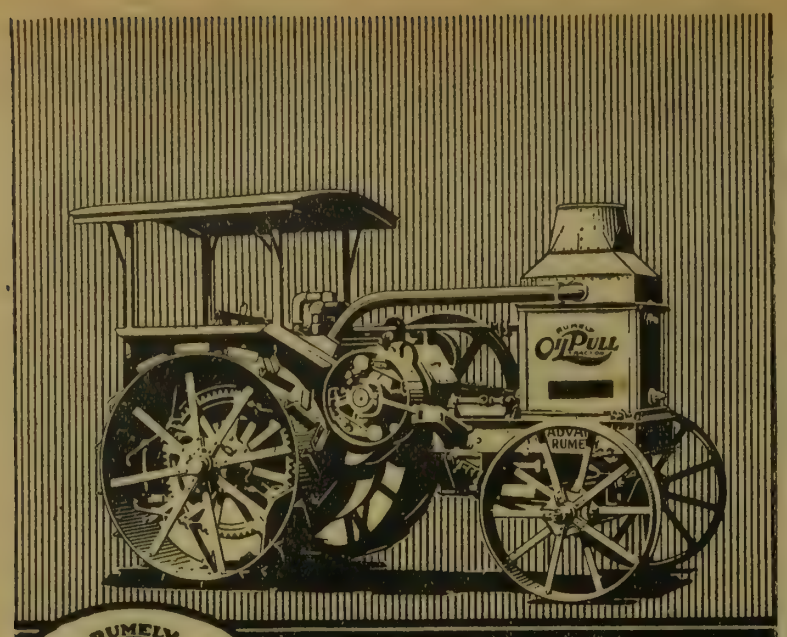


RUMELY OilPull TRACTOR

Upkeep Expense on the OilPull Is Extremely Low

OilPull owners are frankly amazed after each season's work at the uncommon economy in cost of upkeep and fuel.

Practically every OilPull owner will tell you the cost of doing his farm work now is much less than the former cost with horses.

First, the fuel cost is extremely low—lower than that of any other tractor built. Fuel economy has been one of the chief characteristics of the OilPull from the very first. It is designed throughout—carburetor, motor, cooling system, etc., for the use of cheap fuels.

Then, the cost of upkeep is noticeably low. With every part made extra strong, there is little need for repairs. For example, "Old Number One," the first OilPull built 12 years ago, has had a total repair bill of less than five cents a day.

OilPull No. 1504 in California, 4½ years in service, has tilled 10,000 acres during that time and operated on the belt 300 days. The repair expense has not exceeded $400, piston rings have never been removed.

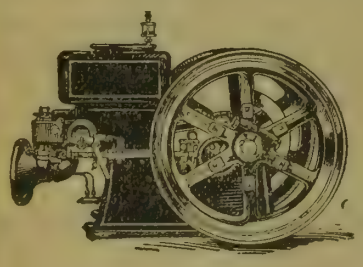
These are vital things for you to consider when you get ready to buy a tractor. A tractor which is constantly in the repair shop, instead of at work in the field, is a mighty unprofitable investment. You want the OilPull kind.

It will pay you to get the OilPull catalog.

ADVANCE-RUMELY THRESHER CO., *Inc.*
17-19 Main Street, San Francisco, California
Direct Factory Branch

Arnott & Company Rumely OilPull Tractor ——Distributors—— **Los Angeles**

A Mechanical Masterpiece



Dependable—Durable
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THE
HERCULES ENGINE
1½ to 12 hp.
For All Ranch Work
Die Cast Interchangeable bearings.
Sold by local dealers everywhere.

Factory Distributors:

SMITH - BOOTH - USHER CO.
Machinery, Supplies, Pipe and Fittings
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CUNNINGHAM PULVERIZER
Paralyzes clods and works close up to trees and vines. It mulches the crust following irrigation, and preserves moisture.
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All sizes sold at pre-war prices.
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Hives, Supers, Frames, Sections. Miller's California Foundation, everything for the successful culture of Bees—Write for our free 36 page Catalogue.
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201-233 North Avenue 18, Los Angeles, Calif.

Standardizing and Advertising California Vegetables

By H. H. Warner

A CLOSE study of the development of growers cooperative associations in California will reveal two distinct steps in the growth of those associations which have been successful in the marketing of their products.

First is the standardization of the pack and the common use of a distinctive brand or label on the products meeting the quality requirements. The second is the adoption of a definite program of national consumer advertising.

The growers of vegetables in Southern California are for the most part unorganized and the comparatively few local associations in existence have been compelled through lack of tonnage to place their marketing problems in the hands of some experienced shipper maintaining eastern selling connections. It may be too much to expect that the vegetable growers can ever be held together in an association to market their own products under a standardized pack for most of them are dependent upon the assistance of the shipper in financing their growing operations. It is not out of the question, however, for the independent shippers of these products, even under the existing keen competition, to unite on these two matters of standardizing the pack and of national consumer advertising.

Although there is considerable variation in the quality of the pack put out by various shippers, when one compares crates of these commodities from California with barrels and hampers of the same items from other states, it gives the impression of our stock being pretty well standardized. There is much to be done along this line, of course, but even now with the splendid standardization laws of the state in force there is not much chance of gross deception being continually practiced.

The per capita consumption of lettuce, cauliflower, celery, cabbage, root vegetables, etc., has increased tremendously since the advent of the refrigerator car and each year shipments of these vegetables are increasing not only from California but from other competing sections. This has all come about without a particle of consumer advertising and it is reasonable to presume that the consuming capacity of the people of this country for fresh vegetables, especially during the winter months, has scarcely been scratched on the surface. Other sections are adopting California ideas of packages and grading and are affording active competition in eastern markets, with a more favorable freight charge.

There seems to be no sound reason why the shippers who are now interested in the movement of California vegetables should not unite on an advertising program designed to reach the ultimate consumer and thus increase the per capita consumption of these products. It is true that such a campaign would have the result of also stimulating the demand for the same products from other competing sections, but many national advertising campaigns confronted with the same situation are none the less profitable to the advertisers.

The national advertising of foods and food products has developed in recent years to a highly specialized state and readers of national publications of wide circulation are thinking more about what they place on their tables than they used to. The selling of fresh vegetables has a particularly strong appeal on account of the increasing importance being given to this class of food by physicians the country over. Raw vegetables like lettuce and celery are credited with containing the very important vitamines considered so necessary in the modern diet. All green vegetables contain certain mineral salts essential to the health, and certain vegetables such as spinach and carrots are considered of great importance in the growth of the child. These thoughts and many others would provide plenty of "copy" for the advertising agency.

Scarcely an issue of certain weekly publications does not contain one or more fulll page advertisements telling of the advantage of certain kinds of wood or other building material, advertisements paid for by an organization of competitors who have joined their forces in putting over a national program of advertising. The same plan is feasible when we consider Southern California vegetables, and unless the shippers themselves take advantage of this opportunity the growing sentiment for one large cooperative enterprise will gain headway by using this idea as an organization argument.

A Strong Demand for Lettuce

With the shipments of lettuce from the Imperial Valley practically at an end, the movement of locally grown lettuce is increasing daily. Approximately 3,500 cars were shipped out of the valley for the season, and while the growers have not made a great deal of money, the deal on the whole has been more satisfactory to both growers and shippers than last year. This in spite of the greatly increased freight rate which at the opening of the season made it appear impossible to move the crop and even meet the cost of freight and packing. The quality of the Imperial Valley lettuce has been equal to that of past seasons, although there was an oversupply of small sizes which were sold at a discount.

Each year after the "valley deal" winds up there seems to be a strong demand in the Eastern markets during the month of April, especially before the homegrown stock begins to be available. As a rule the lettuce produced around Los Angeles is not hard and well headed as that grown in the Imperial Valley, and when both kinds are available the latter brings a premium in terminal markets. Just now, however, under the prevailing strong demand for Iceberg lettuce this difference in price is not so apparent and cars containing desirable sizes have sold recently on the New York market for as high as $6 per crate on a jobbing basis.

Last year at this time the situation with regard to the market in the East was practically the same, but owing to the railroad strike empty cars were at a premium and shipments remained light. This season, with a correspondingly strong market and the Imperial Valley competition out of the way, growers in the Los Angeles district are receiving very satisfactory returns.

In the face of a limited supply and a strong Eastern demand the local growers are profiting from the keen competition between some 15 or 20 independent shippers. In ten days time the price paid to the grower has jumped from 75 cents to $1.75 per field crate and whole patches are being bought outright. Last year the price went still higher but the more conservative operators, having in mind the increased freight rate, are beginning to hesitate on rolling cars unsold, and are insisting on loading only for cash California buyers.—H. H. W.

BETTER TOMATOES

The National Canners Association has established a bureau of research, and one of the investigations which it is making has to do with developing a tomato which has a better red color. The canner naturally wishes a tomato which will remain a bright red when the canning process is complete, hence "tomato pigment studies." The scientists are endeavoring first to develop and standardize a method for rapid and simple measurement of the amount of lycopin (red color pigment), and, second, to determine whether there are any constant differences in different strains, and if so, through pure line breeding to isolate and propagate the strains having the greatest amount of lycopin and consequently the best red color.

A&M reliable SEEDS

A & M
Selected Strain
Dwarf
Milo Maize

is the produce of the same fields located in the same section where our seed has been grown for a number of years.

Each season previous to harvest our own representative inspects the fields and every precaution is exercised in order that there may be no off-type seed in the stock which we select for seed purposes.

We are Proud

of the reputation we have gained on Dwarf Milo Maize seed and it is very gratifying to have the many unsolicited favorable expressions from our customers each season in which they state that the seed was all we claimed for it and more.

When in the market for Dwarf Milo Maize, think of the A. & M. Selected Strain and

Ask Your Local Dealer

Write Dept. E for Booklet

Aggeler & Musser Seed Co.
Los Angeles

Auto Owners WANTED!

To introduce the best automobile tires in the world. Made under our new and exclusive Internal Hydraulic Expansion Process that eliminates Blow-Out—Stone-Bruise—Rim Cut and enables us to sell our tires under a

10,000 MILE GUARANTEE

We want an agent in every community to use and introduce these wonderful tires at our astonishingly low prices to all motor car owners,

FREE TIRES for YOUR OWN CAR

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Hydro-United Tire Co.
DEPT. 105 PHILADELPHIA, PA.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Road Right

There is an old road leading to a bay on which there is a cannery and government owned shed. A boat belonging to the cannery lands at the foot of this road and brings freight for anyone desiring it. The road has been in common use for a long period. A new owner has taken the property and he now locks the gate and gives one key to the government employe and the other two to the cannery employes, but prohibits all other persons from using this road. Has he the right to keep others from using this road?—Subscriber, Reys.

As frequently stated heretofore, these questions of roads are so much ones of the history of the roads and their use that it is practically impossiblt to give an opinion that is of any real value. From the facts stated it would seem, however, that the road has been employed by the public and has thereby been dedicated to the public, that it is dedicated and to an extent acknowledged by the admitted right of the cannery and government men to pass over the road. However, the question states no time in which the road has been used, the character of the use, nor the mode in which the use commenced.

Community Property

A ranch is purchased in the name of husband through the joint labor of husband and wife. Is it community property? In case of divorce has the wife any right in the ranch?—Subscriber, El Centro.

All property acquired after marriage by either husband or wife, or both, is community property, except such property as is acquired by gift, bequest, or devise, or the rents, issues, or profits of such separate property. In the case of a divorce the property rights are largely within the discretion of the court. In case the decree is ordered for adultery or extreme cruelty the community property may be assigned to the respective parties in such proportions as to the court, from all of the matters of the case and the conditions of the parties, may deem just. In any other case the property shall be equally divided. The usual provision is that the husband shall undertake the support of the children and that the children be placed in the custody of the wife.

Deed to Husband and Wife

Where a deed is made in the name of husband and wife what interest has the wife in the property upon the death of the husband, no children surviving?—Subscriber, Santa Rosa.

In case the deed stands in the name of the husband and wife the presumption is that the wife is a tenant in common of the property conveyed; that is to say, she has an undivided one-half interest in the property. This is irrespective of any disposition by the husband by will or irrespective of the interest that she may have by reason of the fact that it is community property. In such a case, upon the death of the husband, if the property was in fact community property, the wife would first be entitled to her undivided one-half of the property as tenant in common and then she would be entitled, in case there were no child, to one-half of the husband's one-half, if such were held to be separate property. The undisposed of one-half of the husband's one-half would in the absence of a will go to the next of kin of the husband.

Selling Water to Neighbor

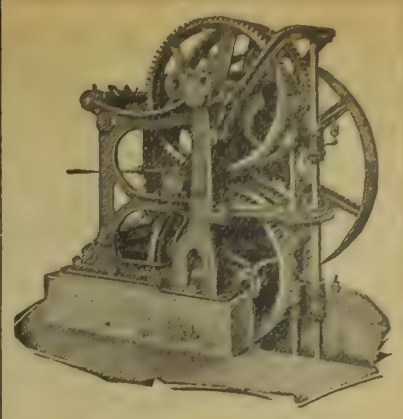
A neighbor wishes to buy water to supply a watering trough in his pasture. He offers to lay the pipe and pay a reasonable amount for the water. Would I be involved with the railroad commission by selling this water to him? If I should make a contract to furnish this water for two years would he acquire rights after the term of the contract?—San Miguel.

Under the broad terms of the public utility act the term "public utility" is defined as including every person who delivers a commodity to the public or any portion thereof. The term "public or any portion thereof" is defined as including the public generally or any limited portion of the public, including a person for whom the service is performed or commodity delivered. Undoubtedly, under this explicit definition, even a little matter such as that embraced in the foregoing question would render the party furnishing this water a public utility and under the control of the railroad commission. However, as a matter of practice, the railroad commission has not sought nor does it desire to extend its authority and powers to such individual transactions. The contract concerning the water would be a mere license or rental and no subsequent rights would accrue thereunder.

Check Not Cashed

I gave a man living within three miles of a bank a check as part payment on a ranch purchase. The bank continued business for ten days after that time and then closed. The depositors got 50 cents on the dollar. Does the holder of the check lose the difference or am I required to make it up?—Subscriber, Modesto.

The case with respect to liability under the above state of circumstances has in several instances been brought before the courts and there is more or less conflict of authority. Lately it has been sought to reconcile these different authorities by what is known as the "Uniform Instrument Law," which is now in force in this state. In this law it is provided that a check must be presented for payment within a reasonable time after its issuance or the drawer will be discharged from liability thereon to the extent of the loss caused by the delay. In respect to the term "reasonable time," the law provides that regard is to be had to the nature of the instrument, the usage of trade or business with respect to such instruments and the facts of the case. The courts have held that whether or not a person has presented the check within a reasonable time is a question purely of fact to be determined at the trial; in case of a bank failure, a delay of 14 days was not an unreasonable time. In another case, that of a vendor of land, to whom a check was given for a portion of the purchase price of the land, a delay of somewhat less than ten days was unreasonable, and the court determined that the vendor must stand the loss due to the insolvency of the bank upon which the check was drawn. It would seem that from the facts stated that the delay in this case might be considered unreasonable, in which event the holder of the check would have to bear the loss.



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POMONA
Duplex Plunger
Deep Well Pumps

and hold down the most important item of expense in your water supply, which is the power bill.

Printed Matter for the Asking

The Pomona Mfg. Co.
POMONA, CAL.

Also Manufacturers of
Pomona Irrigation Gates and Valves

Save Money—Buy Pipe From Us

Farmers, Miners, Builders — people in every kind of business are saving money buying used or renewed pipe from us. We sell every kind of pipe. Send in a list of your requirements today and get our prices. We have saved hundreds of people 33 1-3 to 50 per cent on their pipe bills. Here's a partial list of some of the miles of pipe we have in stock for immediate delivery.

8,000 ft. 6 inch Riveted 16 Gauge
700 ft. 8 inch Riveted 16 Gauge
5,000 ft. 12 inch Riveted 12 Gauge
1,000 ft. 18 inch Riveted 12 Gauge
800 ft. 22 inch Riveted 14 Gauge
300 ft. 24 inch Riveted 14 Gauge
500 ft. 36 inch Riveted 12 Gauge
10,000 ft. light wrought iron 8 inch pipe with cast iron collars.

All above pipe thoroughly overhauled and inspected and ready for immediate use.

We also have large quantity standard pipe and screw casing, pressure tested and guaranteed.

Don't delay—write for our prices on your pipe requirements today.

PACIFIC PIPE COMPANY
237 Howard St. San Francisco, Cal.

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TURBINE
CENTRIFUGAL PUMPS

Installations can be made in wells 10 inch or larger. Produce 300 to 4,000 gallons per minute. Ask for Folder No. 4. American Well & Prospecting Co., 407 E. 3rd, Los Angeles.

MACHINERY
OF EVERY DESCRIPTION
Bought, Sold and Rented
BUTTRESS & McCLELLAN
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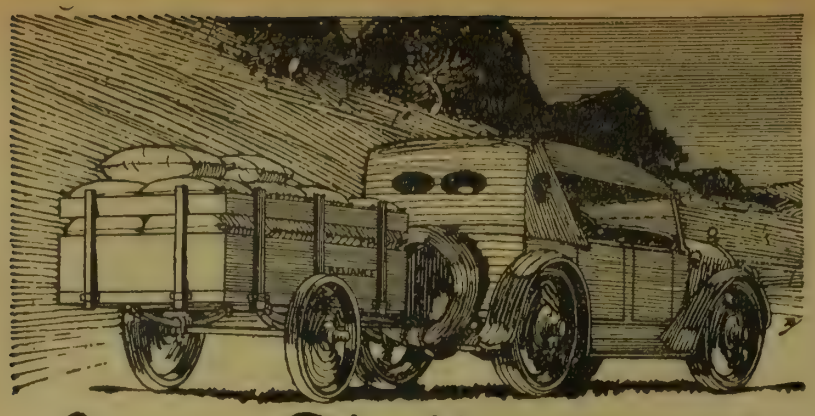

Use a Trailer—

Statistics show that the farmer uses his automobile for transporting goods more than for "pleasure." Making your auto a business aid is wise. But the same utility can be gained and all possible damage to your car avoided by the use of a light, durable, easy-pulling, properly-balanced, 2-wheel Reliance Trailer.

Your hauling capacity is greatly increased with no additional investment in motive power. Your car is saved from wear and tear. The small-haulage problem is solved.

Reliance Trailers are built by experts who thoroughly understand trailer requirements. Easily fitted with any type body and quickly detachable. Guaranteed. Write for catalogs and name of our nearest dealer.

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1656 Howard St., San Francisco

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Reliance
HEAVY DUTY
TRAILERS
"The Trailer With Red Wheels"

Ask us about Reliance 4-wheel Trailers

FRUIT TREES

Ask about our JUNE BUDDED TREES also the DOUBLE BUDDED DORMANT STOCKS. They can be planted with splendid results. We still have a limited supply of one year trees. All of them are the leading commercial varieties.

FIG TREES

All the leading varieties such as Black Mission, Calimyrna, Kadota and White Adriatic.

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A Choice Selection of First Class Number One Vines.
Emperor, Flame Tokay, Malaga, Muscat,
Thompson Seedless.

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Riveted Steel Pipe, Oil and Water Tanks, Steel Flumes, Syphons, Stacks,
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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Curl Leaf

I am writing to you in regard to some five year old peach trees that have in the last few days developed curl leaf to some extent. These trees were properly sprayed with lime-sulphur. Is there any chance of saving them now and if so what would you suggest as best treatment?—Subscriber, Acampo.

We fear there is little help for these trees though a spraying with weak Bordeaux, 3-5-50, may prove helpful in preventing further spread of the trouble. If you had sprayed with the Bordeaux instead of lime-sulphur when the trees were dormant and just before bursting into bloom you would perhaps have prevented the more severe manifestation of this trouble.

Leaf Curl

Can you tell me what to do for my peach tree? I believe I pruned it too much. I only shaped the tree. The gum is coming out where the limbs were cut off. I put paint on the place. No fruit set on it and the leaves are curling. Sandy loam, well worked and fertilized with hen manure.—Subscriber, San Gabriel.

This appears to be simply an aggravated case of leaf curl which it is impossible to remedy this late in the season. Another year spray as early as possible after the leaves are off and again just before the swelling of the buds in the spring with Bordeaux, 5-5-50. See other query above.

Pear Leaf Blister Mite

Am sending pear leaves showing yellowing and discoloration, mostly in spots. What is cause and remedy?—Subscriber, Murrietta.

The pear leaves you sent in show the work of the pear leaf blister mite. This mite feeds under the bud scales and as soon as the leaves appear in the spring they bore into the under side of the leaves and deposit the eggs from which young mites emerge and cause the galls or blisters which later turn brown in color as indicated on the dry leaves which you sent. I very much question whether this pest is serious enough to warrant the expense of any treatment. However, if you consider that sufficient damage has been done, the treatment for next year is to apply a spray of lime-sulphur either in the fall just after the leaves have fallen or in the spring just after the buds begin to break. It is really too late now to accomplish anything until fall. Your pear trees are likely to be infested with the San Jose scale, in which case there would be this additional reason for applying lime-sulphur spray, and you can get the scale and the mites at the same time. The San Jose scale may be the cause of your trees dying, though, of course, you may be acquainted with the work of this insect.—H. J. Quayle.

Killing Eucalyptus

As to killing eucalyptus, the method suggested in the Cultivator of February 26 is effectual, but it is much more expensive than is necessary. I believe that the method given below will save a large part of the cost of killing eucatyptus roots. After the tree is cut down the stump will start perhaps a hundred sprouts. When they are a foot long take a sharp hatchet and cut them off; time two minutes. Some weeks later there will be perhaps 50 new sprouts. Cut them off as before; time one minute. Some weeks later there may be 25 new sprouts. Destroy them; time one-half minute. Some weeks later the most vigorous stumps may have a dozen sprouts. Cut them; time one-fourth minute. Most of the trees are dead now. If ahy are living give each one-eighth minute. Probably they are all dead, now. If not, another treatment gets the last one. Time in all, five minutes per tree. If the trees are watered they are harder to kill. It takes a little longer, that is all. It is surprising how soon blue gum stumps will rot in the ground. Some other species may take longer.—A. C. Pickett, Riverside.

Meat of Boar

I have five months old boar pig which I wish to butcher. Will the flesh of such animal be "strong" in flavor or unfit for food?—Subscriber, Alhambra.

Possibly the meat may be sweet and all right, but there is possible danger of poor flavor. The question was referred to Mr. Gordon and he writes: "It is undesirable to use the meat from a boar for pork. It would be more desirable to alter the boar and feed him for a month or six weeks, at which time he would put on some fat and the meat would be much more desirable. However, the meat from a boar only five months old would not be found very objectionable and if it is necessary to butcher him immediately, the meat can well be utilized."

Computing Horsepower

How is the S. A. E. rating of the horsepower of engines computed?—Subscriber, Hemet.

Answer by Prof. L. J. Fletcher, U. C.: Horsepower is the product of a force moving a certain distance in a certain time. In a gas engine this force is the pressure on top of the piston head. The distance is the length of the stroke, and the time is the number of strokes the piston makes per minute, which is reduced for convenience to the total number of feet traveled per minute. The unit of force is the pound, and the unit of power is the horsepower. If a force, such as a pull of 1,000 pounds, is exerted by a tractor which moves at the rate of two and one-half miles an hour, the distance this force will move in a minute times the 1,000 pounds will give a product in "foot-pounds" which, in this case, is equal to 220,000. 33,000 of these foot-pounds per minute is the equivalent of one horsepower, so the above tractor is exerting 220,000 divided by 33,000, or 6 2/3 horsepower.

In figuring the horsepower developed by a gas engine a certain per cent of the pressure of the expanding gas on the piston head is delivered in a turning effort or torque to the crank shaft or pulley. This power is frequently spoken of as the brake horsepower. The S. A. E. (Society of Automotive Engineers) formula for obtaining this brake horsepower is D squared. multiplied by N, divided by 2.5. (D is the diameter of the cylinder in inches and N the number of cylinders.) In deriving this formula two things are taken for granted in the operating of the motor: one is that the piston speed is equal to 1,000 feet per minute, and the second that the average pressure on the piston during the working stroke is 90 pounds per square inch. Because of the fact that in the modern engines piston speeds

often run up over 2,000 feet per minute and mean effective pressure over 120 pounds per square inch, it is evident that the formula often gives a result much below the horsepower which the motor can actually develop.

WHAT WILL THE HARVEST BE?

(Continued from Page 551.)

We have considerable damage in some of the vineyards from frost, causing a good deal of set back, but at present I would think there would be anyway 75 per cent of a crop.

The temperature dropped below 30 degrees since the foliage started on two occasions in this immediate vicinity, and a report reached us yesterday that it had gone as low as 22 per cent in the Clement district, about 12 miles northwest of Lodi.

FRUIT IN GENERAL

From notes for week ending April 9, received from the bureau of agricultural statistics at Washington, we give the following summary:

Kansas—A few peaches and cherries have escaped the Easter freeze. Early apples, Jonathan and Stayman Winesap, seriously injured. Ben Davis, Gano, Winesap, York Imperial and Grimes quite generally escaped injury. Berries apear uninjured.

Louisiana—Strawberry crop is still moving in large quantities from the Tangipahoa strawberry section. Good prices for strawberries are being received.

Maryland—Serious damage reported by the freeze of March 27 and 28 to peaches, pears, early apples, plums, cherries and early strawberries.

Michigan—Fruit beginning to bloom in southwestern counties.

Nebraska—Some further damage expected to tree fruits from the low temperatures of the last two days of the week. Very little damage reported to small fruit as yet.

New England States—Apples were not far enough advanced to be hurt much by recent cold snap but peaches may later show the effects by a light set of fruit.

New Mexico—Indications are that practically all the fruit of all kinds has been killed, including apples and pears, as the nights of both April 6 and 7 were very cold.

North Carolina — Fruits have not been damaged as much as first thought and especially so in the Piedmont territory. Mountain counties suffered most.

Oklahoma—Some peaches and cherries survived the recent freeze. Apples, pears and berries were severely injured but promise one-fourth to one-half crop.

South Carolina—Condition of strawberries excellent.

Tennessee—Peaches, pears, cherries and plums were seriously damaged by frost in the central and western sections. Apples not so badly damaged. Strawberries checked in growth and many killed.

Utah—Apricots practically all killed and peaches and cherries considerably damaged. Apples and pears believed unhurt so far.

Virginia—Stone fruits practically a failure except in extreme southern section. Estimates of apple prospects vary from total failure in some sections to 50 per cent of a full crop in others. At present hardly more than 15 per cent of a full crop for the state is indicated.

Arkansas—Frost damage to apple crop as yet indefinite but probably about 10 to 20 per cent of a crop left. Peach crop fairly favorable in the northeastern section along the foothills and as far north as Lawrence County. Strawberry acreage shows increase. First express shipments from White County made on April 4.

California—Grapes in San Joaquin valley show greatest injury. Apricots affected with brown rot.

Colorado—Reports show considerable damage to cherries and apricots and possibly slight damage to peaches and pears in Mesa, Delta, Montrose and Fremont Counties. Apples apparently uninjured.

Delaware — Damage to peaches, pears, plums, cherries and apples seems to have practically ruined the prospects of many growers. Late varieties of apples believed uninjured. Early strawberries suffered severely.

Florida—Early citrus prospects continue excellent. Crop moving as fast as conditions will permit. Condition of pineapples on the East Coast improving. Peach prospects good; pears showing blight.

Georgia—Fruit practically uninjured by cold weather. Peach prospect good. Adult curculios are reported as appearing in the peach district in Fort Valley.

Idaho—Early cherries, apricots and peaches in bloom when cold weather came. Apples, prunes and pears not far enough advanced to be injured.

Illinois—Recent frost caused much damage. Reports indicate that apricots have been generally killed; peaches, pears and plums badly injured in central areas and killed in the south; apples, badly damaged in the south with the exception of a few late apples; strawberries generally killed in southern third of state.

Indiana—Damage to fruit by the freeze March 29 is now thought not to be as great as at first reportsd.

Iowa—Plums and pears probably injured; winter apples believed to have escaped. Considerable apprehension felt as to safety of fruit buds, especially peaches.

SCHOOL AGRICULTURAL FAIR

It would have been an education to many farmers and ranchers to have attended the agricultural fair held by the Pasadena high school students, Friday and Saturday of last week. The club students had completed their contest and were ready for the awards. Vegetables and other agricultural products, domestic products, poultry and livestock grown and developed by the boys and girls were on exhibition, and in most cases showed no indication of amateur effort. In the pig club feeding contest Herbert McDade won first prize with his Berkshire gilt, making a 50 per cent profit. Warren Olson won second on a Poland China with a 49 per cent profit; William Schilling, third on a Duroc-Jersey with 45 per cent.

In the best hog contest Herbert McDade's Berkshire won over all breeds, with Warren Olson's Poland China running second.

In the free for all schools contest the Inglewood Union high school took first on Berkshires and Jerseys, Herbert McDade taking first with his Jersey heifer in the Pasadena entries.

G. E. Gordon, assistant farm adviser of Los Angeles County, did the judging and complimented the boys highly on their results. He said most of the entries were so good he regretted to be obliged to place some of the animals second and third.

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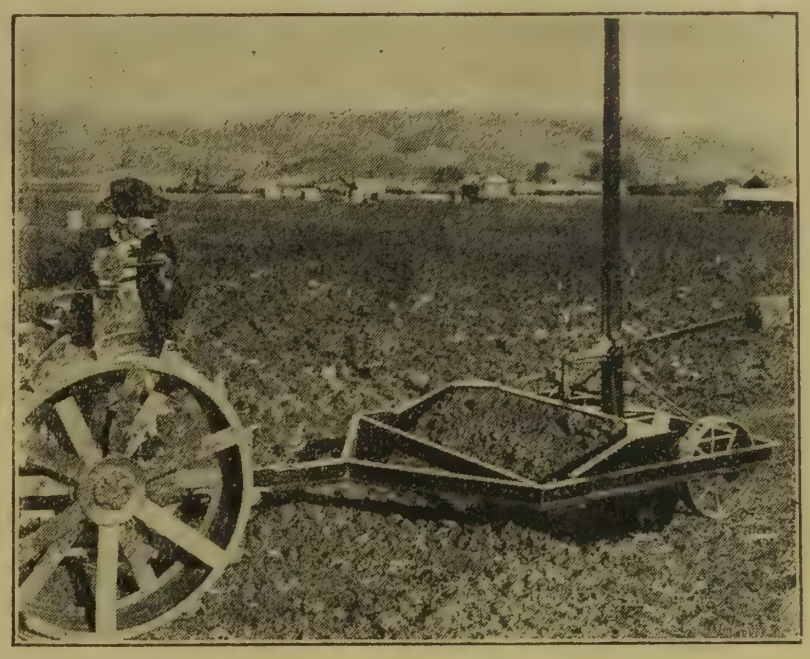

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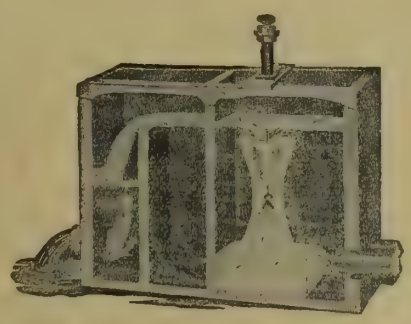

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Household Department

THE TWO GARDENERS

By T. Dabney Marshall in The Flower Grower

I should be glad,
But do get mad,
When people speak of my "good luck.'
"We don't know why,
But ours all die.—
How do you get such splendid truck?

I fume and snort
And straight retort:—
It is no such a thing.
It's dig and toil,
Perspire and broil,
If things to bloom you'd bring.

Your seed you sow,
And think they'll grow,
While you attend the picture show;
You moan and sigh
And almost cry,
When they refuse to blow.

You say you can't
Dig round this plant,
It is so cold and damp;
Then open eyes
In hurt surprise,
Should it from life decamp.

When it gets hot,
You straight absquat—
Ulate for shady bank.
With such neglect,
You can't expect
Your blooms with mine to rank.

I scratch and scratch
My garden patch,
Nor fear the dirt and mud;
I stoop and bend,
Each plant attend,
Though it should rain a flood.

I kill each weed,
Whose hungry greed
Would make my plantlets lean.
I cannot rest,
Nor life have zest,
Until my garden's clean.

With "curkle" burrs
And prickly furze,
I wage eternal feud;
But Oh! Alas!
The Coco grass,
I have not quite subdued.

On chewing gum
And things as bum,
You make your money fly;
Insecticide
You won't provide,
And pass bug poisons by:

While of vermine
And strong aphine,
I buy a good relay;
With Paris Green
And nicoteen.
I daily dust and spray.

In magazines
You read of queens
By husky heroes wed;
You still pursue
The villians, too,
Till they are copped or dead.

A garden guide,
It is my pride;
I study catalogues;
Each blossom's name
I can proclaim,
Tho' oft my tongue it clogs.

And tho' success
My toil may bless,
For what I've got I paid;
And so 'twill be
I think, with me,
Till in the ground I'm laid

It may be tragic,
But there's no magic,
When pretty pansies perk;
My lazy dear,
Lend me your ear,
The only magic 's WORK.

HALF WAY AROUND THE WORLD

By Rose Wilder Lane in The Red Cross Bulletin

RAGUSA, Dalmatia, March 16. —Human sympathy is wide enough to encircle the earth; the Red Cross that is a symbol of that sympathey is everywhere the sun shines. But our imagination is not yet as great as the need for it. There is no doorstep in America on which a naked new born baby could lie wailing and disregarded; not a woman in America who could not find somewhere in her house something to wrap around the baby to cover him and keep him warm. But Ragusa is not on the doorstep of America; it is half around the world.

The sun is just beginning a new day in Ragusa. (The theaters are lighting Broadway with their electric signs; the children of the Middle West are getting their lessons after supper; the headlights of automobiles are flashing along the boulevards of the Pacific Coast.) The sun is rising behind the gaunt gray mountains bare of trees and shining down on the gray walled town that was the proudest city of the Adriatic eight centuries ago.

Ragusa is still the walled city that defied the Venetians when Dalmatian sailing ships ruled the seas of the known world. The road that goes into it is cut 60 feet deep through gray rock and arched overhead with stone bridges and towers. The moat—filled now with growing trees—is wide; the outer wall, guarded by watch towers and battlements, is pierced high overhead with holes, behind which the archers stood—pigeons are nesting in them now. The narrow road goes between the towers, beneath a long arch of crude stones, and winds between the outer and the inner walls to the second guarded gate. Then one is within the old city, gray white and dazzling in the bright sunlight. No carts can go through the narrow streets between the low, square houses of stone; these were built only for the passage of donkeys, and men on foot; they go up and down stone steps, and over them are arches that are bridges from second floor to second floor. The only open space is the square, the public meeting place, paved with heavy cubes of the gray rock, wide as an American village street, and crowded with men and women—Albanians, Turks, Herzegovinians, Serbs, Croats. At one end of it, above their heads, our American flag is a bugle note of color against the rough stone wall, and beside it is the Red Cross on the white banner.

Prince and Princess

You go up a narrow, winding stairway of stone to the offices. A heavy wooden door opens into the bare room; there is a crude wooden table—wood is rare and hard to get in Dalmatia—and a packing box. Captain Spratt of Jacksonville, Florida, is talking in French to a ragged, unshaven man:

"I am sorry—the only thing I can give you is a hospital suit—convalescent garments. It will be clean and whole, but it is hardly the thing you would want to wear outdoors."

"I shall be glad to get it, thank you," the man replies. He looks like a man you would pass as a tramp on an American road, but his French and his manner are perfect. Who is he? He is Prince Chakhevski, one of the Russian refugees. And he is quite happy. He has found a job; next week he will be earning ten dinars a day, or almost 20 cents. With that and another suit, so that he can change and wash and mend his old one, he will be entirely content.

Captain Spratt is pleased and interested; he asks questions. The job, the Prince says, is that of beekeeper. Does he know anything about bees? Not a thing. Isn't he afraid the little honeymakers will sting? "Ah, yes, monsieur! But what would you? One must live as best one can, and it is a job. I have looked for one so long, I am pleased to have this; and no doubt, with the use of my utmost intelligence, I shall become a good beekeeper. The Princess," he adds, warmed by sympathy, "also has a job."

"Yes, I know; isn't it fine!" says Captain Spratt.

The Princess is earning 15 dinars a day sewing in the Red Cross workrooms. Mrs. Spratt, the Captain's wife, is not one of the Red Cross personnel; but she is in Ragusa, and that makes all the difference in the world. She was unable to be in Ragusa without doing something and so she organized the sewing rooms. Cloth was sent from the army stores in Paris, six sewing machines were brought from America, and the Russian refugees began to clothe themselves in whole new garments.

Workrooms and Workers

Up on the hill above the walled city is the great Hotel Imperial, the hotel that was crowded with glitter and luxury in the days before the war, when Ragusa was the Riviera of the Adriatic, and during the season yachts from all the world lay at anchor in the harbor. The sewing rooms are on the first floor and they are like ten thousand Red Cross workroms at home. No, not like the Red Cross workrooms at home now, but like the places that were in every small American town during the war, when, after dinner, we all went down to the vacant store on Main Street and spent the afternoon sewing piles of little cut-out garments.

The Red Cross workroom in Ragusa looks like that. But only at first

The Cultivator Patterns

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3400. An "Easy to Make" Apron. Cut in four sizes, small, medium, large and extra large. A medium size will require 2¾ yards of 27 inch material. Price, 10 cents.

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3558. Ladies' Dress. Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 4⅞ yards of 40 inch material. The width of the skirt at the foot is two yards. Price 10 cents.

3564. Girl's Dress. Cut in four sizes, 6, 8, 10 and 12 years. A 10 year size will require 4¼ yards of 27 inch material. Price 10 cents.

3573. Ladies' House Dress. Cut in seven sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 5⅞ yards of 36 inch material. The width of skirt at the foot is about 2¼ yards. Price 10 cents.

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PATTERN DEPARTMENT
California Cultivator
Los Angeles

glance. There are the six sewing machines, the tables, the piles of cloth. But there are no scraps lying on the floor, and no wads of basting thread or snowfall of clipped thread ends to be swept up and thrown away when the work is finished. And the women are not well dressed and plump and talkative; they wear makeshift garments—blue cotton blouses and heavy shirts and worn shoes; their hair has been combed by hands that have long ceased to trouble with the useless detail of personal appearance and they do not look up from their work. They sew, steadily and desperately, hurriedly, but with the utmost care not to waste even a snip of thread. Their very fingers know how precious a garment is.

The workrooms have been running for two months. In that time they have turned out 30,000 garments—coarse underwear for women and men, cotton blouses, overalls. The material was brought from America; the thread was brought from America; the needles, the sewing machines, the sewing machine oil, were brought from America, across the Atlantic, up the Mediterranean, half the length of the Adriatic. There is no cloth in the Balkans.

It is hard to realize just what that means. Cloth is so much a part of our lives that we take it for granted. We complain, with our closets full of old clothes, with towels in our bathroom, dust cloths on their nails, neat rolls of bandages in the medicine cabinet, handkerchiefs in our purses because we want new summer dresses and the price of organdie is simply frightful. One must imagine all these things gone and nothing to take their places, in order to know the value of cloth.

No Such Word as "Waste"

With the scraps left when overalls were cut out, blouses were made; with the scraps left, baby dresses are being pieced together. For the babies of Jugo-Slavia are being born in stone huts among the mountains, with nothing to clothe them in.

"The average mother in Montenegro," says Miss Elsie Benedict, director of the Junior Red Cross there, "would commit murder to get a piece of soft cloth. I mean that, literally. She would kill for it. They have absolutely nothing to wrap around their new born babies but the coarse, hard woolen that they spin and weave from the wool of their own sheep. It is like knives to a baby's skin. We find them raw and bleeding, crying—but what can their mothers do? The baby will freeze if it is left naked and the coarse blanket is the only thing with which to cover it. They are lucky to have even that."

From Ragusa Mrs. Spratt and the other Red Cross workers remember longingly the riches of America—the yard of fine, soft cloth that costs only 25 cents, the half used spools of thread in sewing machine drawers, the sewing machines themselves, standing idle through whole days, and the idle hours of the women who were doing so much with one afternoon a week three years ago.

The Red Cross workers in Europe have estimated carefully that one million babies will be born on this side of the earth this summer to mothers who will have nothing with which to clothe them, and it is a long and costly affair to bring a sewing machine from New York Harbor to the coast of Dalmatia. There are a million women in American who could make a complete layette in four rather happy afternoons if our chapter rooms were open and busy again. They would use the idle time, the idle machines, the cheap cloth and thread, and the babies of Europe would be clothed quickly and simply.

It seems, from here, such a simple thing to do—as simple as it would seem to the woman at home to find something soft and comfortable for the naked baby if it were on her doorstep. But perhaps it seems so because, to us here in Ragusa, the baby is on our doorstep; and there is no soft cloth in Jugo-Slavia, no thread, and only a few sewing machines.

MICKIE SAYS:

"Th' man who has a thing t' sell
Who goes 'n whispers down a well,
Ain't near so apt to collar th' dollars
As him what climbs a tree 'n hollers.
—Shakespeare."

ANSWERS TO HOUSEHOLD QUERIES

By Mrs. A. Stainton, San Francisco

For Mrs. L., Winters—Sugar Pie

One cup each of granulated sugar and syrup, two well beaten eggs, a small piece of butter (about a tablespoon), pinch of salt, vanilla to taste, tablespoon lemon juice. This mixture should be beaten up well, then poured into a good crust; bake until it is of the consistency of custard.

For A. B., Orange—Jelly Crystallizing

If the sugar does not all dissolve and mix thoroughly with the fruit juices some of the sugar used is likely to crystallize out after the jelly stands for a while. These crystals may be seen throughout the jelly.

A storage place that is too warm will cause the sugar in preserves to undergo its crystalline change and then the preserves will be full of hard candied sugar. The perfect storing place for jellies and preserves requires coolness, dryness and plenty of air circulation. On the floor under the shelves is a good place. The cool, equable temperature seems to be just about right. In front of them hang a thick curtain.

The addition of one-half teaspoon of glycerine to a pint of jelly or preserves just before pouring into the jar will prevent formation of crystals.

For St. Helena Subscriber—India Pickle

To each gallon of vinegar allow 6 cloves of garlic, 12 shalots, 2 sticks of sliced horseradish, ¼ pound bruised ginger, 2 ounces whole black pepper, 1 ounce long pepper, 1 ounce allspice, 12 cloves, ¼ ounce cayenne, 2 ounces mustard seed, ¼ pound mustard, 1 ounce turmeric, a white cabbage, cauliflowers, small round pickling onions, etc., etc. Cut the cabbage into slices and the cauliflowers into small pieces; sprinkle salt over them in a large dish and let remain two days. Then dry and put into a very large jar with garlic, shalots, horseradish, ginger, pepper, allspice and cloves in above proportions. Boil sufficient vinegar to cover them, which pour over and when cold cover to keep free from dust. As the other things for the pickle ripen at different times, they may be added as they are ready. These will be radish pods, French beans, gherkins, small onions, nasturtiums, capsicums, chillies, green tomatoes, plums, peaches, lemons and anything else you wish. As they are gathered they are washed in a little cold vinegar, wiped, and simply added to the other ingredients in the large jar, only being careful to have them covered by the vinegar. If more vinegar should be needed, be sure to boil it before adding to the rest. When you have collected all the things you want, turn all out into a large pan and thoroughly mix them. Put the mixed vegetables into smaller jars, without any vinegar, then boil the vinegar again, adding more with spices in proportion, if necessary, to fill the jars. Pour the vinegar boiling hot over the pickle, and when cold, seal. If the pickle is wanted for immediate use, the vinegar should be boiled twice more, but the better way is to make it during one season for use during the next. It will keep for years if care is taken that the vegetables are quite covered by the vinegar.

HOUSEHOLD NOTES

There are few homes but harbor one or more good umbrella frames with wornout covers. Nice new covers can easily be made for these frames from black sateen or any preferred material. Rip out one section of the old cover and use for a pattern. Use the selvage for the bottom of the new piece each time, reversing the pattern so as to do this. To mend an umbrella, take a small piece of sticking plaster of the same color as the cover and soak it in water until soft, then place this smoothly under the hole and let dry.

Before tacking down oilcloth or linoleum, if you would have it smooth, let it lie in place and be walked on for several days. You will have no trouble in keeping it bright if equal parts of milk and water are used for cleaning.

Sew strips of buckram along the edges of rugs which have a tendency to curl up.

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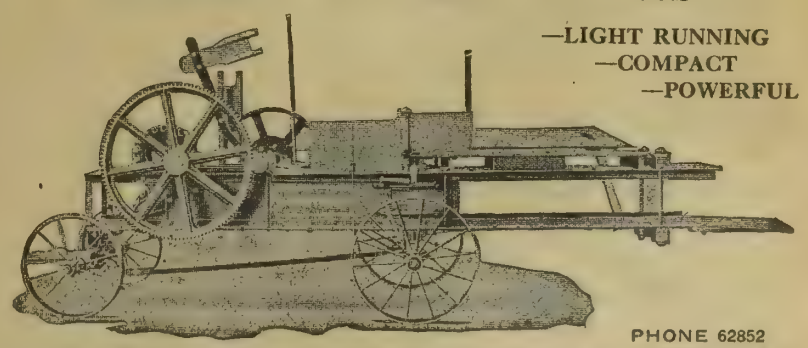

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Essentials of Animal Breeding

By George M. Rommel, Chief, Animal Husbandry Division

(No branch of agriculture has been surrounded with more "hookum" than has been the breeding of farm animals. This "hookum" has extended all the way from "pre-natal influence" to the control of sex and color. In the hope of correcting many of the unfounded beliefs we take pleasure in publishing the following liberal extracts from Farmers' Bulletin 1167.—Editor.)

IN dealing with the subject of heredity we must recognize clearly the following facts: First, animal and plant forms, as a rule, have developed gradually and very slowly, by very small changes; in short, by the process known as evolution. Second, whatever an animal has, so far as its inheritance is concerned, it gets from its parents—they get theirs from their parents, and so on clear back to the beginning; nothing was imposed from the outside. For the present, accept this fact without question. We shall try to make it clear later. Third, a very clear distinction should be drawn between the effects of inheritance and the effects of food and environment.

Everyone who is at all familiar with domestic animals knows what a wonderful effect the food an animal eats has on its development, especially when it is young. It is also known that the younger an animal is the more readily it is influenced by its food. Now, from the very first moment that a young animal begins to develop, from the very instant that growth begins with the fertilization of the egg cell, it receives food from some source or it dies. When it is only a single cell it is being fed. If a young animal after birth is easily influenced by its food, how much more will the delicate little creature, known as the fetus or embryo, be influenced by the character of its food supply. A clear recognition of this fact will explain many occurrences which are often attributed to supernatural influences, and, at the same time, the breeder who recognizes this fact will not neglect proper attention to the nourishment and care of the pregnant mother as well as the nursing animal.

Accidents and disease also are important in their effects on the growing embryo. If an incubator is neglected on a cold night and the eggs become chilled, the hatch is seriously impaired and a large number of chicks are killed in the shell. If an in-foal mare is subjected to very heavy strains or forced to pull extremely heavy loads, the foal may be born too soon or even killed in the womb. Contagious abortion may get into the herd without the owner's knowing it and cause the loss of a large proportion of calves. Heredity, however, has nothing whatever to do with any of these things.

The Unit of Life

The smallest unit of life is the cell. A single cell is very small, usually of microscopic size. It is surrounded by a membrane, and each cell usually contains a nucleus—a sort of center of things that go on in the cell. The animal body contains millions of cells, but those in which we are most interested at this moment are the cells from the union of which a new animal life begins. They are the germ cells. They contain the hereditary material which determines the identity of each individual and which is known as the germ plasm. This is the bit of life which passes down the line of descent with each succeeding generation. It appears in the mother in the egg cell, and in the father in the sperm cells. This material is composed of elements which seem to be handed on unchanged from generation to generation. Only a portion of the elements in the germ plasm of the parent goes into each egg or sperm, however, as is explained in more detail later. The element of chance enters to such an extent in determining which elements shall go into a particular germ cell that there may be a marked dissimilarity among individuals which are members of the same family. Even more important than the influence of food on the developing embryo and the young, growing animal is the operation of chance in determining the identity of the new life.

The cells from which all life starts are developed in the generative organs. The egg (the female cell) is dveloped in the ovary of the female; the sperm (the male cell) is developed in the testicle of the male. In mammals each female has two ovaries, one on each side, situated in the abdominal cavity. Connecting the ovaries with the uterus are the Fallopian tubes. The uterus is the womb, the chamber in which the young fetus develops until it is ready for birth. The uterus connects with the vagina, through which the sperm is introduced into the uterus and down which the young animal passes at birth. The genital organs and the urinary organs have the same outlets from the body.

When the egg matures in the ovary it passes down the Fallopian tubes into the uterus. If no sperm is introduced, the egg is thrown off infertile. In female animals an egg matures at fairly regular intervals, and this corresponds with some exactness to what is known as the period of heat or oestrum.

The period of heat varies considerably in different species and in different breeds and individuals of the same species. It usually occurs at intervals of about three weeks. In mares it appears on the ninth day after foaling, lasting two or three days. In cows it appears in from three to four weeks after calving when the cow is not suckling a calf, and in from six to eight weeks if she is. The heat period lasts only about one day in cows. Sows come in heat three days after farrowing, and not again until a week after the pigs are weaned. In sheep, except for a few breeds, such as the Dorset, ewes in North America ordinarily come in heat only in the fall for a number of periods of two or three days each at intervals of from two to three weeks.

Females usually accept service only during the period of heat. It seems to make little difference when service is made, whether early or late in heat. As a rule, not more than one service is necessary during one period of heat to insure conception. After conception takes place the female does not generally come in heat again during pregnancy.

Male cells, or spermatozoa, are carried in the seminal fluid. There is only one egg, as a rule, except in such animals as hogs, rats and others, which usually have several young at a birth. There are, however, millions of sperm cells, but only one of them is needed or used to fertilize one egg. Let us now proceed to a consideration of the first step in the formation of the new life.

The Beginnings of Life

The life which results when two animals are mated has its controlling elements in the nuclei of the germ cells. The nuclei contain a substance called chromatin, represented by very minute bodies called chromosomes Chromatin and chromosomes are found in all cells all over the body, and the number of chromosomes in each cell is the same for each species of animal. Except for the accessory chromosome (which determines sex), they are always in pairs. In many of the domestic animals and in man the number of chromosomes is between 40 and 48, depending on the species. Just why this number should be limit-

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ed and invariable we do not know. It is no more remarkable, however, that each cell in the hog's body, for example, should have 40 chromosomes (which is the case) than that each normal hog should have four legs.

This is easily understood until we come to explain what happens when the egg cell is fertilized at conception. Obviously an egg with 40 chromosomes and a sperm cell with 40 chromosomes could not unite, because that would result in a cell with 80 chromosomes and only 40 is the rule. It just wouldn't work, any more than a pig with eight legs would work. Therefore, to prevent the doubling of the number of chromosomes at conception, nature puts the germ cells, both male and female, through a maturing process known as maturation, so that, just before the two unite, each has only half the normal number of chromosomes for the species, one from each of the pairs present before maturation. When the two cells unite, therefore, the fertilized egg has the usual number of chromosomes carried by the cells of the species. This process occurs only in the case of reproductive cells.

When two animals are mated, what happens? The reproductive cells have gone through the maturing process and are now ready for union. The sperm cells are active and move around until they come into contact with the egg. Several may surround the egg, but only one unites with it. The membrane surrounding the egg cell is pierced by the head of a sperm cell. The two become one and the egg is now fertile. It needs only nourishment to become in time a full fledged baby member of its race.

Food, of course, will have a profound influence on this little mite of life, but, so far as we know, the character of the resulting animal, its sex, its identity and its individuality, whether it is to be white or black, long-haired or short-haired, ring-streaked or spotted, are now settled by the laws of life. This minute cell now carries in itself all the force of inheritance from all the ancestors behind it to the beginning of life on earth. Every champion you or I have known began his career in just this way. Many, many influences stepped in and had an effect on his subsequent development. Some of these are easy to determine, but others are so obscure that theories and fancies have grown up to explain them.

What value has this information for the practical breeder? Can he use it in making his methods more efficient? He cannot use it directly, but indirectly it can be most valuable to him, becase it explains many things that otherwise are difficult to understand.

Suppose we are breeding animals in which the number of chromosomes is only four (two pairs). By the time both egg and sperm cells had gone through the maturing process and the egg had been fertilized, 16 different combinations would be possible, some of them no doubt differing very little from each other, but others having little mutual resemblance. In animals such as hogs, however, with 20 pairs of chromosomes in each cell, the possible combinations are almost infinite in number. (The number of possible combinations in this particular case is 1,099,511,627,776.)

These combinations are the results of chance. Here we have an egg with 20 pairs of chromosomes, about to mature. Twenty of these chromosomes only will be left when the egg is ready to unite with the sperm cell. What 20 will it be? Chance alone can tell, except that there will be one from each pair. Here comes the sperm cell, to mature which a similar process was gone through. Chance again determined that 20 out of the original 40 chromosomes should disappear and no determination can be made to show which 20 would prevail. But this is not all. The sperm cell does not come alone. It comes in swarms, but only one sperm cell penetrates the cell membrane and fertilizes the egg. What determines which of the thousands of sperm cells will be the one? Chance again.

The chromatin is the chief, if not the sole, determining factor in the development of the identity of the new individual, and the chromosomes are the agents by which this identifying process is carried out. When we think of the great number of combinations of chromosomes possible before fertilization is actually effected, we begin to understand why it is that members of the same family often do not look alike and why we have so many disappointments in breeding animals.

If chance is the sole factor in determining what chromosomes shall persist, where does intelligent breeding come in? Of what advantage is it to exercise care in mating? Why not leave it all to chance?

The simple answer to these questions is that we can lessen the probability of undesirable working of the laws of chance by increasing the uniformity of the chromosomes. That is done by careful selection to a certain type and by working with a group of animals whose ancestry is known. The highest examples of such methods are found in the work of breeders of pure bred livestock where unbroken and known lines of descent run back for a great many generations, sometimes for 50 years or more on a single farm under the ownership of a single human family. The discussion of the subject of selection will be found under that heading later.

(To be continued.)

KELLY HOLSTEIN SALE

The John J. Kelley Holstein sale on April 27 will offer to Holstein buyers opportunity to secure well bred Holsteins of quality. Included in the sale will be found a number of descendants of the wonderful dam, Mutual Ormsby De Kol 75458. This cow was born February 7, 1905, and at 24 months of age made an ARO record of 15.41 pounds butter in seven days. Fourteen years ago a 15 pound two year old was considered something out of the ordinary ,and if she had been handled as test cows are today she would undoubtedly have made 30 pounds or better. Mutual Ormsby De Kol was shipped to California with a number of other Holsteins to make the foundation of the Whittier state school herd. It was at Whittier she gave birth to the bull, De Kol Hartog Pontiac 123450, sired by a son of the King of the Pontiacs. This bull was placed at the head of the Rio Vista Holstein herd owned by Col. Ben A. Rhoades, where he sired a number of very choice individuals, some of which are included in this sale. De Kol Hartog Pontiac is also the sire of De Kol Hartog Pontiac 2d, who was out of the former state record two year old, Eva Riverside of Tuolumne, 25.11. This young bull was designed to be the junior herd sire of the Rio Vista herd on account of the wonderful producing ability of the dam whose record was made there. The daughters of these two sires are now widely scattered among the good herds of California and wherever given an opportunity have always made good.

Dispersal of Choice Holsteins

Norma Korndyke Cornucopia 38.41 lbs. butter from 673.1 lbs. milk in 7 days. She is a granddaughter of Pontiac Korndyke, and is the highest 7 days record cow ever sold at public sale in California.

THE VICTORY HERD

Owned by

H. E. Spires and J. M. Crawford

Hillcrest Ranch

Carruthers, Cal.

Wednesday, May 11, 1921

This dispersal is necessary in order to dissolve the partnership existing between H. E. Spires and J. M. Crawford, as the only means by which they can arrive at the actual value of the herd.

Neither partner will retire from the breeding of registered Holsteins, but they have made a positive agreement that neither one will bid on or buy a single animal in this sale, in order that there may be absolutely no question in the minds of other buyers as to the position of the owners.

THE VICTORY HERD is a choice collection of young cattle, including several really outstanding animals. The herd has been handled under average dairy conditions and in official test work has developed some splendid producers.

The sale contains the highest 7 day record cow ever sold at public auction in California, and a group of twenty-four granddaughters of the famous Hackney bull King Segis Pontiac Count, affording California buyers their first opportunity to buy so many females of this breeding at home. The list of females includes

NORMA KORNDYKE CORNUCOPIA, 38.41 lbs. butter from 673.1 lbs. milk in 7 days. She promises to make about 150 lbs. butter from 3000 lbs. milk in 30 days, milking as high as 114 lbs. in one day, and will be carried on test right up to sale day and sold open. She is a most attractive individual, with plenty of size, and is sired by a son of Pontiac Korndyke and out of a daughter of King Korndyke Cornucopia, whose 26 lb. dam made 722.07 lbs. butter from 17,245.4 lbs. milk in 278 days, and she is a daughter of the century sire Aaggie Cornucopia Johanna Lad. Last year, as a junior 4 year old, Norma Korndyke Cornucopia made 28.72 lbs. butter from 665.1 lbs. milk in 7 days.

A YEARLING DAUGHTER of Norma Korndyke Cornucopia, sired by Sir Piebe De Kol Segis Pontiac, son of King Segis Pontiac Count and a 717.46 lb. yearly record cow.

A HALF SISTER TO NORMA KORNDYKE CORNUCOPIA, by the same sire, out of a granddaughter of the century sire Changeling Butter Boy.

A HALF SISTER TO NORMA KORNDYKE CORNUCOPIA, by the same sire, out of a granddaughter of the century sire Sir Pietertje Hengerveld Segis.

TWO DAUGHTERS of the above cow, full sisters, sired by Sir Piebe De Kol Segis Pontiac, both with over 15 lbs. butter in 7 days as 2 year olds.

A DAUGHTER OF A 27 POUND COW that milked 637.1 lbs. in 7 days, heavy with calf to Sir Piebe De Kol Segis Pontiac.

A 27 POUND 3 YEAR OLD granddaughter of King Hengerveld 6th out of a granddaughter of Pontiac Korndyke, bred to Sir Piebe De Kol Segis Pontiac.

A DAUGHTER of the above 27 lb. 3 year old, by Sir Piebe De Kol Segis Pontiac, bred to King Pontiac Alcartra Prilly, 36 lb. son of the three times grand champion King Segis Alcartra Prilly.

A 26 POUND JUNIOR 4 YEAR OLD that milked 561 lbs. in 7 days. She is by a grandson of King of the Pontiac, out of a dam sired by a grandson of King Segis.

A 22 POUND 4 YEAR OLD, bred to Sir Piebe De Kol Segis Pontiac.

TWO DAUGHTERS of the above 22 lb. 4 year old, full sisters, sired by Sir Piebe De Kol Segis Pontiac.

A 19 POUND JUNIOR 3 YEAR OLD sired by a 31 lb. son of Segis Pontiac De Kol Burke.

A DAUGHTER OF MERCI LAD KORNDYKE BURKE, grand champion at 1920 California State Fair, out of an 18 lb. 3 year old daughter of Prince Gelsche Walker. Heavy with calf to Sir Piebe De Kol Segis Pontiac.

24 DAUGHTERS OF SIR PIEBE DE KOL SEGIS PONTIAC, therefore granddaughters of King Segis Pontiac Count, many of them bred to King Pontiac Alcartra Prilly.

BULLS IN THE SALE

SIR PIEBE DE KOL SEGIS PONTIAC, born Feb. 16, 1914. He is by King Segis Pontiac Count, the famous bull owned by Senator Hackney in Minnesota, and is out of a dam that made 717.46 lbs. butter from 17,635.2 lbs. milk in one year. He already has 10 A. R. O. daughters, splendid producers, and he is only a young bull yet.

KING PONTIAC ALCARTRA PRILLY, the junior herd sire, is by King Segis Alcartra Prilly, the Bridgford three times grand champion whose daughters are starting off with extraordinary production at first calving. His dam is Spring Farm Pauline Pontiac 2nd, 36.63 lbs. butter from 816.1 lbs. milk in 7 days, 982.32 lbs. butter from 26,262.2 lbs. milk in one year. She has three 7 day records averaging 31.49 lbs. butter and 703.3 lbs. milk. His seven nearest dams average 31.02 lbs. butter in 7 days, and five of them have yearly records up to 1127.35 lbs. butter.

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Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer.

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The female offering includes a number of fashionably bred imported cows, and their daughters by sires of equally rich and popular breeding. The pedigrees present a wealth of May Rose and Masher breeding, than which there is no blood in greater demand.

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Before you actually see these great animals in the sale ring, no further comment than a summary of the 1920 show ring winnings of the herd is necessary, including 40 firsts, 36 seconds, a number of lesser prizes, and several championships at the California State Fair, Los Angeles Live Stock Show, Riverside Fair, and Arizona State Fair.

GOOD HEALTH

In five years of regular tuberculin testing by a Deputy State Veterinarian to meet the requirements of a certified dairy, only one animal in this herd has responded to the test.

Only this remains to be said — IF YOU WANT TO SEE GREATEST PUBLIC SALE OFFERING OF THE GUERNSEY BREED YET MADE ON THE PACIFIC COAST, BE AT THIS SALE.

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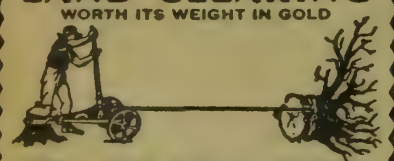

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Necessity of Raising Good Heifers

By C. V. Castle, Western Office Dairy Division

THERE are probably 25,000 cows on test in the western cow testing associations and probably 10,000 heifer calves dropped from these cows every year. To keep up this number of cows in milk probably 4,000 new cows must be added to the herds each year. This must be done either by purchasing cows or by raising some of these 10,000 heifer calves.

The average cow in the western associations produces more than 250 pounds of fat a year, while probably more than 10,000 cows average better than 300 pounds of fat a year. At the same time the average cow not in the testing associations averages considerably under 200 pounds of fat. Almost every man in an association has a goal of at least 300 pounds of fat set as an average for his herd, and there are a large number of herds that average better than 400 pounds and a few that will average close to 500 pounds of fat a year. Manifestly, then, no one should hope to keep up such an average and depend upon the market to replenish his herd, when it can be done by raising heifers from good cows and sired by the right kind of a bull. This is the only economical way to do it, yet there are a number of dairymen who are trying the other method. The wise dairymen, however, are raising their heifers, and in one grade herd in a western cow testing association 20 heifers which freshened in four years time had an average of 316.8 pounds of butterfat with first calf, one making 616.77 pounds and another 482.3 pounds. To have gone out on the market and bought cows that would average 316 pounds of fat with their first calf would have cost the dairyman from $75 to $100 a head more than it cost him to raise them.

It has been my observation from visiting many such herds and from studying their records that these heifers quite commonly equal the production of their dams with first calf and exceed them thereafter. It has also been my observation that heifers from similar cows, and in some cases from the same bull differ greatly in production when raised by different men and under different methods of feeding. It is because of this great difference in production, due to feed and care, especially with heifers with first calves, that I wish to state a few things that I think may help the ordinary dairyman to raise calves that will be better than their dams.

In the first place, because of the prevalence and wide spread of contagious abortion, and because of the effect of the abortion disease on the vitality of the calf and its resistance to diseases, such as scours and pneumonia, no man, no matter how healthy his herd may be at the present time, can afford to use slipshod methods in feeding and caring for his calves. Sooner or later this scourge may hit his herd and before he realizes it he may find that he has lost some valuable calves and that others are hopelessly stunted. That careful methods of feeding reduce the loss from this source has been proven again and again, and no dairyman can afford to take a chance and feed by guess, use dirty pails, and the many other bad practices that are commonly employed.

Another mistake that many dairymen make is to try to save a little money by putting the calf on skim milk when too young, and without supplementing it with grain; or to try and use so-called milk substitutes entirely when the calf is too young. Skillful feeders have been able to successfully put calves on skim milk at an early age, but from what I have seen of the practice, and from personal experience, I would say that it is an expensive method for most dairymen to follow. There is no satisfactory substitute for butterfat in the ration of the very young animal, and this applies to calves as well as to rats. Ordinarily a calf can be safely put on skim milk at a month to six weeks of age, six weeks to two months being better still, taking at least ten days to make the change. After the calf is three weeks of age it should be taught to eat grain so that the grain will at least partly take the place of the butterfat when it is removed from the ration. Skim milk feeding should be continued until the calf is from six to eight months of age, and a small amount of grain should be fed until the calf is ready to freshen unless the roughage or pasture is of the best. It is always well to feed a little grain until the calf is a year old.

For the man who has no skim milk I believe it is economical to feed fewer heifers but to continue some whole milk feeding until the calf is from three to four months of age, giving eight to ten pounds a day for the first two months and smaller amounts thereafter. The calf should be taught to eat grain when a few weeks old, and as the whole milk is gradually reduced, a calf meal, either home made or purchased, may be used to supplement it until the calf is six months of age, when grain may replace the calf meal.

A mistake that is commonly made is to let the calf eat hay when too young. The average calf is better off without any hay whatever until past three weeks of age. Alfalfa hay is more liable to cause indigestion in young calves than either grain or milk and should be the first thing to be removed from the ration if the calf shows signs of indigestion.

Another mistake that is commonly made is to put new born calves in a pen with older calves, thereby exposing them to scours and allowing them to eat hay before their stomachs are ready for it. Small calves are best cared for when shut up in individual pens or else tied so as not to be able to reach other calves until a month old.

One reason why young hand fed calves look unthrifty is that they are taken from the cow too soon and then fed milk from the herd which is unsuited to them. The calf does best when it is left with its mother for a few days and then fed on its mother's milk or on the milk of some other fresh cow for several weeks.

Another common mistake is to try and cure scours, especially the contagious kind, abruptly. This often results in chronic indigestion and a stunted calf. Contagious scours runs a course of several days and no strong medicine should be given to check it sooner than this. The best way to cure the calf is to remove all hay and grain and reduce the amount of milk. A tablespoon of blood meal or rennet placed in the calf's mouth several times a day is quite effective. A teaspoon of a solution of one part formalin in 30 parts of water, put in the milk at the rate of one teaspoon per pound of milk, can go along with the other treatment. In bad cases some of this formalin solution with a teaspoon of baking soda can be given in some warm water. Hot enemas, not above 110 degrees Fahrenheit, are also useful in case the calf gets weak and cold. Care must be used in getting the calf back on feed. There is no need of having a stunted calf, but at the same time there are hundreds of them in the country today and many calves die from the effect of scours.

Heifers properly fed and handled when young, either grade or pure bred, will make enough more butterfat with the first calf to more than pay for the cost of raising them compared with the cost the other way, and will be better cows ever after. Herds in cow testing associations have proved this and it is not uncommon to see two year old heifers as large as the average mature cows, and giving as much butterfat. On the other hand, a large majority of the heifers are undersized and unprofitable from a production standpoint with their first calf, and often always unprofitable. The loss on one or two unprofitable heifers will more than offset any saving that might have been effected by trying to feed the young calf cheaply.

The great need of the dairy industry is better bulls, but they cannot accomplish much without the proper feeding of the calves.

COW TESTING ASSOCIATION NEWS

According to E. H. Bahler of the Riverside association, they have some fine heifers: Carrie De Kol, Jr., two years old, made 70 pounds of fat in her second month. Segis De Kol Bess, Jr., three years old; makes 477 pounds of fat in a year. Bess Hartog Pietertje De Kol, as senior two year old, has given 430 pounds of fat in eight months.

L. H. Meads of Point Reyes Association, Marin County, who is already testing over 1,200 cows a month, says that interest in testing is picking up and that it will be necessary to start another unit in the association.

W. G. Maxfield of Kings association says that their year ends in March and it will be celebrated by a dairymen's banquet and awarding of prizes to the winners in the association. We hope that the association will reorganize for another year and keep Mr. Maxfield on the job.

D. W. Adams of the Imperial County association states that he is getting several dairymen to feeding balanced rations. Imperial Valley has such a fine climate that few dairymen have barns and but few have stanchions out in the open, but the latter is necessary if cows are to be fed properly and economically. Mr. Adams says that four out of five high cows this month could have been purchased six months ago for $160 each, but now twice that amount would not touch them.

C. B. Wiborg of the Petaluma association reports that 23 members are using milking machines. The machine has solved the labor trouble in the large herds and has not decreased production.

Henry Everett, assistant county agent of Sonoma County, states that six dairymen are intending to build silos. A few years ago the dairymen of this region did not believe the silo suitable for their conditions, but a few tried it and their success has convinced the doubters.

BETTER COWS—BIGGER PROFITS

In the reconstruction period through which we are now passing, the dairy cow is the best market for grains and roughage. And the better the cow the wider grows the margin of profit on the coarse feeds consumed. The safest and surest way to get better cows is to use pure bred sires of high productive pedigree. Proof of this is found in the degree to which Sultana's Virginia Lad has improved the production averages of the Jersey herd of the Missouri college of agriculture. When the college bought Sultana's Virginia Lad to head the Jersey herd this herd was somewhat run down due to the previous use of an inferior sire, says E. M. Harmon, extension assistant professor of dairy husbandry. Sultana's Virginia Lad was selected solely because he had sired high producing daughters in other herds. The wisdom of this selection is shown by the records the daughters of old Virginia Lad are now making.

The daughters of Virginia Lad in the college herd have an average milk production as two year olds 44 per cent greater than their dams at the same age, and their average production of butter fat is 60 per cent greater. The detailed figures show that these heifers averaged 7,722 pounds of milk and 445 pounds of butter fat a year, while their dams averaged 5,346 pounds of milk and 277 pounds of butter fat for the same duration of time at the same age.

In face of these facts how can a man who is milking cows afford to do without a high class bull to head his herd? It is evident that the 42 farm bureaus in Missouri now competing for the $2,000 prizes in the Missouri Better Bulls contest are going to gain many advantages in addition to the possibility of winning a prize. They are going to improve the best market now offered for their grain and roughage crops by improving the class of dairy cows to which these crops are fed.

Every man takes care that his neighbor shall not cheat him. But a day comes when he begins to take care that he does not cheat his neighbor.—Emerson.

B. H. RAWL RESIGNS

B. H. Rawl, assistant chief of the bureau of animal industry, United States department of agriculture, has resigned, effective April 30, to take charge of the educational work of the California Central Creameries. He will have headquarters in San Francisco.

Mr. Rawl is one of the most widely known dairy specialists in the world. A native of South Carolina, he is a graduate of Clemson College. He took special work in dairying at Pennsylvania state college and the University of Wisconsin. He has been with the department of agriculture for 16 years. He inaugurated educational work of the dairy division in the Southern states and later was placed in charge of all production work of the division. He was appointed chief of the dairy division in 1909 and assistant chief of the bureau of animal industry in 1918. He has been largely instrumental in bringing about the great advance of the past decade or so in scientific dairying.

BETTER THE CREAM BETTER THE BUTTER

The difference in price between high and low butter makes it imperative for cooperative creameries to produce a high scoring butter in order to make a success of their enterprise.

Good butter can never be made from poor cream. No matter how skillful the buttermaker may be, he can never expect to place high scoring butter on the market if he must churn cream which has been practically spoiled through careless handling.

It is not a difficult problem to keep cream clean and sweet. Cows should be clean and healthy and stabled in a well ventilated, well cared for barn. The milk should be drawn into clean, scalded, dry pails. The small top pails are the best. The strainer cloths should be thoroughly boiled and dried. Then it is important that the separator parts be clean, scalded and dried each day.

When cream handled with these precautions is placed in a clean, scalded, dry can and immediately cooled to 50 degrees Fahrenheit or lower and kept that cold until delivered to the creamery, it will give the buttermaker a raw material from which he can easily make the grade of butter that has brought Minnesota its enviable reputation.—Harold Macy, dairy division, University of Minnesota.

COMPARE PRICES FOR LIVE STEERS AND DRESSED BEEF

Despite the fact that the average price paid for good beef steers on the Chicago market from March 5 to March 19 declined from $9.95 to $9.70 per hundred pounds, figures compiled by the U. S. bureau of markets show that during the same period the average price of good steer beef at three large Eastern markets advanced from $16.47 to $17.63. Similar compilations show that from March 5 to March 19 the average price paid for medium beef steers dropped from $9.20 to $8.93, whereas during the same period the average wholesale price of medium steer beef increased from $15.43 to $16.65.

During the period covered the price of heavy steer hides declined about two cents per pound, which would justify either a decline of 13 cents per hundred pounds on live steers or an advance of approximately 25½ cents per hundred pounds on the dressed meat.

Even a schoolboy with a very short pencil can figure why one pure bred bull is cheaper than three scrubs. This has been shown in actual practice in one county where the dairy associations have found that the pure bred bull can be maintained at a cost of $5.34 a year to each member, while scrubs owned individually in the same county cost their owners $29 a year. In Pennsylvania, where bull associations have been longest established, 93 pure bred bulls are found sufficient for 5,604 cows, one bull for 60 cows. The total number of bulls in the entire country, including a vast number of scrubs, is so great that the ratio is one bull to every 19 cows. Just now when the farmer is obliged to accept every opportunity to economize, the foregoing figures suggest that this is a splendid time to replace three scrub bulls with one pure bred.

DON'T MISS IT!

First Individual Public Sale

Santa Anita Rancho

Owned By Anita M. Baldwin

Santa Anita, Cal.

Tuesday, April 26, 1921

Great cows and heifers with records up to over 1000 pounds butter in one year and over 35 pounds in 7 days!

Daughters of 1100 pound and 1000 pound yearly record cows!

Daughters of cows with 7 day records up to over 36 pounds butter!

Many of them bred to the $41,000.00 bull King Korndyke Pontiac Acme, one of the very greatest young bulls the breed has yet produced.

Merci Lad Korndyke Burke, son of California's first 1200 pound yearly butter record cow!

Prince Walker Cornucopia, the highest record son of Prince Geische Walker!

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A young bull, Count Pontiac Aaggie Mead whose six nearest dams average 950 pounds and who is a son of Sir Aaggie Mead the great Toyon bull.

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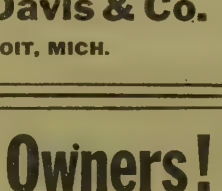

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

April 26, Santa Anita Rancho, Santa Anita.
May 11, Victory Herd, Carruthers.
May 18-19, James McGillivray, Sacramento.

Shorthorns

May 26, Caledonia Farms, West Sacramento.

Announcement is made this week of the complete dispersal of the Finnell Stock Farm's herd of Herefords. This herd was established over a year ago at the time the owners purchased the Henderson Ranch near Galt, the original intention being to develop a high class herd. However, the owners have concluded to develop their ranch into an orchard and vineyard proposition and find that they will not have room to carry on their herd. The sale will be held at the ranch on May 26 and will consist of around 100 lots.

Taglio Brothers of Gustine have purchased from the Carnation Stock Farms, Seattle, Washington, the young Holstein bull, Carnation King Tillie. This bull is declared to be a splendid son of Carnation King Sylvia and a very fine daughter of Matador Segis Walker.

The Bridgford Holstein Company of Patterson, who consigned the heifer, Prilly Adirondac Dairy Maid, that sold for $4,500 in the Brentwood sale at Philadelphia last month, purchased in the same sale the two year old heifer, Fairmont Colantha Prilly. It is of interest to note that this heifer was sired by King Segis Pontiac Alcartra, sire of King Segis Alcartra Prilly, the Bridgford herd bull, and her dam is the highest record daughter of Prilly Princess Julia De Kol, dam of King Segis Alcartra Prilly. She was purchased carrying the service of Sir Aaggie Mead De Kol.

The Thos. Dibblee Estate of Santa Barbara has purchased from M. L. Andrews of Iowa the Shorthorn bull, Imp. Cluny Royal Windsor. This bull was bred by Lady Cathcart and is a son of President of the Mint and out of a dam by Edgar of Cluny 2d. Imp. Cluny Royal Windsor is a rich red six year old bull and comes to this state with a splendid reputation established as a sire.

R. M. Dunlap of Sacramento, one of the best known cattlemen of this state, is now in charge of the Bar N herd of Herefords owned by E. N. Noyes & Son of Sutter. This herd has been materially strengthened the last few months and under the experienced management of Mr. Dunlap it is expected that the Bar N Herefords will prove influential factors in Hereford affairs in the West.

Andy Simpson, who is in charge of the Caledonia herd of Shorthorns, reports sale of a yearling son of Gainford Matchless, grand champion at the 1919 San Francisco show, to F. S. Trossi of Reno, Nevada. Mr. Trossi expects to place his new purchase at the head of his herd.

W. J. Higdon of Tulare has purchased from Alex. Whaley of Tulare the Holstein bull, Sir Aaggie De Kol Acme 2d, and it is his intention to use this bull on the daughters of King Korndyke Pontiac 20th. Ever since the Higdon sale of last year, at which he disposed of the older members of his herd, together with King Korndyke Pontiac 20th, that was sold to the Burr Farm of Los Angeles for $12,000, Holstein breeders have been anxiously watching to see what bull Mr. Higdon would secure to carry forward his well defined plans, and it is generally agreed that he has made a ten-strike by buying the Whaley bull. Sir Aaggie De Kol Acme 2d was sired by Sir Aaggie De Kol Acme and his dam is Aralia De Kol 3d, the 1,100 daughter of Aralia De Kol, whose record of 1,142.32 pounds butter in a year as an 11 year old cow was a world's record when made. Five of the seven nearest dams of Sir Aaggie De Kol Acme 2d have an average yearly butter production of 1,154 pounds and an average production for two years of 2,089.65 pounds butter. The career of this bull in the Higdon herd will be watched with great interest.

Homer L. Graham, manager of the Eastman Poland China Ranch, San Fernando, has purchased the boar, Sky Pilot, from the Harriman herd of Missouri. Sky Pilot is declared to be one of the best sons of the noted Liberator.

Geo. V. Beckman & Sons, Lodi, have a Poland China boar bearing the name, "The Cultivator." The Cultivator is a son of Liberty Bond.

Primrose of Courtil Du Ray has established a new record of butterfat production for cows on the Island of Guernsey, by producing in one year, at six years of age 14,420.5 pounds of milk and 899.48 pounds of butterfat. This production exceeds the record of the previous champion by more than 116 pounds.

J. W. Snodgrass, manager of the Berlywood Stock Farm, Hueneme, reports the following records recently completed in their Holstein herd: Sadie Vale Veeman Karlray, a junior three year old, 30.16 pounds of butter from 539.2 pounds of milk; Miss Bracelet Fobes Korndyke, 25.24 pounds of butter from 726.2 pounds of milk in seven days and 104.21 pounds of butter from 3,042.2 pounds of milk in 30 days as a junior three year old; Romeanna Douwe, 27.05 pounds of butter from 637 pounds of milk in seven days as an eight year old; Douwe Pontiac, 27.12 pounds of butter from 522.1 pounds of milk as a senior three year old. Fay Tritomia Hengerveld Walker, 27.12 pounds in seven days and 109.25 pounds in 30 days. Mr. Snodgrass is just out from the hospital and his many friends will be glad to know that he will soon be "hitting on all six."

Bassett Bros., Hanford, recently received a September boar pig from W. J. Graham, Howard Lake, Wisconsin. This young boar is sired by Buster's Liberator, one of the best known Poland China boars in the Cornbelt. He is unusually large for his age and has class and quality enough to make a very strong show in the senior boar class at the state fair next fall.

A. Buckland & Son, Fresno, have a fine litter of pigs sired by the famous boar, King Kole, owned by Ed Petty, Versailles, Missouri, that will look good in the Poland China futurity next fall if they continue to grow as they are doing at present. Buckland & Son expect to make their usual good showing at the fairs this year.

E. J. Wilson of Ripon has a junior two year old grade Jersey heifer that has just finished her year's test with 9,163.9 pounds of milk to her credit and 527.59 pounds of butterfat. The heifer's ration consisted of alfalfa hay together with four pounds of concentrates per day which was made up of three parts barley and one part coconut meal. She also carried a calf 207 days during the test. In commenting on the heifer Mr. Wilson says: "This heifer was so small at birth that I didn't think it best to try to raise her, but my wife insisted upon it, so she took charge and named her Teeny. The heifer did so well that at the time of calving she weighed about 900 pounds. Her dam was just a fairly good cow with 420 pounds of fat to her credit with the third calf. Her sire was a registered bull whose granddam was a sister to Viola La France, world's champion four year record cow of all breeds."

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Guerin Holsteins Average $387

The R. F. Guerin dispersal sale of Holsteins drew a representative crowd of breeders to Visalia, April 14, and 52 head of cataloged animals, excluding a few females that were sold as reactors, were appraised at the satisfactory average of $387. The feature of the sale was the yearling son of King Korndyke Pontiac 20th and K. P. Tola. This youngster, boasting a very strong and in every way attractive pedigree, made many friends because of his splendid individuality. He was purchased by Alex. Whaley of Tulare for $3,000. Frank Helm of Fresno was the runner-up. The top female, Visalia Canary Pet, a 23.72 pound daughter of Homestead Canary Pride and Black Patti, went to Walter Mitchell of Visalia for $850.

Burr Farm of Los Angeles took ten head of cows and heifers for their herd and E. Burr added seven head of young things to the shipment he is making to his Canadian ranch. T. H. Brice of Los Angeles took in six head.

The sale was managed by C. L. Hughes of the California Breeders Sales and Pedigree Company, Sacramento, and Col. Ben A. Rhoades of Los Angeles was on the block. Col. Bell of Tulare assisted in the ring.

A list of representative sales follow:

BULLS

1, King Sadie Vale Idyl Segis, July, 1917; Mrs. C. H. Sears, Bakersefild, $400.
2, King Tola Korndyke Pontiac, April, 1920; Alex. Whaley, Tulare, $3,000.

FEMALES

3, S. V. K. P. Fidessa of Sunnyside, 21.85 lbs., Sept., 1917; T. H. Brice, Los Angeles, $575.
4, Queen Fidessa of Sunnyside, March, 1920; A. B. Spooner, Jr., San Luis Obispo, $300.
5, S. V. K. P. Aaggie of Sunnyside, 21.92 lbs., Sept., 1917; T. H. Brice, $775.
6, Sunnyside K. S. V. Aaggie, March, 1920; Burr Farm, Los Angeles, $300.
7, S. V. K. P. Japonette of Sunnyside, 16.92 lbs., Sept., 1917; Mrs. C. H. Sears, $700.
8, K. S. V. Japonette of Sunnyside, October, 1920; E. Burr, Los Angeles, $190.
9, Empress Alcartra Karlray, July, 1917; T. H. Brice, $300.
10, K. S. V. Empress of Sunnyside, July, 1920; W. F. Mitchell, Visalia, $245.
12, Queen Abbekerk of Sunnyside, April, 1920; Burr Farm, $200.
13, Allenvail Segis of Sunnyside, May, 1920; Burr Farm, $375.
15, Grace Segis Jannek, March, 1920; Frank Helm, Fresno, $250.
16, Sunnyside K. S. V. Grace Segis, Sept., 1917; W. F. Mitchell, $260.
17, K. S. V. Grace of Sunnyside, July, 1920; A. B. Spooner, Jr., $275.
18, K. S. V. Gretta of Sunnyside, July, 1920; A. B. Spooner, Jr., $275.
19, S. V. K. P. Dayhne of Sunnyside, May, 1917; Earl Graham, Compton, $400.
20, K. S. V. Daphne of Sunnyside, August, 1920; A. B. Spooner, Jr., $250.
21, Sunnyside K. S. V. Neva, June, 1919; E. Burr, $250.
22, Sunnyside K. S. V. Leola, June, 1919; Burr Farm, $350.
23, Sunnyside K. S. V. Helena, June, 1919; Burr Farm, $300.
24, Belle Korndyke Vale, June, 1919; E. Burr, $225.
25, K. S. V. Volta of Sunnyside, March, 1920; A. B. Spooner, Jr., $240.
26, K. S. V. Helena of Sunnyside, May, 1920; A. B. Spooner, Jr., $260.
27, K. S. V. Lenita of Sunnyside, April, 1920; J. L. Sebastian, Wasco, $200.
28, Sunnyside K. S. V. Wonder, December, 1919; Burr Farm, $325.
29, Sunnyside K. S. V. Oceola, November, 1919; E. Burr, $350.
30, Sunnyside K. S. V. Claire, November, 1919; E. Burr, $350.
31, Sunnyside K. S. V. Lila, November, 1919; E. Burr, $225.
35, Helena of Sunnysile, 25.44 lbs., February, 1917; Earl Graham, $300.
36, Queen Lilla Pontiac, July, 1917; Burr Farm, $250.
38, Thelma De Kol Martha, February, 1917; Mrs. C. H. Sears, $350.
39, Violet Burke of Sunnyside, July, 1917; E. Burr, $300.
40, Visalia Canary Pet, 23.72 lbs., August, 1914, W. F. Mitchell, $850.
41, So Long Letty of Sunnyside, 15.26 lbs., November, 1917; T. H. Brice, $285.
42, S. V. K. P. Susie Ann of Sunnyside, March, 1918, Burr Farm, $275.
43, S. V. K. P. Estrella of Sunnyside, May, 1917, T. H. Brice, $235.
45, S. V. K. P. Change of Sunnyside, February, 1918, Los Angeles County Farm, $275.
46, S. V. K. P. Oceola of Sunnyside, 19.76 lbs., June, 1917; Los Angeles County Farm, $285.
47, S. V. K. P. Melba, February, 1918; Mrs. C. H. Sears, $650.
48, S. V. K. P. Lenita of Sunnyside, 15.50 lbs., January, 1918; Earl Graham, $466.
49, S. V. K. P. Winifred Sunnyside, September, 1917; Robt. T. Curtis & Son, Exeter, $400.
51, S. V. K. P. Miami of Sunnyside, 17.08 lbs., December, 1917; Burr Farm, $710.
52, S. V. K. P. Minosa of Sunnyside, January, 1918; T. H. Brice, $375.
53, S. V. K. P. Ada of Sunnyside, 14.05 lbs., February, 1918; Burr Farm, $560.
54, S. V. K. P. Clarice of Sunnyside, 16.10 lbs., February, 1918; Robt. T. Curtis & Son, $285.
55, S. V. K. P. Susan of Sunnyside, February, 1918; C. W. Anderson, Burbank, $400.
57, S. V. K. P. Volta of Sunnyside, 13.25 lbs., March, 1917; Los Angeles County Farm, $410.
61, K. S. V. Calvia of Sunnyside, October, 1920; A. B. Spooner, Jr., $190.

HARTSOOK AND MORRIS CLOSE ANOTHER SENSATIONAL BULL DEAL

Another sensational Holstein transaction was recently completed when Fred Hartsook of Lankershim purchased from A. W. Morris & Sons, Inc., Woodland, a half interest in the well known bull, Sir Aaggie De Kol Mead, at a price that sets a new record for a half interest in any bull on the Pacific Coast. Sir Aaggie De Kol Mead is a three year old son of Sir Aaggie De Kol Acme and out of the great dam, Miss Valley Mead De Kol Walker, who broke three world records as a heifer, won the California dairy cow competition over all ages and breeds, and made 36.81 pounds butter in seven days and 1,113.58 pounds in 342 days as a junior three year old. She is by Prince Gelsche Walker and out of De Kol of Valley Mead 2d.

It will be recalled that several months ago Mr. Hartsook purchased from the Morris firm a half interest in the young bull, Prince Aaggie Mead, a son of King Aaggie Mead and Miss Valley Mead De Kol Walker. Under the terms of that sale the bull was to spend half of each season with Mr. Hartsook's herd. Similar terms govern the latest transaction, and it will therefore be possible for Mr. Hartsook to maintain a son of Miss Valley Mead De Kol Walker in his herd at all times.

Few men who have entered the Holstein business in this state have displayed greater foresight in their operations than Mr. Hartsook, and by this recent sensational deal he has placed himself in a very strong and strategic position.

In addition to the above facts it is of interest to know that Sir Aaggie De Kol Mead is the sire of the two heifers Mr. Hartsook secured from W. J. Higdon of Tulare and Brentwood Farms of Pennsylvania.

ESCALON PRINCESS

California has a new champion in class CC of the Guernsey Advanced Register. The new State Class Leader is Escalon Princess, owned and bred by A. B. Humphrey, Escalon. The cow also ranks ninth among all class CC Guernsey cows. Escalon Princess 62332 is a daughter of Don Adonis of Linda Vista, Mr. Humphrey's herd sire, and she is the second of his daughters to qualify for the Advanced Register. Don Adonis of Linda Vista 20616 is a son of Jethro's May King of Linda Vista. The dam of the new California class leader is Linda's Princess of Maple Lane, also owned by Mr. Humphrey. She has an Advanced Register record of 439.27 pounds of butter fat in class A.

Escalon Princess dropped a bull calf on November 8, 1919, sired by Bullion of Edgemoor, a son of Imp. Itchen May King. She was bred again on February 15, 1920, to Nobleman of Maple Hill 54086, and carried a calf 270 days of her testing period. She was milked with the main herd until April 1, 1920. Her milkers were changed about once every month. On April 1 she and the other test cows were moved to a new test barn, and were milked by W. T. Brooks. The cows were never in the barn over night and were in pasture every day except during the months when there was nothing growing.

COOPERATE IN GOPHER CONTROL

We cooperate in production, in marketing, in religious, social and educational affairs, and sometimes in control of the pests which make life a burden, but in one particular, seldom, and that is gopher control, though there have been occasional "drives" directed by horticultural commissioners, and these have doubtless resulted in saving tens of thousands.

One trouble with the gopher is that his subterranean work isn't constantly before us, and until we see a valuable tree, the product of years of care, totally destroyed we are too much inclined to ignore the work of this tiny underground pest. With some orchardists it is easy to excuse neglect in this matter because "Our neighbors supply will come over and stock our land again even if we do trap." Therein we should have closer cooperation. But, admitting that the neighbor will not look after his own interests to the extent of ridding his land at his own expense, the rest of us should not suffer the loss consequent.

A string of good traps is a most satisfactory method of control. Trapping has the advantage of certainty. If we fail to make a catch we are certain the gopher is still on the job, hence, we renew the fight and soon have him. If the grower is unable to give personal attention to it we have known of perfectly satisfactory agreements made with neighbors' boys by which a 10, 25 or even 50 cent bounty for each scalp secured has been paid. Fifty cents is doubtless too high but a satisfactory basis of work may often be arranged which gives the boy good wages, gives the alfalfa grower release from the everlasting toll levied by the gophers, and gives the orchardist relief besides.

Trap the pests.

DISPERSAL SALE

John J. Kelley Holstein Herd

On the New Hope Road, 3 Miles West of

SANTA ANA

Wednesday, April 27th

at 10 A.M.

40---Head of Pure Bred Holsteins---40
30--Head of Highclass Grade Holsteins--30

Buyers of well bred Holsteins will find in this herd of well bred cattle that not only are fashionably bred but combine a world of type, conformation and persistent producing ability. Among the offerings will be found a 22.99 lb. daughter of ARCADY PONTIAC WAYNE HENGERVELD; a 19.95 lb. daughter of PRINCE ARALIA WALKER whose dam produced 1,100.48 lbs. of butter in 365 days. she being out of the former World's Champion Aralia De Kol. A 16.83 lb. daughter of FOBES TRITOMIA MUTUAL DE KOL who was the sire of Lady Oak Fobes De Kol. 36.44; a 16.68 lb. double granddaughter of LAD LEGENT OF KAKENSTEIN; a 2 year old daughter of IT. a 37 lb. sire and out of a 27.24 lb. 3 year old daughter of the Century sire CHANGELING BUTTER BOY; a daughter of a 27.07 lb. cow; a daughter of KING PONTIAC NETHERLAND SEGIS out of a 23.73 lb. 3 year old; 3 daughters of King Korndyke Sadie Vale 27th; 2 daughters of DE KOL HARTOG PONTIAC, a grandson of the King of the Pontiacs and 4 daughters of DE KOL HARTOG PONTIAC 2d whose dam, Eva Riverside of Tuolumne, produced 25.11 lbs. of butter from 454 lbs. of milk as a 2 year old. Also a number of young heifers from the above cows sired by the herd sire (to be sold) ANSELMO CRANE IT, a son of the good sire IT and out of a 19.98 lb. daughter of ANSELMO.

The grade Holsteins are considered one of the best producing herds in Southern California. Buyers looking for tops will not be disappointed in them.

Prospective buyers are cordially invited to drive out to the farm and inspect this splendid offering.

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McNeil's Big Type Poland Chinas

Herd headed by Giant Prospect and Mc's Challenger. My sow herd is composed of a great lot of choice matrons including Polandale Betty, first prize junior yearling at Sacramento. Correspondence solicited.

CHAS. McNEIL, Route H, Box 166, Fresno, Cal.

Johnson's Defender Jr.

Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

H. C. WITHEROW Live Oak, Cal.

The Highest Price Ever Paid in California

for ownership of a Holstein sire was for a son of Miss Valley Mead De Kol Walker, 36.80 lbs. butter in 7 days at 3 years of age, 1113.57 lbs. butter in 365 days. She held the world's records in three different classes for production and is without doubt one of the greatest individuals ever bred in the state.

The Highest Price Ever Paid for a Half Interest

in a Holstein sire in California was for another son of the same cow.

Of the six leading herds in Southern California headed by sons and grandsons of this great cow, only one has HER GRANDSON, HER BROTHER FROM THE SAME WORLD RECORD DAM, AND A BROTHER OF THAT DAM.

Los Angeles County Farm
Hondo, California

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ANTHRAX

Of all livestock diseases, anthrax is one of the most fatal.

For the preventive and curative treatment of anthrax we offer

ANTHRAXOIDS
(Spore Vaccine)

For immunizing cattle, horses, sheep and mules.

Anthraxoids are Anthrax Spore Vaccine in pill form. Each Anthraxoid is a dose ready to be injected under the skin of the animal.

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A serum to be used when animals show symptoms of anthrax.

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Double vaccination with serum and vaccine. Used when anthrax is established or suspected to be in a herd.

Write for free booklet on the Prevention of Anthrax.

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SAFE ANTISEPTIC AND GERMICIDE

Does not blister or remove the hair and horse can be worked. Pleasant to use. $2.50 a bottle, delivered. Describe your case for special instructions and Book 5 R free.

ABSORBINE, JR., antiseptic liniment for mankind, reduces Strains, Painful, Knotted, Swollen Veins. Concentrated—only a few drops required at an application. Price $1.25 per bottle at dealers or delivered.

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When writing advertisers, mention the Cultivator.

Dodder is Serious Pest

IF REMEDIES to exterminate dodder, the parasitic plant infesting clover, alfalfa and some other plants, are applied before it gets a foothold, the pest does not cause serious damage. If, however, dodder is permitted to develop unmolested, radical measures will be necessary in order to control it.

Starts in Small Patches

During the first season of infestation in alfalfa, dodder usually occurs in small scattered areas. As is the case in combating all weeds, it is essential that dodder should not be permitted to mature seed, and such small infested areas should be mowed and the dodder removed or burned in the field to prevent the development of seed. If seed has formed, burning the patches of dodder is the only remedy, since it kills not only the plants but also any seeds which may be lying on the surface of the soil.

Easier to Prevent than Eradicate

If infestation is so great that patch treatment cannot be depended upon it will be necessary in order to free the farm of the pest either to plow the crop under or utilize it for hay before seed has formed. In the latter case the aftermath left on the field should be closely grazed, for which purpose sheep are especially useful. If the infestation is general and threatens seriously to damage succeeding crops, it may be necessary, according to the bulletin, to cut the crop, to allow it to dry, and burn it in the field in order that all dodder seed may be destroyed.

Inferior Seed Blamed

As with all weeds preventing introduction on the farm is far easier than eradication after it has once gained a foothold. It is usually introduced by the use of impure seed, and farmers should learn to distinguish dodder seed so that they can recognize it when they are purchasing clover and alfalfa seed. For adequate examination a magnifying glass is necessary. There is a wide range in size of dodder seed, but in general they are usually dull coated with roughened or minutely pitted surfaces, and usually have two or three flat surfaces, while the seeds of clover are usually smooth, rounded, and possess a certain luster. Furthermore, the scar on dodder seed usually is very inconspicuous, whereas the scar on leguminous seeds is clearly evident. Their color ranges from dark brown to green or yellow. While it is possible to remove a large percentage of dodder by carefully cleaning impure clover and alfalfa by screening, it is practically impossible to remove large-seeded dodder by this process.

When animals are allowed to graze where dodder grows, they should not have access to fields not infested, since they are likely to spread the weed by means of pieces of stems adhering to their coats and hoofs. On land which contains the seeds of dodder the bulletin suggests the use of a five-year cropping system consisting of plants which are not damaged by the pest, and recommends the following plants: Corn, soy beans, velvet beans, cow peas, and small grains such as oats, wheat and rye. Sugar beets, onions, flax and a few other cultivated plants are subject to dodder infestation, but clover and alfalfa are its important hosts.

The Orchard and the Small Dairy

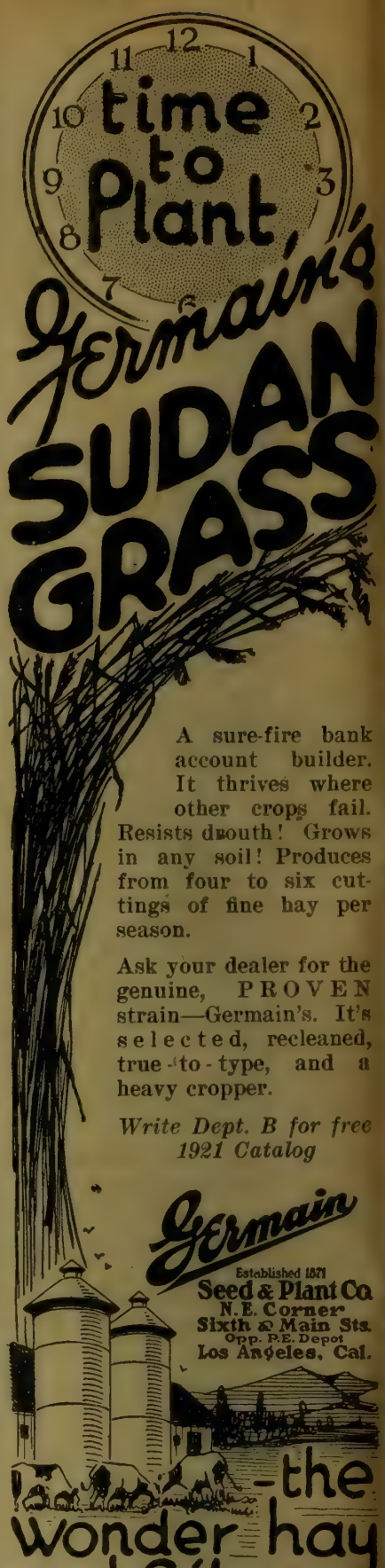
By E. L. Koethen

YEARS ago when Dr. A. J. Cook was conducting institutes he advocated the maintenance of small dairies in connection with the citrus orchard—that it would be a good thing if each orchardist should have a tract of land in connection with his citrus property that should yield enough feed to maintain a small dairy, the manure byproduct to feed the orchard. Since that time all kinds of fertilizing materials have doubled, and more than doubled. Stable manure that at that time sold for $3.50 per hundred feet, delivered on the ranch, now costs $8 to $10 per hundred, and so with other materials. In addition to this, the supply has at times been so short that it has been inadequate to meet the demand. Doubtless this has led the editor of the Cultivator to feature this problem in his paper.

Dr. Cook was right; the observation of the writer has proven it to his own satisfaction. We have in mind a family which began with a cheap young heifer, half starved, and not a big investment. It was just to try how it would be to have "your own supply of Jersey cream," enough for two to revel in. It was just for the fun of it, though the wife had often said she would never be burdened with the care of the milk of even one cow and be tied down to be the servant of a cow. By the time the cow had a second calf the little heifer had grown to be a first class grade Jersey cow. She was giving enough milk to supply several families, and they were swamped with milk. They had their own butter made in an ice cream freezer, and it was the best they had ever had; they had whipped cream, real cream whenever they wanted it, ice cream all through the summer as much as they could eat. For the first time in their married life, the wife succeeded in attaining her highest ambition, the husband added flesh to his lean frame and looked wholesome. The health of both was improved and the cow was declared a success; but the question was what to do with the surplus as they did not wish to make butter to sell.

At last they hit upon a plan that worked out finely. They had a neighbor boy who was willing to make a little pocket money. They engaged him for a compensation of so much per quart to carry the milk to neighbors who were anxious to get such good milk. It was sold whole. No separator was used to extract a portion of the cream before delivery. The boy returned the bottles and collected the bills at the end of the month. In this way the cow was made to pay for her feed, supply the family with a staple article of food in unheard of quantities, and the manure was feeding the orange orchard, leaving a profit besides. They remembered that Dr. Cook had said the cow was a delicate machine, even more sensitive than a mere machine, because she resented it if the keeper was cross to her, but like a machine in that the more gas she could consume, the greater the speed. So they coaxed her to eat all the good feed she could hold, giving it at short intervals, and petting her frequently. The result was more milk.

When a heifer calf arrived she was reared with the greatest care and common sense. So after about two years another cow had been added, and the family estimated that the additional manure had about paid for a valuable cow. Well, to make the long story short, they now have three cows that are fed chiefly from products raised on a portion of the ranch not planted to oranges. There are about four acres of alfalfa and several acres devoted to corn and garden products. No trash of any kind that could rot is burned. It is all used first as bedding and then buried in the orchard as manure. Some straw is also purchased to increase the bulk of organic matter. This is used freely as bedding, and no chance to increase the amount of organic matter is neglected. They sell enough alfalfa hay to pay for all other supplies bought, so that the only cost of maintenance that can be charged to the cow's account is the labor bill. They collect over $100 per month from the sale of the milk, besides what the family uses. This is profit to the family, as the labor is furnished by them, and done chiefly on what would otherwise be spare time. With three cows, a heifer and one horse, they cover the orange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orchard of five acres each year with a good coat of manure. This is showing results in increased crops, as it is of better quality than the ordinary manure found on the market. It goes under ground almost as fast as it is made, and thus very little of the volatile part is lost. In addition to this the orchard is given a good dressing of tankage each season. Two cover crops a year are grown so that the humus content of the orchard is being built up with gratifying results.

To sum up the results of this practical experiment, it may be said that there is profit in keeping cows in connection with orange culture.

The cows can be managed so as to produce a profit to the owner.

In order to do this, additional land is needed to produce the necessary feed.

It is a practical source of best quality manure.

It is some trouble to the grower, and requires some work, and ties the grower down to steady work. The cows must be tended to regularly and with system.

More oranges and better oranges can be produced in this way, at reduced cost.

The young animals seem to grow up at so small a cost that it is not felt. They eat less of the more valuable feed, as they can be pastured along the edges. This is a source of profit to one who does not have to pay for the labor or care of the animals.

The family is supplied with better milk than that usually found on the market.

Alfalfa hay is worth about as much after it is converted into manure as it was originally. There is little loss in feeding it.

A large grower at Riverside has purchased hundreds of tons of alfalfa this season at a cost of over $25 per ton to spread on the orchard for fertilizing purposes. If this can be profitable, the small grower can certainly make it profitable to feed it to cows before using it as fertilizer.

If the small grower is fond of animals and can learn to love and pet them and is willing to be tied down to chores, it will be profitable for him to keep one or more cows.

MACHINE VS. HAND MILKING

Milking is one of the largest items of labor in connection with milk production, and a study of the two methods of milking is of interest as well as practical significance. Since considerable extra time and labor is involved where milking machines are used, in washing and caring for the machines themselves, it is obvious that these items should be included in order that a fair comparison might be made.

The dairy husbandry section of the Michigan experiment station, in the course of extensive studies in the cost of milk production, has secured some interesting data along this line. Accurate figures were kept throughout the entire year with 93 herds in condensery districts within the state, 42 of these herds being hand milked and 51 machine milked.

Comparisons of Machine and Hand Milking

The tests show that the average time spent in milking and caring for the milk and utensils in the 42 herds milked by hand was 100.44 hours per cow per year, as compared to 71.28 hours, the average time in 51 machine milked herds. The figures show that the extra time required to wash and care for the machines is made up many times in the greater speed of milking with machines. A saving of 29.16 hours per cow per year is shown in favor of the machine method of milking, which would amount to 525 hours labor per year with a herd of 18 cows, the average size of the 51 machine milked herds in which these investigations were carried on.

Compared on the basis of 100 pounds of milk, the tests show that 1.42 hours labor were required on the average in milking and caring for 100 pounds milk and washing the utensils in the 42 herds where hand milking was practiced, while 1.12 hours labor were required in the 51 herds where the machine method was employed. This shows a difference of three-tenths of an hour, or 18 minutes, in favor of the machine for each 100 pounds of milk. Less difference would probably be found where market milk was being produced, as the higher requirements specified for milk used for such purposes would necessitate greater attention to the care and cleaning of the milling machines.

MORE HOGS

Increase of 27 per cent in the number of hogs in California during the last decade is noted in a recent report from the college of agriculture. In 1910 there were 767,000 head of hogs while in 1920 the number was 973,000. Relative rank of the swine breeds in the country as a whole is given as follows:

Duroc-Jersey, 34.2 per cent; Poland China, 27.9; Chester White, 10.7; Berkshire, 9.2; Razorback, 4.2; Hampshire, 3.9; Tamworth, 0.7; Yorkshire, 0.6; Cheshire, 0.3; others, 2.7; nondescript, 5.6.

"Since pork constitutes more than one-half of all the meat produced in the United States and is the mainstay of the ration of most laboring men and soldiers, the importance of pork production becomes evident," the report declares.

Ten years ago the price of hogs was a little over $9 a hundred. In 1919 it was $22 a hundred, in 1920 it had fallen to $19 a hundred. The cost of corn and barley, however, have similarly fallen since 1919.

"In this state the work of the farm bureaus and of the University of California has had much to do with stimulating swine production by means of pig clubs and community auction markets," the report says. "These agencies have brought about considerable improvement in quality and prices, and doubtless have been one of the main factors in the great increase in the number of hogs."

Through the division of agricultural education the university is now offering a corresponding course on swine husbandry.

California Cultivator,
Los Angeles, Cal.

Gentlemen:

I wish to call your attention to the fact that the farm paper published by Mr. Scott of San Francisco and entitled The Farm Bureau Bulletin of the Sacramento Valley, has no connection with the Farm Bureau Federation, nor is it the official publicatiion.

We have no fight with Mr. Scott or his paper and send out this letter only because he is using the name Farm Bureau Bulletin, which had led many to believe that it is the official paper of the Farm Bureaus.

Yours truly,
FRED J. HART,
Chairman of Publicity Department, California Farm Bureau Federation.

TO KEEP BUTTER AND MILK COLD

Pack a large stone jar of three, four or five gallon capacity in a box of wet sand, having the sand five or six inches thick under and around the sides of the jar. Place a tight cover over the jar and box and set in the shade. Milk and butter that is placed in this jar will keep in excellent shape for some time. Keep the sand thoroughly wet, as this is the important factor.

A new test barn of the most approved type, capable of accommodating 24 cows, has just been finished on the Hartsook Ranch at Lankershim. In celebration of this event Manager Earl J. Sturgis has just broken the state record for senior yearlings with Rosamaines Dora Jeeke, who made 23.11 pounds of butter from 376.1 pounds of milk in seven days. This heifer is by King Segis Pontiac Netherland 3rd and is out of the 29 pound cow Dora Netherland Segis. She is a full sister to Dora Pontiac Segis, who made 37.04 as a senior four year old but died from the effects of a wire in her stomach shortly afterward. Mr. Sturgis has also recently finished Colantha Pauline Korndyke with 28.88 pounds of butter in seven days as a junior three year old, and Athenia Roderick Lencke, who made 36.61 pounds from 604.2 pounds milk as a junior four.

A Big Opportunity

to buy registered Holsteins that are bred in the lines of the breed's greatest milk production: young cows bred to bulls with tremendous milk and butter production back of them; the largest number of fresh cows and heavy springers that have ever appeared in a western Holstein sale; just the sort of females that are ready to make profit for the buyer the minute he gets them home.

Willowmead Herd, Sacramento, Cal.

Owned by James McGillivray

177 REGISTERED HOLSTEINS 177

167 Females—10 Bulls

Wednesday and Thursday May 18-19, 1921

28 DAUGHTERS OF DUTCHLAND SIR KORNDYKE COLANTHA
who is by a full brother to the great foundation cow Pontiac Clothilde De Kol 2nd, the first cow to make over 37 lbs. butter in 7 days and over 1260 lbs. in one year. His dam is a 24 lb. daughter of Colantha Johanna Lad that milked 657.2 lbs. in 7 days and made 750.48 lbs. butter from 22,645.6 lbs. milk in one year.

18 DAUGHTERS OF KING PONTIAC RUBY BURKE
who is by King of the Pontiacs, the only double century sire, and out of a 25 lb. half sister to the former world's record milk cow Riverside Sadie De Kol Burke. He already has seven yearly record daughters with records up to over 850 lbs. butter for a 3 year old.

17 DAUGHTERS OF PRINCE BUTTER BOY WALKER
who is by Prince Gelsche Walker out of a dam that made 828.62 lbs. butter from 19,543.2 lbs. milk in one year, she by the same sire as the 1008 lb. yearly record cow Miss Blaney.

14 DAUGHTERS OF KORNDYKE COLANTHA PARTHENEA
who is by Dutchland Sir Korndyke Colantha (see above) and out of the great breeding and producing cow Minnewawa Louise, who has seven A. R. O. daughters with records up to over 32 lbs. butter in 7 days.

10 DAUGHTERS OF KING MEAD OF RIVERSIDE
the famous sire of yearly record producers, including the world's strictly official yearly record cow Aaggie Acme of Riverside 2nd. A number of these have large yearly records as well as 7 day records.

8 DAUGHTERS OF YOLO VALDESSA HENGERVELD
Who is by the 41 lb. bull King Valdessa and out of a 30 lb. dam.

The sale also includes daughters of such sires as King Korndyke Pontiac, King Pontiac Topsy, Colantha Sir Pontiac Aaggie, and King Segis De Kol Mead.

COWS AND HEIFERS WITH RECORDS UP TO OVER 32 POUNDS BUTTER IN 7 DAYS.

A CONSIDERABLE NUMBER OF COWS AND HEIFERS WITH YEARLY RECORDS.

DAUGHTERS OF COWS WITH RECORDS UP TO OVER 32 POUNDS BUTTER IN 7 DAYS AND UP TO OVER 1000 POUNDS BUTTER IN ONE YEAR.

WILLOWMEAD HERD contains over 500 head of registered Holsteins at the present time. This sale includes every cow in the herd that is in salable condition. The oldest cows and some with defective udders are kept to furnish milk for the large number of young calves in the herd.

OF THE 167 FEMALES in the sale 93 are 2, 3 and 4 year old heifers; 49 more are 5 and 6 year old cows. There are 85 fresh cows in the sale, many others milking heavy right now, also a large number of heavy springers.

MORE THAN HALF OF THE FEMALES are bred either to COLONY ZARILDA NEWMAN, son of the great 33,000 lb. Canadian cow Zarilda Clothilde 3d De Kol, or to PRINCE ECHO SYLVIA SEGIS, who is sired by a son of the great producer May Echo Sylvia.

Every animal positively guaranteed to be a breeder; no tuberculin test certificates.

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Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

The owner is prepared to extend liberal terms to responsible parties. Applications for credit may now be made either in person or by letter to JAMES McGILLIVRAY, R. 1, Sacramento, Calif.

King Segis Pontiac Jannek

A proven sire of show winners and high producers is available for service to high class Holstein cows.

SANTA MONICA DAIRY CO.
Farm is on Washington Blvd. 2 miles east of Venice.
Santa Monica

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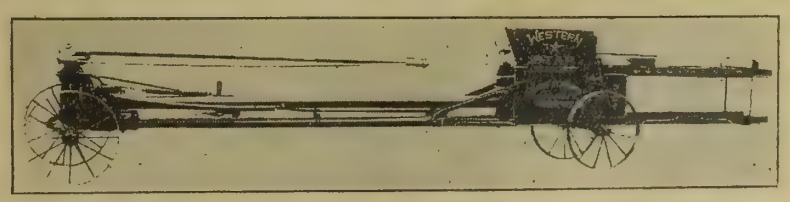
BEST HAY BALER IN CALIFORNIA $500



MAKE QUICK MONEY—operating the quick set, fast baling low priced Western Star Press, made in California. Light draft, big capacity, low step. Only baler made offering special non-binding head block feature for side hill sets. Over 600 in use in Southern California. No delays for repairs. Complete line heavy and light presses, horse, tractor and engine power. We will take in exchange any Eagle or Western Star press no matter how old.

WARR IMPLEMENT COMPANY Formerly Davenport Implement Co.
110 North Los Angeles St. Los Angeles, Cal.

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POULTRY

Baby Chicks—You are looking for the largest returns for your "Baby Chick Money." To get this you want chicks that will live, have vitality and will produce. Our Anconas are all from first class Hoganized stock. The White Leghorns are all mated to roosters from trapnested stock of 229 eggs or better. Now we also have especially good layers in the R. I. Reds, Fancy Dark Reds, Fancy Anconas and Barred Rocks. Our stock will produce the eggs. We have as well an equipped hatchery as there is, and know how to hatch strong sturdy chicks. May and June prices on White Leghorns are $16.00 hundred, $150.00 thousand. Anconas, R. I. Reds, Barred Rocks, $19.00 hundred, $180.00 thousand. Fancy Dark Reds and Fancy Anconas, $24.00 hundred. All chicks are sent Prepaid by Special Delivery Parcel Post. Can give immediate delivery, or will return your money at once. ORANGE COUNTY HATCHERY, Santa Ana, California.

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25 to 5,000
PARCEL POST or EXPRESS
FULL COUNT—SAFE DELIVERY
GUARANTEED Selected heavy laying HOGANIZED
MacFarlane, Tom Barron, WHITE LEGHORNS, Anconas, Barred Rocks, Rhode Islands, Minorcas, Buff, Brown Leghorns.
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Wanted—To lease good income ranch, on share basis, with option to buy. Give location and particulars in first letter. P. O. Box 22, Davis, California.

Want to Hear from party having farm for sale. Give particulars and lowest price. John J. Black, 116th St., Chippewa Falls, Wisconsin.

Wanted: A few more contracts for the growing of citrus nursery stock. Address R. F. D. 215, Upland, California.

Wanted—Fordson Tractor and third beam and bottom for 12 in. P&O plow. Box 134, Etiwanda, California.

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Free Sample (Hubam or) Annual Sweet Clover (scarified) Genuine Hughes strain. 2c postage. Jas. H. Kitchen, 5, Springfield, Ohio.

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LIVESTOCK

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys, W. ... Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

For Sale—Saanan Doe, registered, ... grade, fresh. Mrs. Wetzel, Hanford, California.

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IDLE LANDS INCREASE

TIMBER depletion has now reached a point in this country where three-fifths of the primeval forests are gone and 61 per cent of the timber left is west of the Great Plains, Col. W. B. Greeley, chief forester of the United States forest service, recently told the members of the Chicago Association of Commerce.

Liberal use of American forests was a necessary part of the commercial growth of this nation, but reforestation should have been practiced, if not from the start, at least in late years. There is an abundant area of forest land in this country to support all industries, and a liberal supply of wood is most necessary to the people of this country. It is thought that, like the European countries, we would use, when our civilization was older, but one-third or one-half as much wood per capita as we did in the early days. But this rule does not affect the American people. The older the states and communities in this country grow the more timber they seem to require in one form or another.

Many substitutes have been devised for wood and yet the great demand of the country for timber continues to grow. More wood is used in construction today than before the discovery of concrete, and more wood is used in building railway cars than before the steel or part steel car was developed. This is apparently true in nearly every industry.

Abundant and widely distributed forests have meant to the United States homes for the masses of the people beyond the standards of any other nation. They have placed newspapers and magazines on the average family table. They have contributed largely to social and industrial conditions which promote democracy and constructive energy rather than discontent and destructive social forces bred by hard and comfortless conditions of life.

The idleness of 81,000,000 acres of forest land, an area increased by 8,000,000 to 10,000,000 acres annually, destructive logging and still more destructive forest fires, are the factors at work to increase the timber shortage.

The exhaustion of American timber has not come about because the forests have been used so freely, but because of the failure to use forest growing land. The United States is cutting wood out of its forests three or four times as fast as it is being grown. Much of the land on which timber stands or has been cut off will always be forest land. It is ample to grow all the wood needed for the use of the people of this country and for export trade in lumber and products manufactured from lumber, if the land can be kept at work growing trees. Timber for the future is simply a matter of putting idle land to work.

CHEMISTRY NUMBER

The monthly bulletin of the department of agriculture of California for January is pretty nearly chemically pure. It has a foreword by Director Hecke in which he refers to former methods of chemical analyses and various tesets in which three separate laboratories were maintained in California. Now they are all together under one division of the department of agriculture known as the division of chemistry. This division is only about one year old but under the direction of Prof. George P. Gray is becoming a most efficient and valuable department of state work. Prof. Gray gives an introductory chapter describing the work of the division, refers to its having made analyses for consumers of fertilizers, dairy products, insecticides and fungicides, and also to its activity in making investigations. Several illustrations give an idea of the laboratories. One chapter has to do with "Reduced Acidity in Oranges Caused by Certain' Sprays." It is written by Geo. P. Gray and H. J. Ryan, the latter horticultural commissioner of Los Angeles County. The principal feature of this chapter is the large number of tables showing acid content of oranges both sprayed and unsprayed. Other topics touched upon in this bulletin are: "Soil Ingredients Withdrawn by Fruit," by George E. Colby; "Value of Gas Tight Covers in Fumigation," by R. S. Woglum; "Dry-Bog Soils," Gordon Surr and Roland Vaile; "The Composition of Sheep Manures," George E. Colby.

VOLUNTEER COTTON

By M. E. Bemis

Growing cotton from the stumps of last year's stalks looks interesting to the grower who has most of his ready cash tied up in the cotton which is being held for better prices.

This is not a new game, as cotton farmers have tried it ever since the second season of cotton growing. As a general practice that can be followed year in and year out, like growing sugar cane, there is nothing much to be said.

Like growing millet, or riding a mule, it is more or less of a makeshift, something like the substitute that the grocer hands out when your special brand of tea or chewing tobacco hasn't come in yet.

This season the determining factor is the cost of planting a crop, and the poorer quality of lint and less quantity is a matter than is not so vital as it was when cotton looked like a dollar a pound.

Dr. O. F. Cook, the noted Long Staple cotton expert, commenting on this matter, says:

"One precaution may be noted for the early spring, to avoid watering the fields before the shoots have started. The indication of past experience is that more plants survive and send up shoots in dry, open soil than on heavy or wet land. Even the cutting of the stalks too soon in the fall or winter seems to reduce the chance of survival, perhaps through increased exposure of the wood to infestation by fungi while the tissues are dormant and less able to resist. More roots survive when the stalks are cut with sharp hoes or with mowing machines than when stalk cutters are used, which breaks or bruises the bark at the surface of the ground.

"No special methods are known to have been developed for cultivating or irrigating second year cotton, except that more water is required to support more rapid growth of the plants in June and July, when the days are long and periods of very high temperatures are encountered. The need of water has to be determined by observing the behavior of the plants to avoid forcing or checking their growth. In the early stages before the sprouts start or while they are still small very little water is needed, and the ground is warmer if not irrigated. As with first year cotton better results are obtained if the plants do not become too rank, but during the fruiting season an adequate and regular supply of water must be maintained to secure a full crop and avoid injury to the fiber."

GROWING ANNUALS

It may be that more annual flowers would be grown if their needs were better understood. Soil for perennial crops, trees and shrubs is built on a permanent base and the food therein may be available over all the year, or for years, and so constituted may be considered good.

Not so with the annual crop, however. This class of plants makes its full growth in a few months and completes its life cycle in less than a year. For this reason soil conditions should be ideal for a short time, but highly ideal. Soil must be rich with immediately available foods, for the growth is rapid and sustained, even though the period be short. Drainage should be good, yet soil moisture must be sufficient and equably maintained. Competing weeds must be suppressed or exterminated. It must be evident, then, that soil for annuals needs more careful preparation for the top few inches than for more permanent crops. If this be understood and carried out the growth of annuals will become more popular, because successful.—E. B.

CAROBS VARIABLE

R. S. Woglum, while in Europe a number of years ago, noted that carobs grown at Malaga were monoecious (flowers of both sexes on one tree), while at Valencia the varieties were dioecious (sexes on separate trees). The trees were grown in the same field with olives and seemed to be more drouth resistant. Some of the trees are said to live 200 years.

A pure bred sire is an asset of any community. A scrub sire is always a liability.

Quick Gopher Eradication

On April 2, 1921, our illustrated "Successful Gopher Trapping" article appeared in the Pacific Rural Press. April 3, Mr. J. Aschwanden of Santa Cruz, Calif., who read the article, sent us 75c for one of the **Chubbuck Double Catch Gopher Traps,** which trap went forward April 5, the day we received the order. Below is one of the four illustrations used in the Press article:

Catches Gopher Any Size or Age

Today, April 12, we are in receipt of the following letter from Mr. Aschwanden:

Santa Cruz, 4-9-21.

E. J. Chubbuck Co.,
San Francisco, Calif.

Dear Sirs: Received trap and your letter on the 7th, and on the 8th I set the trap seven times and caught seven gophers all in one day, and some of those I could never get before with several different kinds of traps, nor with gas. I assure you that I am highly pleased with your trap, and you can look for more business in the near future from my neighbors as I am telling every one of them about it, and show them the good results. Thanking you very much, I remain, J. ASCHWANDEN.

Reports like the one made by the Santa Cruz customer have been coming in from all sections. Four days ago we shipped a full gross **Double Catch Traps** to one California Ranch. The attention of the Superintendent of the ranch had been called to our trap by an advertisement in the California Cultivator.

If you cannot secure these traps from your local Seed stores or Hardware dealers, send direct to us. **Price, postpaid, 75c.**

E. J. CHUBBUCK COMPANY

Manufacturers, Dept. A.
731 Market Street, San Francisco, Cal.

Annual White Sweet Clover

Guaranteed Seed of the Hubam or Hughes Variety

Makes growth in one season that ordinarily clovers do in two. Yields under cultivation two tons hay or 300 to 800 pounds of seed. Price $1 for trial package or $10.00 per pound. A pound will seed an acre. Make a big profit growing seed for yourself and neighbors. Order before small supply is exhausted from The Henry Field Seed Company, Shenandoah, Iowa, or direct from **The Grower Who Guarantees.** The DeGraff Food Company, Degraff, Ohio.

LET your chick babies be buttermilk babies this year and watch 'em thrive and grow. Start them right, start them on Globe "A-1" Baby Chick Mash, **the buttermilk baby chick mash.**

There is practical and scientific knowledge put into Globe "A-1" Baby Chick Mash. It isn't just a feed. It's that and more—a health protector. The generous quantity of pure dry buttermilk which it contains gives it this invaluable property. The lactic acid content cleanses the baby chick's system, and protects it from the ravages of disease. **(It has proved a preventative of white diarrhoea and coccidiosis.)**

AFTER THE CHICKS ARE OLDER

After your chicks are about 6 weeks old change the ration to Globe "A-1" Growing Chick Mash (containing dry buttermilk) and when the pullets are 5 months old begin to feed Globe "A-1" Laying Mash (containing dry buttermilk) and get ready for the full egg basket.

Nutritious hearts of grain, meatine, selected ground grains and plenty of pure dry buttermilk—that's Globe "A-1" Baby Chick Mash—why shouldn't the chicks grow well on it?

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"Money's Worth or Money Back"—a guarantee as sound and as liberally made as are Globe A-1 Feeds.

If you are not pleased to have our Product, we are not pleased to have your money.

Your Dealer cheerfully backs this guarantee.

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San Francisco Colton Los Angeles
Sacramento Ogden San Diego

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Baby Chicks

Largest assortment of baby chicks in the West. Hatched in the RIGHT way. Can ship Express or Parcel Post. We carry a complete line of poultry supplies. Used incubators on hand. Fireless brooders that are made to care for chicks properly. Chicks shipped safely in these brooders. Breeding and Pet stock of all kinds. Write us your wants. Send for price list. Dogs, cats and rabbits.

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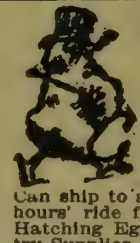

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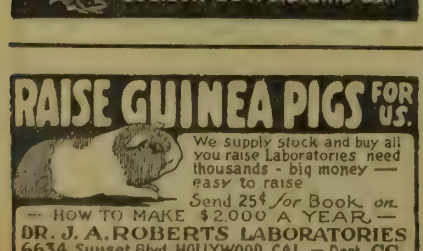
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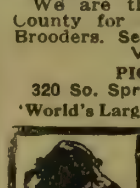

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and BERRIES for PROFIT

We can supply plants—all sorts for large fields. Plant also peaches, plums, prunes, pears, figs, apples, apricots, asparagus, artichokes, etc., for your own table and pleasure. We have a good assortment of fruits of all sorts. Write for price list. J. B. WAGNER, Rhubarb and Berry Specialist, Pasadena, Cal.

Prevent Blackhead in Turkeys

By R. R. McLean

John S. Buckley, chief of the pathological division of the bureau of animal industry, U. S. D. A., has stated that in some districts it is practically impossible to raise turkeys because of the presence of the causative agent of the disease of blackhead. Not only is there great financial loss to the poultryman, but many persons are deterred altogether from entering the business and the consuming public pays higher prices because of the fewer numbers and increased cost of raising turkeys.

A preventive treatment for this destructive disease has just been announced by Drs. H. M. and Paul Wegeforth of San Diego, in the Journal of Pharmacology and Experimental Therapeutics, published at Baltimore. R. R. McLean who writes the account of the discovery of the Drs. Wegeforth is connected with the farm service department of the First National Bank of San Diego. It appeals to us that this discovery may lead to greater extension of this branch of the poultry industry.

BLACKHEAD was first brought to public notice about the year 1892 when it became extremely serious in Rhode Island and Maryland. Many investigators have worked on the problem since then, Dr. Theobald Smith, at one time chief of the United States Bureau of Animal Industry, finally discovering the causal organism, named by him as "amoeba meleagridis," and classified the disease as an entero-hepatitis, or inflammation of the liver and intestines. This organism is one of the lowest of the animal kingdom and is closely related to that producing a form of dysentery in human beings. During thirty years practically no headway whatever has been made in combating it although several investigators have had slight success with rather complicated courses of treatment. All of them have finally turned their attention to the possibility of the prevention of infection rather than cure.

The Wegeforths did not become actively interested in blackhead until Dr. H. M. Wegeforth established a poultry ranch in Paradise Valley, San Diego, where climatic conditions are ideal for this industry. On absolutely new ground where so far as known no turkeys had ever been raised before, 40 birds were raised the first year from stock brought from Ohio, no disease appearing. The next year, 1915, without any new birds or eggs being brought to the ranch, blackhead suddenly appeared and more than half of the young stock and one of the old birds died. During the next year, 1916, only one bird out of 80 hatched survived, although 60 reached the age when they were able to roost in the trees. The entire stock was then disposed of and the ranch moved a quarter of a mile to new ground on which turkeys certainly had not been for 20 years and probably not before then. The first year no blackhead appeared, but the second, 1918, out of a hatch of 210 all but 72 died, most of them from this disease. Conditions were repeated in 1919, as out of 209 young turkeys all but 52 died, the disease attacking them at six weeks of age, and undoubtedly most of the few left would have died also but for the institution at that time of the new treatment.

The Paradise Valley Poultry Ranch is used exclusively for the breeding of fine stock, some of the finest bronze turkeys in the United States being produced here. The pens are headed by the famous Copper King V, twice a national first prize winner, and the financial loss sustained at this ranch because of blackhead was accordingly much greater than the number of deaths would ordinarily indicate.

The malady known as blackhead has been by some partly attributed to a predisposition on the part of the young turkeys to catch cold and die if they got their feet or feathers wet in the grass or if caught in a rainstorm, and by others to over or improper feeding. Many experiments were tried by the Wegeforths with various kinds of food, laxatives, tonics, etc., without any noticeable results except in some instances to apparently increase the mortality. When it seemed as if the entire flock would be exterminated their attention was drawn to Dr. Smith's conclusions of the amoebic origin of the disease, and this suggested to them the use of the same remedy that has proved so valuable in cases of human enteritis of amoebic origin, namely ipecac.

In September, 1919, experiments were begun with the use of this drug, there being, as stated, 52 of the young birds still living out of 209 hatched that year. Blackhead was raging in the flock, some of the older birds also being attacked. The first treatment consisted in separating the sick birds from the flock and giving them 10 drops of fluid extract of ipecac three times a day, continuing this dosage for three days and then decreasing to 10 drops twice a day for three days, and then finally once a day for the same period. After treating six or eight turkeys they found the sick birds were recovering and could be put back with the rest of the flock. Out of the 52 young birds 32 were attacked by the disease and under the ipecac treatment 29 completely recovered. Five old birds contracted the disease at this period and were given treatment, resulting in the recovery of three, the other two being rather far gone when treatment was resorted to.

For the purpose of determining if the disease could be prevented from developing, 18 nearly full grown healthy birds were obtained from a distance and fed with a quantity of ground intestines and liver of a turkey that had just died of blackhead. It had been previously proven (Moore 1896) that the disease could be transmitted from turkey to turkey in this manner. These birds were then separated into three pens, the six in the first being given the fluid extract of ipecac treatment, those in the second being fed with a mash containing three teaspoonsful of powdered ipecac to the quart for three successive days and those in the third pen being used as a control and given ordinary food with no ipecac. No birds from either of the first two pens contracted the disease but in the third pen four died of blackhead within 60 days, two remaining healthy.

Experiments were resumed in the spring of 1920, powdered ipecac being given in the food. The dosage used was a teaspoonful twice a week for each unit of 20 turkeys, no difference being made for age or size. One hundred and six birds were hatched this season and allowed to run with the older turkeys over ground that was thoroughly infected with the disease but no blackhead appeared in the flock. Up to the time this report was made no blackhead had appeared among either old or young turkeys in the Wegeforth flock since the institution of this prophylactic method of treatment, although the disease has been and is still the source of heavy losses among other poultrymen. One turkey raiser in a nearby locality is reported to have lost 320 poults from this disease last year out of 400 hatched.

The following history is given of the symptoms of blackhead by the authors of the treatment which will be of value to those who are familiar with only the later stages:

"For the early diagnosis of the disease it was found that careful inspection of the droppings each day was of great assistance. The first symptom that a bird coming down with blackhead usually shows is a slight lameness of the leg, usually the left. Just about this time the droppings become liquid, frothy and frequent so that it has frequently happened in our experience that detection of such droppings in an enclosure has led to the successful search for a sick turkey. The number of times that this early diagnosis has been confirmed by death and subsequent autopsy has not been without benefit for by its use a great many birds subsequently were subjected to treatment at a time when the best results could be expected. The characteristic droppings were the first symptom in about half the cases observed and have been typical of the disease in about 75 per cent of the turkeys infected. Following the lameness the turkey becomes sluggish and the head frequently, but not always becomes discolored, the fleshy parts taking on a bluish green cast. During

the course of the next day or two the feathers on the rump begin to rise and later the wings and tail droop; the head is carried less erect and the eyes remain closed most of the time, opening, when they do, slowly and languidly. Death sometimes occurs within 24 hours after the onset, but most commonly the turkey succumbs on the second or third day. Turkeys sacrificed at the different clincal stages outlined above have shown a characteristic progression of the infection. If sacrificed early when the bird begins to limp, the caeca alone were noted to be inflamed. Later when the feathers begin to rise over the rumps, involvement of the liver can be found and by the time the wings and tail droop the liver is usually filled with necrotic areas."

The experiments are summed up as follows:

"It has been demonstrated that infectious entero-hepatitis of turkeys can be cured by the administration of suitable doses of ipecac. It has also been shown that turkeys experimentally infected by the feeding of viscera taken from a turkey succumbing from the disease can be prevented from contracting the disease by either the oral administration of the fluid extract of ipecac or by the ingestion of the powdered drug with the food. Further it can be said that the disease failed to make its appearance among the turkeys on a ranch which for several years previous had been visited by epidemics of the disease in a virulent form, the prevention being attributed to the prophylactic administration of ipecac with the food."

As has been the case with nearly every important medical discovery of a remedial nature, this one is also freely given to the world at large by the originators. Without some successful treatment for the prevention of blackhead at least 50 per cent of the young birds hatched every season will probably succumb to the disease, so that the potential economic benefit that may be expected to be derived from the proper use of ipecac can readily be imagined. The simplicity of the Wegeforth treatment and ease of administration, as well as the results obtained, will comend it to every poultryman.

Poultry Queries

Conducted by Jean A. Koethen

White Holland Turkeys

Is there any advantage in raising White Holland turkeys rather than Mammoth Bronze for market purposes?—Subscriber, Blythe.

Some admirers of the White Holland claim that it is a better market bird because it is not quite so large as the bronze, but I have never heard that Bronze breeders had any trouble in disposing of their stock. Birds over 20 pounds in weight do not find quite so ready a market, but not many turkeys of any variety will reach this weight in the six or seven months usually allowed Thanksgiving turkeys.

Chicken Pox

My turkeys have yellow sores on their heads, the heads swell and they go blind. Can you give me a cure?—Subscriber, Winters.

Your turkeys have chicken pox. This treatment was recommended to me recently by a turkey breeder who said she had never known it to fail: Rub carbolated vaseline on the sores, and for purifying the blood use the following mixture: 2½ pounds each of nitrate of soda; copperas, Epsom salts and powdered sulphur; 3¾ pounds dairy salt; 2 pounds carbonate of soda, ½ pound ginger and ½ pound carbonate of magnesia. Add 12½ pounds dry bone meal and 12½ pounds charcoal to the mixture. Mix about 5 pounds of this with 50 pounds of mash for 100 turkeys. When it is gone mix 15 pounds of the mixture with the same quantity of mash, and then a third time use 6 to 10 pounds of the tonic to 50 pounds of mash.

Economical Feeding

At present we are using the following mash with whole barley at night: 50 pounds each of bran, ground sorghum and ground whole wheat; 20 pounds cottonseed meal, 30 pounds beef scrap; 5 pounds charcoal; 1 pound salt. It gives good results but is rather expensive for the present price of eggs. Can you suggest a more economical ration?—Subscriber, Fallbrook.

Your ration is very rich in protein for hens that are on free range. The beef scrap alone is 20 per cent of the ground grain content with the cottonseed in addition, and the ground wheat, another expensive feed, is not necessary when you have a fair quality of bran. I think you could reduce expense materially by making your mash formula 100 pounds bran, 25 pounds ground barley, 25 pounds corn meal, 15 pounds beef scrap and 5 pounds cottonseed or soy bean meal. Soy bean is better than cottonseed because it is less fattening. Then feed as much wheat as you can afford in the scratch feed. A half and half mixture of wheat and milo would be good in cool weather. In summer use wheat and barley.

Rheumatism

Two of our roosters recently began to limp and grew rapidly worse till they lost the use of their legs. Their combs are red and they eat fairly well. The trouble seems to be in the first joint.—Mrs. W., Azusa.

This seems a plain case of rheumatism, probably due to dampness in houses or yards or to exposure to wind. Paint the lame joints very lightly twice a day with a feather dipped in tincture of iodine and keep the birds in a sunny, dry place, where they are protected from wind but still in fresh air. Feed all the green they will eat.

Fertility After Mating

How soon after placing the male with a pen of 12 hens will the eggs be fertile?—Subscriber, Arroyo Grande.

Eggs have been found fertile as early as four days after the male was placed in the pen, but general practice is to wait two weeks before beginning to save up for hatching. Hens are sometimes unwilling to mate with a strange cock and some time must be allowed them for getting acquainted.

LAYING HENS NEED EXERCISE

The necessary close confinement of fowls during cold weather prevents in a measure their obtaining sufficient exercise which is conducive to maximum egg production. The state department of agriculture advises that this requisite may be induced by placing the feed where it will require some exertion on the part of the hens to procure it.

Exercise may be encouraged by depositing grain in litter such as hay, straw, leaves, shredded fodder, etc. This litter should be no less than four inches deep and should not be allowed to become filthy before renewed. Cabbage heads, beets, or mangels, should be suspended or nailed to the wall at a distance above the floor that will require the fowls to jump in order to eat them. Laying hens require considerable exercise and for this reason they should be kept hungry enough to induce some exertion in getting a considerable portion of their feed.

The acceptable collar style of 300 years ago as painted by the Master Craftsman —Rembrandt.

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Made by Troy's Master Craftsmen for the Man of Today.

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are dignified, comfortable and give long wear— made for the man who demands standard-value merchandise—attractively priced. Your dealer is showing the latest styles.

HALL, HARTWELL & CO., Makers, Troy, N. Y.

We get Big Egg Production from PCA Dry Mash.

Do you recognize these signatures? They represent some of California's leading poultrymen, prominent and successful in their line.

On their ranches are 67,000 hens fed daily with **PCA** Dry Mash and other **PCA** Products. These owners base their use of **PCA** feeds on practical experience---it has meant more profit for them.

Increase your success in the poultry business by taking advantage of the experience of others.

Use PCA Dry Mash—the economical, perfectly balanced ration for poultry. It increases egg production; assures uniform hatches; conditions stock; gives lasting benefits, and is acknowledged by poultrymen who feed over 622,000 hens as the most profitable mash obtainable. You can safely follow in the footsteps of these poultrymen who have had years of experience.

More Than 200 Dealers in Southern California Sell and Guarantee

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Send name and address for 1921 Chick Book by M. A. Schofield, just out. It's Free.

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1516 INDUSTRIAL STREET - PHONES 12076 and MAIN 2935

LOS ANGELES, CALIFORNIA.

Los Angeles Markets

Los Angeles, April 20, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price, 38 cents.

Apr.	13	14	15	16	18	19
'21 ...	41	40	40	38	38	38

CHEESE

Brokers' prices:
California flats, 20@23.

EGGS

Fresh extras (case included): Produce Exchange closing price 28 per dozen. Case count Produce Exchange closing price 27. Pullets, closing price 25 per dozen.

Dairy Exchange price last week on extras:

Apr.	13	14	15	16	18	19
'21 ...	26½	26½	27	27	27	28

POULTRY

Price to producers: Hens, lt., 26; heavy 26; colored, 30; broilers, 20@36; roasters, 40; old roosters, 11; fryers, 48; ducks, old, 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 13@17; old, 9.

LIVESTOCK

Los Angeles, April 19. — Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 10.00; 175 to 225 lbs., 10.50.

Cattle (on foot, gross weight): Steers, good, 8.50@9.00; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Bulls and stags, 4.00@4.50. Calves, 125 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 4.00@5.00; lambs, 8.00@10.00.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe Avenue. Receipts from the interior for 24 hours ended at 10 a. m. Tuesday were: 74 hides, 34 pelts, 683 lbs. tallow.

Green and green salted hides: No. 1 heavy hides, 50 lbs. and up, 4 per lb.; No. 1 light hides, 25 to 50 lbs., 4 per lb.; No. 1 kips, 15 to 25 lbs. 5 per lb.; No. 1 calf skins, under 15 lbs.; 9 per lb.; No. 1 slunks, 10@30 each; No. 1 bull hides, 3 per lb.; No. 1 horse hides, over 50 lbs., 1.50 each; No. 1 horse hides, 40 to 50 lbs., 1.00 each; No. 1 horse hides, 30 to 40 lbs., 60 each; ponies and glues, half price; No. 1 grubby hides and skins, 1½ less; No. 2 hides and skins, 2 less; glue hides and skins, half price.

Dry flint hides—No. 1 hides, 16 lbs. and up, 8 per lb.; No. 1 kips, 6 to 16 lbs., 9 per lb.; No. 1 calf skins, under 6 lbs., 10 per lb.; No. 2 hides and skins, 2 less; glue hides and skins, half price.

Pelts—Large, long wool, 40@70 each; medium, 20@40 each; short wool and shearlings, 5@20 each.

Goat skins — No. 1 common, 10@30 each; No. 2, 5@10 each; badly damanged and small kids, worthless.

Tallow—No. 1 white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool—According to quality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock April 12, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market firm. Stocktons: Burbanks, quality poor, 1.75@2.00; few best 2.25@2.40. Idaho: Russets mostly 2.35@2.50. New potatoes: Best 2.10@2.35 lug. Sweet potatoes: Supplies liberal, market steady. Best mostly 2.25@2.50 lug. Arkansas and Texas, 7@8 lb.; jobbing sales, mostly 6½@7 lb.

Onions: Supplies heavy, market dull. Stocktons: White Globes, cold storage stock, 75@1.00; Browns, mostly 35@65 per cwt., sacked.

Garlic: Local best mostly 10@12 lb.; poorer 7@9.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock April 19, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 1.00@1.25; poorer wide range.

Asparagus: Market strong, supplies liberal. Local: Mostly 13@18 per lb. Northern, 11@14 per lb.; jobbing sales 10@12 per lb.

Beets: Doz., 30@35; sk., 1.75@2.00.

Cabbage: Field crate best mostly 90@1.10; poorer, 60.

Carrots: Doz., 35@40; sk., 1.00@1.25.

Cauliflower: Supply moderate, field cr., best, 2.25@2.50; poorer low as 1.25; few best high as 2.75.

Cucumbers: Hothouse, best, 3.00@3.25 doz.; poorer 2.75.

Lettuce: Local field crate quality poor, 1.00@1.25; best mostly 1.50; few high as 1.75.

Peas: Local: Best 7@9 per lb.; jobbing sales 6@8 per lb.

Radishes: 20@28 doz.

75@90; Strawberry bx., 1.20@1.35.

Spinach: Mostly 20; few best, 25 doz.

Squash: Summer, mostly 1.10@1.20; jobbing sales mostly 1.00.

Tomatoes: Mexican, per lug, best 4.00; repacked lug, 4.25; few crates Imp. Valley 3.50.

Turnips: Doz., 35@40.

FRESH FRUITS

Strawberries: Supplies increasing, market steady but lower. No. 2 mostly 4.00@4.50; No. 1 mostly 5.00@6.00.

CITRUS FRUITS

Grapefruit: Supplies liberal, market firm on good stock. Local: per box, market pack 2.00@2.25, special packed brands 2.75@3.25.

Lemons: Supplies heavy, market dull, wide range in prices. Local: packed box 1.50@2.25, few high as 2.75, loose 75@1.00 per box, per lug mostly 40@50.

Oranges: Supplies heavy, market firm. Navels, market pack, large sizes 3.00@3.50 small low as 1.75, special brands, small sizes 2.75@3.25, large sizes 4.00@4.50. Packing house culls 25@50 per box, few best 75. Tangerines: Supplies liberal, market steady, lb., 4@6.

HONEY

Supplies of honey are still generally heavy, but old crop is cleaning up in some sections. Poor wire inquiry. Movement slow, market weak. Carloads f. o. b. usual terms: Per pound, few sales of White Orange Blossom 12½@13; White Sage 12@12½; light Amber Alfalfa 6@6½; Light Amber Sage 7½@8½; White Alfalfa 7½@8; Hawaiian White 7; Light Amber 6; Honey Dew 4½. Producers are reported as offering contracts for new crop. White Orange Blossom 10 per lb., but buyers are holding off. Prospects for the honey crop are generally favorable throughout the state, except in the San Diego district and Salinas Valley, where rainfall has been very light. Darker grades of honey are now on cheap price basis and competing with sugar for commercial use. The outlook is for a continued downward trend in prices for the darker colored stock.

GRAIN AND FEEDS

Grain Exch. price bid April 19:
Barley: Carlots, 1.18¾.
Corn: Bulk, No. 3, Yellow, 1.45.
Milo: Eastern No. 2, bulk, 1.45.
Bran: Kansas, 28.00.

HAY

Alfalfa Growers of California report under date of April 18:

The markets for grain and feeding stuffs reached new low levels during the week under the influence of which the market for alfalfa continued dragging and inactive. It would seem as if in consequence of the apparently endless decline in the prices of all farm products prices had ceased to be a factor in the demand; in fact, the lower prices go the more buyers become frightened and timid, and the less they are inclined to buy beyond their most immediate needs.

There were 600 tons received on the Los Angeles tracks the week ending April 16, with 60 tons held over as against 380 tons the week before.

Rabbit Alfalfa	25.00
No. 1 Dairy	21.00
Standard	18.00
Stock	15.00

Quotations by Nichols - Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@30.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@16.00
Straw	10.00@13.00

San Francisco Markets

San Francisco, April 19, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras	37½

Dairy Exchange prices extras this week and year ago:

Apr.	12	13	14	15	16	18
'21 ...	41½	41	38	36	..	37½
'20 ...	..	58	58½	58½	..	..

Rcts. wk. ending April 18, 4,529 centals.

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	22@26
Jack, half skimmed, street price	17@20
Ore. Y. A.	35
Ore. Trip	36
Cal. Y. A.	22½
Cal. Flats	19½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	28½
Extra Firsts	27
Extra Pullets	27
Undersized	21½

Apr.	12	13	14	15	16	18
'21 ...	28½	28	28½	29	..	28½
'20 ...	..	..	42½	42½	43	..

Rcts. wk. ending Apr. 18, 652,598 dozen.

POULTRY

Wholesale prices are:

Hens: Colored, 37@40; White Leghorns, 28@30; strictly young roosters, 42@45; old roosters, 18@21; fryers, 50@60; broilers, small, 33@36; large, 40@50.

Squabs: 50@55 per lb.

Belgian Hares: Alive, 23@25 per lb.

Pigeons: Old, 3.00@3.50 per dozen.

Jackrabbits: 3.00@3.50 per dozen.

LIVESTOCK

Western Meat Company prices are:

Cattle: Steers, No. 1, 8@8½; steers, second quality, 7@7½; steers, thin, 4@4½; cows and heifers, No. 1, 6@7; cows and heifers, second quality, 5@6; cows and heifers, thin, 3@4.

Calves: Light weight, 8½@9½; medium, 8@9; heavy, 7@8.

Lambs: Yearlings, 8@8½.

Sheep:: Wethers, 5½@6½; ewes, 3@4.

Hogs: Hard, fat and grain fed, weighing 100 to 200 lbs., 10½; 200 to 300 lbs., 10; 300 to 400 lbs., 9½.

California Farm Bureau Marketing Association reports:

No.	Hogs	Ave. Wt.	Dock	Price
Tulare, April 12				
8		108	...	$10.05
80		203	...	10.00
78		205	...	10.00
96		194	...	9.75
98		161	...	9.75
93		163	...	9.75
49		156	...	9.50
65		237	...	8.50
11		388	320	7.25

Total seven cars, 61 consignors, $10,492.99.

Visalia, April 13			
97	158	...	10.55
64	169	...	10.05
16	131	...	10.00
74	205	...	9.70
15	270	50	9.05
20	331	...	8.05
4	575	...	6.05

Total three and one-half cars, 22 consignors, $5,369.71.

Hanford, April 14			
20	115	...	10.50
102	167	...	9.10
56	180	...	9.00
95	175	...	9.00
93	181	...	9.00
89	191	...	9.00
84	198	...	9.00
8	173	...	9.00
16	258	...	8.60
13	384	280	6.60

Six cars, 44 consignors, $9,650.55.

Corcoran, April 15			
84	221	...	10.20
2	145	...	10.00
30	214	...	10.00
89	182	40	9.20
9	320	20	9.00
2	275	50	8.00
2	410	280	6.00

Three and one-half cars, 14 consignors, $4,397.92.

Total for the week, 20 cars, 141 consignors, total $29,911.17.

HIDES AND PELTS

No. 1 heavy hides, 60 lbs. up, 3; do, medium, 45 to 60 lbs., 3; do, light, 30 to 45 lbs., 5; do, native bulls, 2; No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 5; No. 2 wet salt kip, 15 to 30 lbs., 3; No. 1 wet salt calf, trimmed, 7½; No. 2 calf, 2 per lb. less.

Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good, 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20; milk lambs, 5@10.

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, 2.00@2.40 for No. 1; do, Oregon Burbanks, 2.25. Idaho Gems, 2.50@2.60. Sweet potatoes: Nancy Hall, 5.00@6.00 per 100 pounds. New: 4@5 lb.; Garnets, 5@6½.

Onions: Australian brown, 35@50 per bag.

Garlic: New, 8@10 lb.

VEGETABLES

Wholesale selling price:

Asparagus: Lb., field run, 5@7; fy., graded, 9@10; graded, 11; green, 6@7.

Artichokes: Cr., 5.00@7.00.

Beets: 1.00@1.50 sk.

Beans: String, 20@35.

Carrots: 75@1.00 sk.

Cauliflower: Doz., 40@75.

Cucumbers: Hothouse, small, 4.00@4.50 box of 2½ dozen; large, 2.50@3.00 per dozen; English, 2.50@2.75 per dozen.

Cabbage: Lb., 1.

Celery: Cr., 1.25@3.00.

Eggplant: Lb., 10@15.

Lettuce: L. A. cr., 3.50@3.75; Imp. 3.50@4.00; local, 2.25@2.50.

Onions: Green, per lug, 1.25@1.50.

Peas: Large, 4@7 lb.; Bay, 8@9.

Parsnips: Sk., 2.00@2.25.

Peppers: Bells, Southern, 5@15 lb. for green; Florida, 10@15; small, 7@8.

Rhubarb: Alameda, extra choice, 1.25 2.00.

Squash: Italian, 1.00@1.50; Imperial Valley Summer, 1.50@1.65; Cream squash, 60@75 lug; Hubbard and Marrowfat, 1.75@2.25 sk.

Spinach: Lb., 3@4.

Tomatoes: Mex., 3.50@4.50; do, repacked, 4.00@5.00 per L. A. lug; 3.25@3.50 cr.

Turnips: Sk., 50@1.00.

FRESH FRUITS

Avocado: California, dozen, 3.00@7.00.

Bananas: Lb., 9@10.

Pineapples: 4.50@6.00.

Strawberries: Imp. Valley, 3.00@3.50 cr.; Central Cal., 1.25@1.75 per dr.; do cr., 3.00@3.50.

Loquats: Lb., 12@15.

CITRUS

Navel oranges, 2.65 @ 4.75; lemons, 2.00@3.50 per box; lemonettes, 1.50@2.00; grapefruit, new crop, 1.50@3.50; slightly more on extra fancy; tangerines, 1.50@3.50 per half orange box.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 17 lb.; Sunmaid, seeded, 36 15-oz. pkgs. 22½ lb.; seedless Sultanas, 25 lb. bxs., 19 lb.; Thompson Seedless, 25 lb. bxs., 21 lb.; do, 48 15 oz. bxs. 23 lb.; 3-cr. L. M., 25 lb. bxs., 19 lb.; 2-cr., do, 18 lb.; 1 lb. clusters, 20 lb. bxs. 5.40 box.

Apricots: Fancy 25 lb. boxes, 22 lb.; extra choice, do, 19 lb.; choice, do, 16 lb.; standard, do, 15 lb.

Peaches: Blue Ribbon brand, 48 11-oz. to cs., 7.00 cs.; Blue Ribbon brand, 24 2-lb. bxs. to cs., 8.00; fancy, 25 lb. bxs., 16 lb.; ex. ch. 25 lb. bxs., 12½; choice 25 lb. bxs., 12.

Figs: Fancy black, 25 lb. boxes, 12½ lb.; extra choice, do, 10 lb.; choice, do, 8½ lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 extra choice, do, 10 lb.; choice, do, 9 4 oz. white, $1.25 bx.; 20 oz. white, $1.75 bx.; fancy 4 layer, 10 lb. bxs., $2 bx.

Prunes: 30-40s, 25 lb. bxs., 13 lb.; 40-50s, do, 10½ lb.; 50-60s, do, 9 lb.; 60-70s, do, 7½ lb.; 70-80s, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.; Persian dates, 17 lb.; Dromedary dates, 6,25 case; fancy silver prunes, 15 lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8 lb.; choice, do, 7 lb.

BEANS

Below California Bean Growers Association shippers prices choice recleaned.

Large Whites	3.40
Small Whites	3.30
Pinks	5.60
Mexican Reds	7.55
Red Kidneys	8.75
Henderson Bush	5.15
Cranberries	6.70
Bayos	9.15
Blackeyes	6.15

GRAIN

Sales grain exchange, April 19:

Wheat: Milling, 1.90@2.00; feed, 1.80@1.90.

Corn: Cal. Yellow, 1.35@1.45; White Egyptian, 2.25@2.35.

Oats: Red feed, new crop, 1.40@1.50.

Barley: Feed, 1.22½@1.27½; off grades lower; shipping, 1.35@1.55.

Milo: Cal. Red, 1.75@1.85; Eastern Red, 1.50@1.60.

Kafir: Eastern, 1.45@1.55.

HAY AND FEED

Alfalfa Growers of California report under date of April 18:

No. 1 Dairy	18.00
Standard Dairy	16.00

Under date of April 16, A. W. Scott Co. says:

Receipts past week 700 tons. Light arrivals are undoubtedly the result of oversupply during the preceding two weeks and the difficulty of marketing receipts. Shippers in all directions have been holding up until our local market could digest what has already been received. Under these conditions, although quotations are unchanged, there is no firmness to any prices and the trend of the market this week closes strongly in buyer's favor. Better grades are somewhat scarce and more easily handled, but lower grades of oat, barley or stock hay drag and are especially hard to move. The dull condition of the market has been impartially manifest in local trading, in export and shipping and also throughout the interior of the state. Alfalfa continues dull and demand extremely light by reason of the pasture conditions.

Mill and dairy feeds continue in deplorable condition. The daily dropping of grain markets to a new "low level" each day has a depressing effect and prevents any trading except in the most insignificant quantities and for immediate consumption. Prices on mill products have declined in proportion to the reductions of whole grains and close at figures we quote below.

Coconut meal and alfalfa meal are moving slowly but steadily in small day by day sales. Beet pulp, molasses and the various nut meals are very slow to move and practically are only marking time.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00
Straw	10.00@15.00
Barley, ground	31.00@35.00
Barley, rolled	27.00@30.00
Oats, Rolled Feed	34.00@36.00
Bran, Red	34.00@35.00
Bran, White	36.00@38.00
Millrun	35.00@40.00
Middlings	47.00@50.00
Linseed Meal	60.00@65.00
Cocoanut Meal	26.00@27.00
Alfalfa Meal	28.00@29.00
Cottonseed Meal	35.00@40.00
Sugar Beet Pulp	30.00
Molasses, Tanks	23.00
Molasses, Barrels	26.50
Milo	35.00@40.00
Corn Meal	35.00@40.00

Citrus Markets

Los Angeles, April 20, 1921.

Navels are bringing better prices, especially on medium sizes. Practically all Navels are now in hands of shippers. The regular movement of Valencias is now on, a fair supply going forward from Central and Southern districts, though shippers of Sweets and Seedlings are still holding back owing to the heavy supply of small size Navels, still in the market.

Lemons show no improvement over last week's conditions. There are 20,000 boxes of foreigns in sight for the next 30 days sales.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 17,342 cars; lemons, 3,537; total, 20,879. To same date last season: Oranges, 14,399; lemons, 2,783; total, 17,182. From Central California to date, this season: Oranges, 4,523; lemons, 129; total, 4,652. To same date last season: Oranges, 4,052; lemons, 281; total, 4,333. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261, lemons, 22; total, 283.

AT THE AUCTIONS

April 13

New York: 22 or., 7 mixed, 3 lem. Nav. 3.05-5.15, Val. 2.75-4.00, Sweets 3.20, Navelencias 4.15-4.55, Tanges. halves 2.25-2.65, Seeds. 3.05, Grapefruit halves 65, Bloods halves 1.35-2.20, Mikes. 2.75-3.20, halves 1.35-1.55, lem. 3.10-3.70.

Boston: 14 or., 10 lem. Nav. 2.60-5.00, Bloods 3.35-4.00, halves 1.40-1.70, grapefruit halves 1.45, lem. 3.70-3.75.

Cleveland: 16 or, 1 lem. Nav. 2.30-4.20, Bloods 1.75, Sweets 3.20, Jaffas 2.90-3.00, lem. 4.00-4.35.

Pittsburg: 12 or., 2 lem. Nav. 2.60-4.60, Sweets 3.20-3.55, Bloods halves 1.55-1.75, lem. 2.80-3.25.

Philadelphia: 9 or., 1 lem. Nav. 2.45-4.75, Sweets 2.25-3.60, Med. Sweets 3.25-3.60, Bloods 2.95, Mikes. 3.00, lem. 2.10.

St. Louis: 13 or., 1 lem. Nav. 2.80-4.00, Sweets 2.45-2.80, lem. 3.05-3.25.

April 14

New York: 22 or., 4 mixed, 3 lem. Nav. 3.00-5.20, Val. 2.75-4.95, Bloods halves 1.75, Sweets 3.20-3.60, Mikes. 3.10, Tange. 3.65, halves 1.85, lem. 1.90-3.95.

Philadelphia: 12 or., 1 lem. Nav. 2.75-4.70, Seeds. 2.35-2.55, Homosassas 2.70-3.25, Jaffas 2.50-2.90, Bloods halves 1.35-2.90, Tanges. 1.30, Mikes. 3.70, halves 1.40-1.60, lem. 3.75-4.20.

April 19

Pittsburg: 5 or., 1 lem. Nav. 3.60-4.20, lem. 2.10-3.10.

New York: 24 or., 4 mixed, 2 lem. Nav. 3.05-5.30, Val. 4.15-4.40, Sweets 3.35-3.50, grapefruit halves 1.00-1.05, lem. 2.55-3.75.

Philadelphia: 8 or., 6 lem. Nav. 3.35-3.70, Mikes. 3.35-3.70, Sweets 3.15-3.50, Tange. halves 2.20, lem. 2.65-3.80.

THE QUEEN BEE

By Henry Perkins

THE queen is the only reproducing female in the colony; she is the sole egg producer; therefore upon the character and prolificacy of its queen depends the strength and vigor of the colony.

The queen normally lives two or three years during which time she produces upwards of a half million eggs. She lays both male and female eggs, apparently laying each gender at will. The bee passes through three stages during incubation, the egg, the larva, and the pupa. The male egg produces the drone. From the female eggs come the queen and the worker bees. Thus from two kinds of eggs we have three distinct types of bees. Let us see how nature accomplishes this marvel. First it must be understood that the workers are non-reproducing females. Their reproductive organs are negative, occurring only in microscopic outline, and are without function, while their honey gathering and secreting organs and defensive instinct are fully developed. In the queen the very opposite is true.

This difference in development takes place during the incubation period and is due to the difference in shape, size and position of the respective cells in which the eggs are laid, also to quantity of food supplied by the nurse bees. The eggs intended to produce worker bees are laid in worker cells which are the ordinary cells of the honey comb; the queen cell is much larger, being about the size of an acorn, and has a downward falling position.

The queen larva is fed much more lavishly than the worker larva. The result is that the larva incubated in a queen cell will emerge a fully developed virgin queen in 14 days time as against 21 days required to produce a worker bee from a worker cell. Both are from the same kind or gender of egg.

On this point there is not the slightest doubt. The proof is found in the case of a colony that suddenly loses its queen. The workers select a number of worker larvae, a half dozen or more, around which they build queen cells, cutting away the adjoining comb to provide room. The result is that the larvae which ordinarily would have become workers now are transformed into queen bees. The first queen to emerge immediately goes about destroying all the remaining queen cells in the hive. If two or more emerge about the same time a battle royal follows. The strongest survives and she will tolerate no rival in the hive. The young queen mates when she is about seven days old. The mating takes places on the wing, never in confinement. The queen mates but once. There is no doubt on this point. A purely mated Italian queen will produce pure Italian bees year after year even though she is removed and kept in a country where no bees of her race are to be found.

The male or drone egg is laid in drone cells which are somewhat larger than worker cells. Drones are only raised during the active season and disappear with the approach of winter. The drone has no means of gathering nectar and would starve to death were it not for the stores brought in by the workers. From the foregoing it will be seen that the beehive is a female suffrage layout from start to finish. It works surprisingly well.

BEE NOTES

By G. W. Bercaw

Possibilities in beekeeping for the beginner are measured by the limitations of his zeal and applied energy.

There are but few people who make beekeeping a special business. A man or woman with ordinary intelligence and physical ability may handle bees and make a success of it. As a rule the investment is small. It should, however, be regarded as a business, and it must have due care and attention at the proper time.

Bees are subject to the ravages of disease and have natural enemies similar to those found in other insect life. Their diseases are easily detected and readily controlled. Of course bees will sting; it is their natural weapon of defense. Study their habits and ways and this fear of stings will gradually pass away and handling them will become fascinating.

A complete knowledge of beekeeping is not necessary for the successful handling of bees, but it is advisable, if one can, to work with some practical up-to-date beekeeper for a season.

California is the largest honey producing state and ships annually several hundred cars of honey to other markets. It would seem that the possibilities at the present time are fully as good as they have been in past years. In many localities where a few years ago large bee yards were prospering, now there are communities and cities, which naturally compels the beekeeper to seek other pastures. As in all lines of industry we find new, improved equipment and labor saving devices, so are the auto truck, the gasoline engine and other modern appliances aiding the bee industry. Honey and bees are rapidly transported from place to place and gasoline engines run the power extractors, etc.

COMING EVENTS

Farm Bureau Picnic, Davis, April 23.
Sierra Madre Flower Festival, April 28-30.
Raisin Festival, Fresno, April 29-30.
California Valencia Orange Show, Anaheim, May 17-22.
Rose Carnival, Portland, Oregon, June 8-10.
Citrus Institute, Whittier, between June 20 and 30.
California State Fair, Sacramento, Sept. 3-11.
Southern California Fair, Riverside, Oct. 11-16.
Los Angeles Livestock Show, Los Angeles, Oct. 16-25.
California Association of Nurserymen Annual Convention, Exposition Park, Los Angeles, Oct. 20-22.
California Horse Breeders Association, Los Angeles, Oct. 30-Nov. 5.
Stanislaus County Poultrymen's Association Show, Winter Garden, Dec. 4-7.

NEVADA BEEKEEPERS

The Washoe County Beekeepers Association has been organized in Reno, Nevada, to meet the third Thursday of each month in the rooms of the Reno chamber of commerce and the officers elected for the ensuing year are: George G. Schweis, president; O. D. Downing, vice-president; L. D'A. Prince, secretary-treasurer. Executive committee, C. L. Cox, Ralph M. Guthrie and F. M. Kleppe.

THE WHITTIER INSECTARY

The state department of agriculture is now prepared, through its branch insectary at Whittier, Los Angeles County, to furnish the whole state with parasites of the black scale and citrus mealy bug. In the basement of the main building there are racks containing 1,500 trays or boxes 14½ by 16½ inches, each filled with potatoes in the sprouting stage. Upstairs is a glass house with a capacity of 1,000 trays, where the boxes are taken for infestation by scales and parasites. In addition to this there is a breeding house, recently moved from the Leffingwell ranch, where the parasites will be bred and collected for shipment. After June 1 it is expected to turn out 10,000 Cryptolaemus Montrouzieri daily, enough to supply the entire state. A few boxes are covered with stout wire netting of about one-fourth inch mesh, to restrain the potatoes in transit to South Africa, and as soon as these boxes are properly infested they will be shipped to Cape Town. This insectary is in charge of H. M. Armitage, assisted by Harold Compere and a staff of workmen.

BEAN WEEVIL

California bean growers have suffered great losses because of weevils. Roy E. Campbell, scientific assistant of the bureau of entomology, U. S. department of agriculture, has been in California several years investigating bean weevil and making other truck crop investigations. He is the author of Bulletin No. 807, which reports very particularly as to the investigation of the one pest of the broad bean—the weevil. In the introduction he says:

The growing of broad or horse beans in California during the last few years has been seriously handicapped everywhere by the presence of the broad bean weevil (Bruchus rufimanus Boh.). The practical impossibility of growing uninfested beans caused the early abandonment of a considerable acreage. The greatest abandonment, however, followed the ruling, according to the federal food and drugs act, that weevil infested broad beans are adulterated food and that their shipment was prohibited in interstate commerce.

The bureau of chemistry first ruled that beans infested "to any material extent" could not be shipped, but later changed the ruling to allow shipment to any lot which contained "not more than 15 per cent of wormy or weevil infested beans." The 15 per cent limit is tentative only. Acting under this ruling a shipment of broad beans from a San Francisco broker was seized in New York, after having been found to be over 25 per cent infested. The broker was tried for violating the food and drugs act, convicted by a jury and fined $150. Since then many dealers have refused to handle horse beans, while those who continued to deal in them have had to exercise caution that no shipment contained more than 15 per cent infested beans, or else run the risk of confiscation. The numerous confiscations during the past few years of shipments in transit by food inspectors, and the cost of hand picking to keep the infestation within the 15 per cent permitted, has resulted in keeping the price of beans low and reducing the acreage.

Although the bean is commonly called the horse bean, the name is somewhat a misnomer, as only about 30 or 40 per cent of the crop is used as stock feed. The larger portion is shipped to New York and other Eastern cities where it is used for food by Italians and Portuguese, and is known as fava. Other names are English bean, Windsor bean, and tick bean.

The horse bean is used also as a green vegetable and of late years has been planted to a considerable extent as a winter cover crop, especially in fruit orchards. A recent farmers bulletin recommends further plantings along the Pacific Coast, the Gulf of Mexico and the South Atlantic states, not only for the dry beans for human consumption, but also for the green vegetable, stock feed and green manuring.

Tne recommendations as to controlling this pest are given in the following short sentences:

Only uninfested or treated horse beans should be used for seed. All horse beans used for seed which are infested with the broad bean weevil either should be treated with carbon disulphide or held over in tight receptacles until the second year, when the weevils will all be dead.

Carbon disulphide should be used at from 7 to 10 pounds per 1,000 cubic feet, for at least 24 hours, in a box, barrel, or room as air tight as it is possible to get. The smaller amount is effective in perfectly tight receptacles, but the larger amount should be used if the fumigating box or room is not tight. The liquid should be placed in a shallow pan at the top of the box or poured over the seed.

Infested seed which has not been treated and is held in warehouses or barns near broad bean fields, except that held over for seed until the second year in tight receptacles, should be disposed of or fed before the planting season.

Badly infested seed should be ground up in feed mills immediately after harvesting.

Planting should be delayed until as late as possible, preferably after March 1. In the dryer and hotter localities where this is not possible it is especially important to plant only seed which is uninfested or has been treated to kill the weevil.

All growers of horse beans should cooperate in carrying out these measures.

ANNUAL FLOWERING PLANTS

For natural beauty and pleasing color effects it is hard to beat some of the old fashioned flower gardens of annual plants. Nowadays temporary plantings are not relied upon when conditions will warrant the use of more permanent material, such as shrubs and perennials. Annual flowering plants, however, should certainly be encouraged where planting for winter as well as summer effect is not possible, says Farmers Bulletin 1171, "Growing Annual Flowering Plants," recently published by the United States department of agriculture. The bulletin outlines different ways of utilizing annuals, tells how they should be started and grown, and describes many of the common varieties. It is a practical guide for the cultivation of such plants and will be found useful by all flower lovers. It may be secured free on application to Department of Agriculture, Washington, D. C.

WEATHER REPORT

San Francisco, Cal., April 16, 1921

Stations	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.92	44.26	40.94	58	38
Red Bluff	.06	25.44	22.45	72	36
Sacramento	T	15.61	18.12	72	38
San Francisco	.38	22.49	20.65	64	44
San Jose	.27	14.06	15.53	66	34
Fresno	.14	7.48	8.49	70	37
San Diego	T	4.54	9.26	64	46
San Luis Obispo	.50	17.88	18.55	64	34
Los Angeles	.12	10.05	14.69	66	43

CALCO Bins *are designed on Scientific Principles*

Every year that you have handled your grain in sacks, many dollars worth has been wasted in the fields. Such waste has been one of the main reasons for the change from sacks to bulk handling. The savings so effected will amount to thousands of dollars more than the cost of all the necessary bins.

Calco Grain Bins are manufactured by a company that specializes in the manufacture of metal products for the farm. You can not over-estimate the importance of this fact—that **these bins are constructed by a company that knows** WHAT IS NEEDED **and knows** HOW TO MAKE IT.

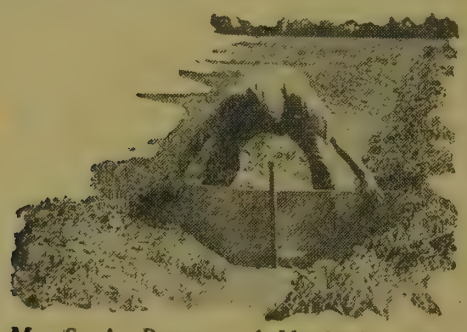
Calco Grain Bins are lasting installations —made of heavily galvanized "Armco" Ingot Iron.

Send the coupon at once for a list of the many sizes and the prices.

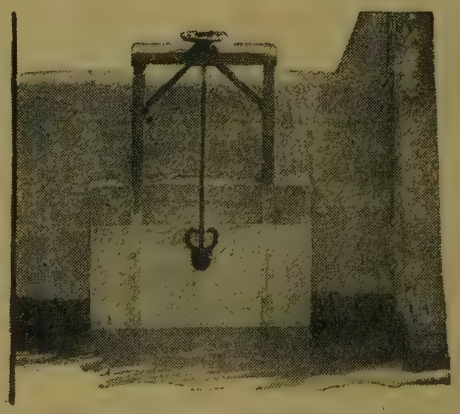
Calco Irrigation Specialties

Calco Adjustable Irrigation Dam
Model No. 254

For checking the flow of water in ditches at any point and backing it up. Light and simple to use. Much less work than shoveling dirt and lugging planks.



Mr. S. A. Brewer, of Hanford, writes: "The Calco Adjustable Dam is a great saver of labor and time, and is all right."



"Armco" Lateral Headgate
Model No. 153
(N. B.—Wooden frame built by user)

A very strong, sheet metal gate for varying heads of water up to 6 feet from center of pipe. Slide operates easily and rapidly. This gate will not warp, crack or rot.

Calco Irrigation Tappoon
Model No. 270

A simple, low-priced and effective tappoon for small ditches. Made of a single plate of galvanized "Armco" Ingot Iron with a roll at the top which forms a handle.

"Armco" Irrigation Gate
Models No. 160 and 161

The hinged slide is operated through a slot in top of pipe. Corrugations grip the ground and hold gate in place. Made with or without bulkheads. The use of these gates in place of the old-time wooden checks will save time, labor and water.

Calco Automatic Drainage Gate
Model No. 100

Designed to drain tidal and other low-lying lands and irrigated areas without power or supervision, and to protect them against **back-flow.** This gate is simple, durable and very effective. It often replaces far more expensive structures.

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408 Parker Street

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

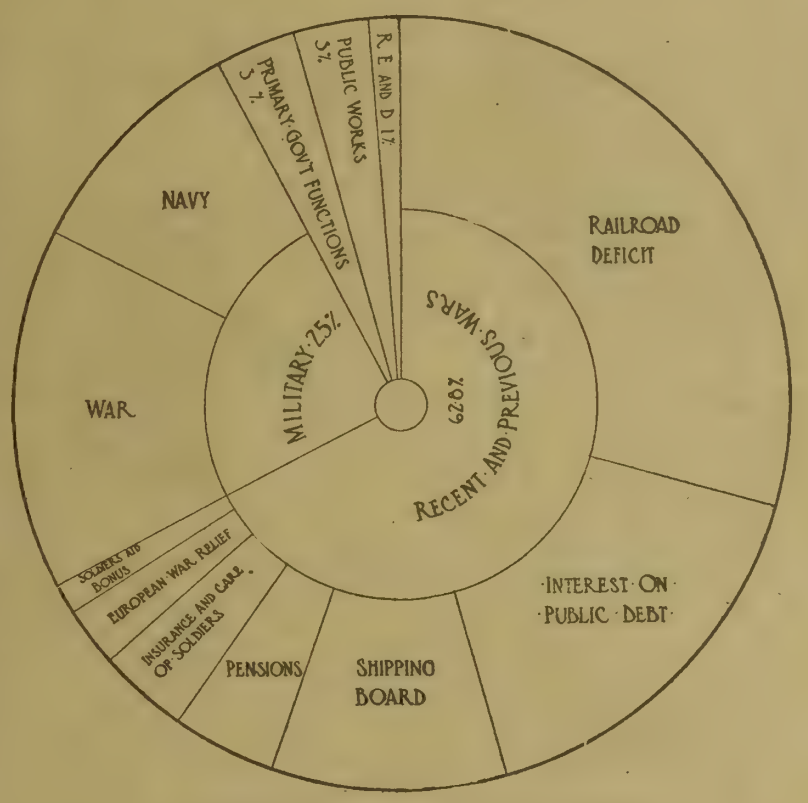
Vol. LVI — April 30, 1921 — No. 18

A Mighty Thin Slice for Agriculture

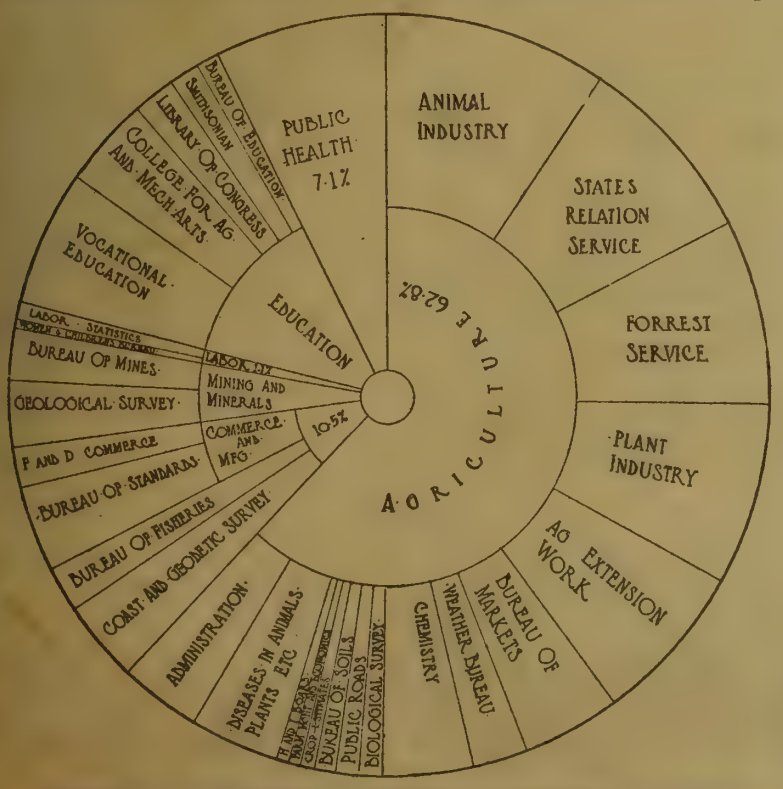
DURING the campaign of the mortgage concerns against the federal farm loan movement the charge was often made by those opposed to it that the farm loan was nothing more nor less than favoritism to one class. The supreme court decided otherwise. This attitude against justice for the farmer is the result partly of prejudice, more of years of legislation which has favored other interests. These interests look askance at any effort toward justice in marketing or in financial dealings with the producing class.

On this page appears a chart showing distribution of government expeditures. The government may be favoring the farmer—for much has been made of the 13 or 14 or even 20 millions of dollars appropriated annually for the department of agriculture—, but how does it compare with other expenditures of the government?

Note the upper of these charts. As a result of the war and legislation in providing for the railroad deficit the railroads get more than one-fourth of all government funds. Interest on public debt is quite a respectable little segment in the circle; war comes next; then the navy; shipping board, pensions, war relief, soldiers' bonus and a few other items are almost negligible in



Distribution of Government Expenditures 1920



Distribution of Expenditures for Research, Education and Development

comparison. That little thin piece of cheese, the smallest in the entire circle, "R. E. and D. 1%," means the amount of money which the government appropriates for research, education and development. The vast number of interests covered by this thin slice in the appropriations is shown by the chart at the lower portion of the page. It will be seen that but little more than half of this, or a little more than two-thirds of one per cent of total government expenditures, goes to aid agriculture in any way.

We are indebted to the agricultural legislative committee of this state for the original of the charts used on this page. The committee writes that these charts were originally published by "The Scientific Monthly." Speaking of the lessons of the chart Secretary Wilson of the committee writes:

"As against this two-thirds of one per cent for agriculture we note that 87.8 per cent was allotted for future wars or to pay for recent and previous wars. Of the amount expended for agriculture a considerable portion is devoted to regulatory work such as meat inspection and similar functions which have no relation to research or education.

(Continued on Page 583.)

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

Vol. LVI No. 18

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

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J. W. Mills — J. B. Neff
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Saturday, April 30, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

The colossal blunder in railroading, beginning early in the war and not yet ended, is made most plain, even to the wayfaring man who will take the trouble to look at the chart on the cover. The greatest of all the appropriations made by our government is required to cover the railroad deficit. Still more, the railroads have been granted the right of raising rates until many farm products are forced out of the market because of inability to command sufficient price to pay the railroad charges. Many fruits are shipping by water in order to get into the Eastern seaboard markets with sufficient to cover picking, packing and box expense and still leave a trifle for the producer.

* * *

The first, and probably the greatest, error was the granting to labor a return which, even under war conditions, was unfair both to producers and consumers of the land. The award to labor was not simply that of increase in wages but often shortening hours and tolerating practices which called for a duplication of men for the accomplishment of simplest pieces of work. Naturally, to meet these exactions increase in rates was demanded and this has been granted once, twice, even three times. And, as shown by the first chart on page 1, the prohibitive rates have not been sufficient and the segment containing "Railroad Deficit" indicates the hundreds of millions which the tax gatherer is taking from us and turning over to the railroads.

* * *

The supposition is that the railroads are the necessary link between producer and consumer. Hence, "We must encourage the railways." The time may come when, like the celebrated apple core, there won't be no producers. There can't be if farmers are compelled to lose money on every crop they raise. Their surplus will soon be exhausted and safely lodged in the coffers of the transportation companies which are also feeding on our railroad deficit fund. We believe there was never greater injustice shown than that toward the producing interests of the United States during the past four or five years.

* * *

To meet the lack of the federal government in this matter of educational and research work our state college of agriculture is appealing for sufficient funds to equip and operate for greater efficiency among California farmers. Or, as stated by Secretary Wilson of our agricultural legislative committee: "It is for exactly this reason that we need assistance from our college of agriculture and experiment station in reducing the costs of production. At no time during the past ten years has the spread between the prices of farm crops and livestock and the prices of articles which farmers buy been more than one-third as great as at the present time."

* * *

Imperial Valley forsook everything and followed cotton, at least, cotton became the principal crop of the valley. Our guess is that the same condition will never obtain again. Dairying and the culture of alfalfa, sorghum grains and other staples are coming back; especially is this true as to dairying. At this moment, however, the alfalfa is coming even more swiftly, and it is barely possible the coming summer may show a great surplus, but ultimately the dairy cow will be there to consume it at home. The output of cotton may possibly not be more than 40 per cent that of last year in that portion of the Imperial Valley north of the boundary line; south of the line the production will be 50 per cent of last year's crop. The percentage at Imperial is equalled in the Yuma Valley, or perhaps the acreage may be still more greatly reduced in that section. The planting of the Pima or long staple varieties will be but little encouraged by the lack of success of long staples in the Imperial. Arizona sections will probably continue to plant the Pima variety. But the principal Pima producing section of California now appears to be Kern County, where it has given exceptionally fine results. Farther north in the San Joaquin it has not been so highly favored.

* * *

Those who contributed to the fund raised to feed the starving kiddies of Europe will be gratified to know that the program which called for the feeding and the medical care of three and a half million children has been continued and is approaching its end with the entire feeding campaign carried out at a less expense than was originally estimated. It was estimated that $33,000,000 would be required. $29,000,000 was raised and has been largely expended. $10,000,00 of this was expended under the general direction of the Red Cross for medical supplies and services. $19,00,000 went for food. It is said that the $29,000,000 went entire to the hungry children; not a cent going to overheard, that being carried by Red Cross and other organizations. It has been estimated that $1,000,000 of these children are alive today because of America's big-heartedness.

* * *

The blessings of the Panama Canal are just beginning to be realized. We believe the most striking proof of this is in the shipment of perishable fruits from California by the way of the canal to various Eastern ports. Government officials who have been making investigations of the advisability of these shipments report: "The government is satisfied with the tests, and it is merely a matter of working out devices and refrigeration systems for the boats which will measure up to the standards of the railroads. The perishable fruit shipments by water have been successful but there is still work to be done in order to minimize the loss in transit."

* * *

In addition to this direct success there is benefit in the fact that attention of other large shippers is called to the advantages of water shipment. Vessels leaving every few days and carrying as high as 50 cars each of perishable fruit is most significant. Quoting from shipping announcements: "Carrying 21 carloads of oranges and lemons, the Isthmian Line steamer Steel Ranger will sail tomorrow to Boston. The steamer Yalza of the North Atlantic and Western Line clears port at Los Angeles Harbor for New York on Thursday loaded with 30 cars of lemons and 20 cars of oranges."

WANTED—A JOB

Edwin C. Voorhies, secretary of the college of agriculture, is looking for a job for a few score of men and women from that institution, the job to last through the summer's vacation. Farmers, as a rule, have not taken kindly to student help. Recognizing this fact and wishing to give correct idea as to the abilities of these college folks, Mr. Voorhies writes:

"The work which these men have done during the past has been most satisfactory to practically all of the farmers who have engaged their services. We are particularly anxious to continue this cooperation with the farmers of the state. We would call their attention to the fact that these students are men capable of doing a day's work. Unfortunately, in the past they have been confused with boys going out for a lark and youngsters of immature years. In addition to these men there are 30 or 40 young women in the college of agriculture who are also desirous of getting out to do real work."

CHEAPER LARD

Now comes appeal from one of Chicago's largest packers for relief from the inroads on lard because of "unduly increased sales of vegetable oil shortening put up as substitutes for lard." It is rather startling to have this appeal come from this source, for the large packing concerns have usually been considered responsible for much of these sophisticated butters, lards or shortening supplies. But of course it is important that these "inroads on lard" be told to the hog producers of the land, for it makes a remarkably fine reason for lowering prices to the lard producer. "Heretofore the packers have been able to give a liberal credit to the live cost of hogs through their returns from the sale of lard as an edible by-product."

So far as we have heard, no promise is made as to the future, but it is to be hoped that swine raisers will be considerate in the matter of prices.

EAT MORE FRUIT

We recently mentioned the campaign for a fruit day or a fruit week, or at least an agitation of the question of a market overstocked with last year's fruit with, as we thought then, a big crop coming. The effort was to induce housewives to purchase one or many cans of last season's stored up fruits. Other plans along advertising lines have been followed and are being suggested. Now comes a newer and more ambitious plan, known as the Bergtholdt plan. Mr. Bergtholdt is a large grower of fruits in Placer County, is vitally interested personally and is more interested as a public spirited Californian. He insists that there is no overproduction and that of the higher grade, staple fruits there can be no overproduction if we but stand together and pull together for a campaign of education as to the healthfulness and economy of making California fruits a greater factor in our diet.

A part of the scheme is the publication of the "Story of California Fruit Foods," a book which shall be made an "indispensable necessity" to every housewife. The production of this book and securing entrance for it into the homes of 15,000,000 housewives is the ambition of Mr. Bergtholdt and those who are joining in this campaign.

It is a big idea and cannot help but increase consumption of California fruit throughout the United States.

PREDATORY EUCALYPTUS

There seems to be no more prolific cause of strained neighborhood relations than the trespassing eucalyptus tree. This particular tree is, however, one of the greatest blessings California has received from the Island Continent. It makes wonderful growth yet has remarkable qualities and, like other quick growers it is naturally a gross feeder, and, again, like other quick growers it soon casts a shade and under certain conditions dams back cold streams of air and causes great frost injury. This injury is usually on the land of the man who does not possess the trees, hence the scrap.

In one case this scrap became so husky that the Merced County superior court was asked to grant an injunction against one for "maintaining a row of eucalyptus trees on his land eight feet from the land of the plaintiff. The trees are intended as a windbreak." The plaintiff claimed these trees were a nuisance and presented his case so skillfily that the judge agreed with him and "the defendant was ordered to remove the trees or to keep them from sending roots over the property line."

Regardless of legal right, moral right and the right of common neighborliness should impel all of us tree planters to confine our planting to the roadside or else far enough from our line that our trees will not forcibly destroy our neighbor's property.

We have known of cases where large subsoiling plows behind a big 75 tractor have been used to lessen the loss. But we fear even that will not be sufficient in most cases.

California Cultivator

Vol. LVI, No. 18 | Los Angeles, April 30, 1921 | One Dollar Yearly

Building Up a High Producing Dairy Herd

IT requires a lot of money to enter the dairy business. Especially does it require money if modern equipment and pure bred animals are used at the beginning. But there is a great deal of dairying that is not started that way. In fact, if America depended upon the gilt edged dairy for its milk, butter and cheese supply, America's children would be hungrier than they are now.

This is not intended as in any way a criticism of modern equipment for the dairy. Modern requirements are ever improving in this particular, and it is to be regretted that many of our dairies are not far better equipped than they are. But we need more and more of dairy supplies and where the dairyman is unable to equip and stock as he would like, he still may make a living for himself and family and add to the world's supply of food through installation of stock and equipment such as that of Earl Graham of Compton.

Mr. Graham is not a breeder; he is strictly a dairyman. His capital was limited; he started with "just cows." He had a high fat production, and it was not long until he determined tnat some of his old cows were living at his expense. These were soon disposed of and his knowledge of the lines of the true producers was used in checking up other cows which consumed a vast amount of feed and delivered its equivalent in a marketable product. At the same time he also realized the truth of the slogan, "The sire if half of the herd." The true producers soon supplied other and better producers, and readers of the California Cultivator have seen within the past six months announcement three different times of Mr. Graham's winning of the California Cultivator monthly prize for the highest production by five grade cows (the same cow not being eligible to compete a second time). The highest cow in his latest winning group produced a total of 79.95 pounds of fat and the lowest, 55.70, average production for the five of 62 pounds. Note this is fat production—the butter production exceeded 80 pounds for each cow.

The Cultivator camera was brought into action at Mr. Graham's place and

On the Graham Ranch at Compton

The upper is a picture of Princess Maida Veeman, the pride of the Graham ranch, who has a record of 33.06 pounds butter in seven days as junior three year old. She is a daughter of Sir Veeman Korndyke Pontiac, owned by Burr Farm.

The lower shows Mr. and Mrs. Graham and the youngest member of the family. His older brother was scouring the fields in search of mushrooms at the time the photograph was taken.

the upper of the pictures on this page gives an idea of the type of cow Mr. Graham has been choosing. This one happens to be a pure bred and was not allowed in the competition for the Cultivator prize. The lower picture gives an idea of the sturdy type of workers on the litle farm—and it is little, for there are only five acres. We regret that one member of the family, a boy slightly older than the little fellow by the wagon, is not shown in the picture. He was far away gathering mushrooms, proving himself to be a typical coming farmer.

We asked Mr. Graham how he did it, and he has jotted down a few of the points he considers essentials in the dairy:

By Earl Graham

When dairymen realize the need for greater interest in and care of the dairy cow the average production for all the cows in the country will be greatly increased.

Ever since I began dairying it has been my policy to keep my cows filled up at all times and to try to balance the ration in such a way as to keep them in good condition and still milking well. For the last six months I have been feeding the following ration: 100 pounds ground barley; 100 pounds ground oats; 100 pounds beet pulp; 75 pounds coconut meal and 100 pounds ground corn, mixed well in a big bin and fed one pound grain to four pounds milk in most cases. There are a few cows that will eat and need more grain and I always feed them a little more. I have had better results from that mixture than any feed I ever used. I corral feed my cows all the time with green alfalfa and ensilage. Sometimes I give them dry hay for a change. I always watch and see that they have good appetites. If they don't eat their grain very well I

(Continued on Page 599.)

A Thousand Feet of Onions

Down at Thermal, Riverside County, Geo. M. Beach is considered the premier onion grower. Others may have a larger acreage but none get heavier yields. When roaming over the fields with a neighbor, during Mr. Beach's absence, said neighbor stated that 900 crates of 52 pounds each had been secured from an acre and that the entire Beach crop (of onions) averaged 500 crates per acre.

The rows in the largest field are 1,000 feet long and are irrigated with a single flow of water, the longest run yet attempted in the valley. In spite of a very sandy soil the furrows are well filled with water at the farther end and the time consumed for water to reach this distance is not unreasonably long. The explanation lies in the fineness of the sandy silt soil, for the land is nearly level, an old ocean floor. Because of this soil texture, weeds, except Bermuda grass, are not a serious pest. But in the Coachella Valley Bermuda is indeed a pest and more of a menace to agriculture than all other plant life combined.

Though always successful with onions, Mr. Beach has this year tried

Beach Method of Planting

This three row system puts 80,000 more plants on an acre than the two row system formerly used.

a new method of planting. Heretofore fields have been planted with double rows, alternating with the irrigating furrows. This year he has planted three rows, five inches apart, plants about four inches apart in the rows. The distance between the nearest rows across the irrigating furrows is 20 inches, but as the planting plan is based on "centers" we will say it is 30 inches from middle row to middle row. Mr. Beach said: "I have about 210,000 onion plants to the acre with this method, in comparison with about 130,000 under the old method. I do not expect to get much more yield but will get more uniform size. I also am able to drive through the rows with a team and wagon or truck, which enables me to spray or dust for thrips. I plant my seed about September 5 to 15 and transplant in field during November and into December. It is only an experiment with me and I will be able to tell more about it after the end of the harvest season." But other growers in the valley say: "George knows, and if he has planted that way it will prove a success."

Agricultural News Notes of the Pacific Coast

Northern California

A Holstein-Friesian Association is being organized in Glenn County.

The Placerville farm loan association has resumed business and is considering numerous applications for loans.

The annual traveling conference of the state farm bureau will be held May 23 to 28, touring the San Joaquin Valley.

Farm bureau local meetings in Alameda County: East Avenue, May 3; Independent, 6; Livermore, 9; Castro Valley, 13.

The annual picnic of the Napa County farm bureau will be held at the state farm near Yountville, date to be announced.

The Arcata farm center of Humboldt County is planning to conduct both Jersey and Guernsey calf clubs the coming year.

The seventh annual wild flower show was held at the St. Francis, San Francisco, Thursday, Friday and Saturday of this week.

The potato growers department of the Sonoma County farm bureau has distributed 7,366 pounds of certified potatoes to other counties of the state for seed purposes.

Farm home department meetings in Alameda County: Livermore, May 13; Irvington, 4; Hayward Heath, 5; Castro Valley Girls Club, 6; Orchard Avenue, 11; Newark, 13.

Sheep men of the north gathered at Chico last Saturday, heard report of committee investigating as to freight rates on lambs and made efforts to secure justice to sheep owners.

Alameda County reports serious injury to young fruit by combination of dry rot and frost. The winds have seriously dried out Sacramento Valley fields but favorable weather now prevails.

Chambers of commerce generally in prune growing districts have put themselves on record in favor of encouraging all growers joining the California Prune and Apricot Growers, Inc.

A Guernsey breeders association has been formed in Humboldt County with the purpose of introducing pure bred sires, encouraging organization of calf clubs and to promote the extension of the breed in the county.

The senate committee has unanimously approved the bill appropriating $100,000 a year for two years, to be equally divided between the first and sixth agricultural districts for premiums at livestock shows.

The Southern Pacific railroad police have had a difficult problem during the past winter in the handling of the hobo situation. The number of persons caught trying to beat their way is still astonishingly large.

The poultry committee of the Alameda County farm bureau, the Haywards chamber of commerce and other workers for better poultry conditions are giving housing demonstrations in various sections of the county.

California produces over 98 per cent of the entire American crop of almonds and has done so for many years, according to a recent publication by R. H. Taylor of the division of pomology of the state university, entitled "The Almond in California."

Central California

Modesto is planning to hold a poultry show, December 4-6.

Terra Bella, Tulare County, reports no frost damage to vineyards.

About 2,100 acres are being planted to vineyards in Tulare County this season.

The Kings County farm bureau has located seven cover crop demonstrations in the county.

A bunch of laborers is now constructing railroad from Roscoe to Don Pedro reservoir site.

Stanislaus County orchardists are finding frost damage to fruit not so serious as first reported.

The land settlement board has approved applications for several more allotments at Delhi, Merced County.

Agricultural clubs have been organized in the Arvin, Weedpatch, Rosedale, Shafter and Bardsdale farm centers.

The Modesto chamber of commerce is opposing franchises for truck lines to operate over state and county highways.

A new poultry association has been organized at Porterville, affiliating with the Tulare County Poultry Association.

The California Fruit Growers Exchange has signed up the pack of the Producers Fruit Company. This brings in 700 carloads of citrus.

President Giffen estimates raisin tonnage reduction because of the frost will not exceed 50,000 tons. There will still be left 200,000 tons to market.

It is estimated that the Pine Flat irrigation project will irrigate nearly 1,000,000 acres. The Fresno district is the largest, including 246,000 acres.

The Tulare County Cooperative Poultry Association reports March prices of eggs 30 per cent less than those of the corresponding month in 1920.

Several San Joaquin Valley counties are uniting in fight against Los Angeles applications for power sites on headwaters of the Kings and Kern Rivers.

There has been heavy travel over the Wawona road to Yosemite since its opening, April 2. The season is two or three weeks in advance of the usual year.

Farm home department meetings in the San Joaquin Valley: Farmington, May 3; Bruella, 5; Manteca, 6; French Camp, 10; Douglas, 11; Escalon, 13; Linden, 17; Ripon, 18; Summer Home, 20; Escalon (septic tank), 23; Live Oak, 24; Lafayette, 25.

Consignors to the Tulare auction of the San Joaquin Valley Farm Bureau Marketing Association stopped sale because of cut price offered by bidders. Two carloads were sold at $10 when the consignors decided to haul home the rest of their hogs.

The superior court of Merced County has granted an injunction restraining an owner of land from permitting the roots of his eucalyptus trees to trespass over the line. His trees are planted eight feet from the line and intended as a windbreak. The defendant has been ordered to remove his trees or to prevent the roots from crossing the line. The suit was taken up under the general law of common unisance.

Southern California

Imperial Valley has 750 dairies operating.

Imperial expects to begin shipment of cantaloupes by the middle of May.

Brawley expects to ship out about 500 carloads of tomatoes this season.

Escondido, San Diego County, is making carload shipments of citrus to Eastern points.

Walnut growers along Sespe Avenue in Ventura County report considerable damage from frost.

A new auto freight line is to be established between San Diego and El Central by way of Jacumba.

The California Avocado Association will hold its annual meeting at Hotel Maryland, Pasadena, May 6 and 7.

San Bernardino County farm bureau will hold a livestock day at Ontario, May 4, and another at San Bernardino, May 5.

The Simi Valley Walnut Growers Association is building a new walnut house at Santa Susanna, Ventura County.

The state railway commission has granted to Palo Verde Valley, Riverside County, a very material reduction in freight rates.

Imperial Valley Vegetable and Melon Growers Association is being aided in its marketing efforts by State Market Director Daniels.

Scientists from the University of California have been making inspection of kelp beds up the coast from La Jolla to Summerland.

A course of lectures on poultry production has been delivered by Prof. Easson of the U. C. before the Santa Paula union high school.

A few growers of seed beans at Carpinteria, Santa Barbara County, report contracts for 7 cents for some varieties. 6½ cents is the average figure given now.

Grain growers of Orange County will make an all day excursion on May 4, visiting demonstration plots on various grain ranches in the county. The trip will be under the auspices of the farm bureau.

Manager Churchill of the Lima Bean Growers Association states that there are now approximately 1,250,000 bags of beans in Southern California ready for shipment. This represents about half of the 1920 crop.

It is reported that the Lima Bean Growers Association has secured a reduction in freight rates from 70 cents to 55 cents a hundred on steamer shipments from Pacific Coast terminals to Gulf and Atlantic ports.

Ventura County cattlemen recently gathered at Santa Paula and discussed marketing and prices, and the prediction was made that 8½ cents a pound would prevail for May steers. Ventura County fair management was asked to offer series of prizes for the steer feeder who could show greatest gain.

Ventura County mustard growers grew last year about 3,000 acres of mustard, but most of the seed is still in the warehouses. The outlook is very gloomy and some offers of yellow mustard have been made as low as $2.50 per hundred with no takers. The growers are asking for a tariff of three cents.

The Coast and General

A county cow testing association has been organized in Pima County, Arizona, with J. S. Ayers as president; 372 cows have been signed up.

The farm bureau of Chandler, Arizona, has erected a bulletin board in Chandler where announcements and matters of interest to the farmers will be posted.

In spite of the fact that very few farmers in the Salt River Valley have sold their cotton, payments for water assessments due May 1 are being made promptly.

Unlike conditions over the greater part of Arizona ranges north of the Colorado River in what is known as the "Arizona Strip" are in fine shape and stock have wintered well.

The Oregon Growers Coperative Association has been carrying on experiments in canning broccoli and has been so successful that samples have been sent to eastern brokers, where a big market awaits canned broccoli.

The Frontier Days Celebration which has been an annual affair at Prescott, Arizona, for a number of years, has been set for July 2, 3, 4 and 5. The usual cowboy stunts and contests will be conducted very much as in the past.

From the packing plants of the Oregon Growers Cooperative Association more than 1,000,000 pounds of small sized prunes are being shipped to Germany by way of Sweden. Shipments will be from Portland via the Panama Canal to Rotterdam.

Farmers in the vicinity of Salem, Oregon, are in earnest about broccoli growing. Already 110 acres have been pledged and it is thought that the acreage will amount to more than 150. It is figured that 75 cents worth of broccoli seed will pay for planting one acre.

Preliminary work on the Boulder Canyon on the Colorado River project is being done under authority of congress. Engineers have located a site and are making borings for foundation. Bedrock has been located at a number of points and the outlook is favorable, says Arthur P. Davis, director of the reclamation service.

Oregon is credited in government reports with 5500 acres planted to loganberries. C. I. Lewis of the Oregon Growers Cooperative Association estimates that within a few years there will be 10,000 acres of bearing loganberries in Oregon. On an average of 3000 pounds to the acre this would mean a crop of 30,000,000 pounds.

The state of Washington is going after the loganberry industry, of which Oregon now has 85 per cent. From Marion County there have been shipped this past winter 2,000,000 loganberry plants, mostly to northern Washington. On a basis of 660 plants to the acre this means more than 3000 acres, which will be in commercial bearing in two years.

Two schools in Pima County, Arizona, have adopted a supplementary feeding course for the students. The plan is to furnish the pupils with all the milk they will drink at the mid-afternoon lunch. This supplementary feeding demonstration has been conducted for three months and it is found that the average gain has been 2.12 pounds for each pupil.

Water Conservation

By A. L. Dahl

AS a general proposition national forests are created only in timbered regions, yet in California are vast areas embraced within such forests that do not contain a single commercial timber tree. The cost of administering these treeless national forests is as large, at least, as similar areas anywhere, for hundreds of rangers and fire guards are employed during the dry season to protect the brush covered hills. Hundreds of thousands of dollars have been spent to build trails and fire lanes through the chaparral on the mountain sides, and even a corps of flying men is detailed to patrol the air and detect and report fires.

The sole distinction between desert and garden in the West is water, and water, not land, measures the value of property. There are millions of acres of land, now barren and waste, not because the soil is poor, but because water is not available to make things grow. To enable the irrigationists to maintain a steady flow of water throughout the year it is necessary to conserve every drop of the rain waters that fall on the mountain slopes during the wet season. Natural reservoirs are better than man made ones, and a thick mass of vegetation made up of roots and surface brush is one of the most effective checks against rapid run-off and excessive evaporation. For this reason the thick chaparral which covers the sides of the mountains is valued more highly than a heavy stand of timber would be.

A number of years ago, when the question of conserving the irrigation waters was first taken up, a number of interesting experiments were conducted in the San Bernardino mountains by members of the forest service. This study was to determine the effect of the brush cover on the steam flow of nearby streams, and careful measurements and tests were made in a number of places, extending over a considerable period. As a result of these experiments some interesting facts were disclosed. For instance, it was found, from an examination of four catchment areas, three of which were forested or chaparral covered, and the other non-forested, that the effect of vegetation in decreasing surface flow on small catchment basins is enormous. At the beginning of the rainy season the soil on all four of these basins was very dry as a result of the long dry season. The accumulation of litter, duff, humus and soil on the forest covered catchment areas absorbed 95 per cent of the unusually large precipitation that year. On the non-forested area only 60 per cent of the precipitation was absorbed. In the following three months only three-eighths of the rainfall on the forested area appeared in the run-off, while on the non-forested area nineteen-twentieths, or all but five per cent, quickly ran off. After the rainy season closed it was found that the streams flowing through the forested areas had a well sustained flow long after the streams in the non-forested area had dried up.

Now these results were obtained because the brush growth on the sides of the mountain affected the water supply in several different ways. To begin with the thick mat of leaves, stems and humus on the surface of the ground holds the top soil and prevents erosion in times of hard rains. When the raindrops descend they strike this mass of vegetation and slowly trickle down into the soil just as they would through a sponge. In many places it takes a very heavy rain, long continued, to penetrate the thick mat of humus and detritus, and when the soil is reached the water again meets the obstructions of the root systems, making its progress into the deeper ground very slow. Surface run-off is practically shut off except for long, heavy rains, and even these are held from eroding on steep slopes by the vegetable sponge through which the water must pass. Accordingly every drop of water that falls is imprisoned and forced to work its way slowly into the earth where it is made available for the springs that keep the surface brooks and streams flowing.

In irrigated areas a great deal of water used is pumped from subterranean sources along the river washes. These subterranean reservoirs abound everywhere in the valley but the water plane rises or lowers according to the amount of precipitation during the preceding wet season. This has led the water users to plan to conserve as much as possible all rain water falling in the mountains and prevent its run-off as surface flow during the winter.

As a means of water conservation a new plan has been tried with much success by the various water companies in the Santa Ana district. These companies control about 3,300 acres of land at the head of the valley, and during the rainy season they build temporary dams by using iron posts and wire netting which divert the flood waters coming down the mountain canyons, spreading them out over as wide an expanse of gravel wash as possible so that the water will sink through the gravel instead of flowing off to the ocean not far distant. Every additional inch that can be added to the artesian supply is well worth saving. It cost the water companies about $1,375 to put in one of the dams, which would spread over 110,000 inches of water, and that the plan was a success the first season tried is shown by the fact that the water plane in the district below where the experiment was tried remained normal, while in an adjoining district, where no effort had been made to conserve the flood waters, the water level dropped more than eight feet during the same period.

Another plan which has been successfully tried to save the surface run-off is the building of thousands of little dams, or catchment basins, all over the sides of the mountains. A force of men is kept busy during the dry season placing large stones and other obstructions in the gullies and angles formed by previous rains, the idea being that when the rains wash dead leaves, twigs and other material into these small catchments, they will be held in check and in turn will hold back the surface waters, breaking their force and enabling a part, at least, to sink into the soil. The result of the building of these small reservoirs has been most gratifying to the water companies, and the expense incurred is more than repaid by the water saved.

Since fire is the common enemy to be guarded against during the long, dry months, the forest service maintains a large force of rangers and fire guards, who patrol the mountains on the lookout for fires. Within the last year or two airplane patrols have been used successfully in this work as the air observers are able to fly over the highest peaks and quickly discover smoke a long way off. These planes are equipped with wireless telephones with which the observer can keep in constant communication with men on the ground.

To assist the government in this patrol work nearly all of the water companies donate the services of their own men to help in fire patrol and fire fighting. Supplies of fire fighting tools are kept stored at convenient points in the mountains for immediate use, and to enable fighters to reach all parts of the country in the shortest possible time excellent trails are built and kept in repair. Broad firebreaks, or cleared spaces, are likewise maintained along the base of steep slopes or along the ridges of the mountains. These cleared spaces have been found very effective in checking a fire that could not be otherwise controlled. Most of the construction work on trails and firebreaks is done during the winter months when patrol duty is not necessary. The annual appropriations made for this class of work on the part of county supervisors, water associations and irrigation companies runs into the thousands of dollars, as all interests unite in recognizing the importance of fire protection.

Economic Status of California Birds

By J. W. Tyler

THE early Spanish padres and the civilization following them made known much concerning the coastal region of California, but so far as can be learned they avoided the San Joaquin Valley, as did most of the early naturalists who visited this state. The few survivors of the early stockmen have given me glimpses of the bird life of their time but, for the most part, we must consider the years previous to about 1860 as a sealed book so far as bird life is concerned. In those early years of the settlement of the San Joaquin Valley the yellow-billed magpie was present in great numbers and the great California condor was a regular and common visitant to the plains. One early explorer tells us that he counted several nests of bald eagles around the shores of Tulare Lake, while another records the sight of a dozen or more whitetailed kites together as nothing uncommon in the marsh lands about Stockton.

In the fleeting generation or two that has passed since those days what a transformation has taken place and what a charge—alas!—must we place against those who are responsible for this change. The magpie colonies are gone forever and this interesting species, which occurs nowhere else in the world outside of California, is now represented by only a few scattering groups doomed to utter extermination because the birds are large and of showy plumage and make excellent targets for that all too common class whose insatiable lust for blood impels them to shoot and kill and maim as long as a living creature moves within range of their vision.

The great California condor, the largest North American bird, fed almost altogether on carrion and was, therefore, a highly beneficial species in the years when sheep and cattle perished in large numbers and were left lying where they fell on the unfenced range. This bird, however, fell an easy prey to the poison placed in the carcasses by cattlemen for the purpose of destroying coyotes. Never again will this great creature sail in majestic circles over our now fertile valley. Our children and, indeed, we ourselves will look in vain for its great shadow scudding along the base of the lava capped hills.

The kite, because of its habit of tacking back and forth low over the marshes, disappeared rapidly when the automobile made all the duck hunting grounds of the valley easily accessible. It fed on field and meadow mice, but the hunters neither knew this nor did they care. Theirs were not the crops the mice were destroying.

Out of the vast cattle ranges of the past sprang the great grain fields, and these in turn soon gave way to orchards and vineyards until at the present time we can safely challenge the world to equal us in the value of our annual fruit crops. This rapid settlement of our valley has naturally been accompanied by a great increase in population, with many inevitable changes in its bird life. The number of shotguns and automobiles has also increased apace and the slaughter of the wild creatures still continues. Flocks of migrant birds passing through our orchards in search of insects have been condemned and shot without trial because they were thought to have been injuring the fruit buds. Our hawks, owls and eagles have been killed on sight by farmers who accused them all, both large and small, of stealing poultry, and by sportsmen who feared for the game birds which they themselves desired to slaughter.

We are now beginning to reap the just reward of our deeds. The counties of the San Joaquin Valley are just now spending thousands of dollars of the taxpayers' money in an effort to reduce the number of ground squirrels, which have increased to such an extent as to cause alarming destruction to crops. Let not the taxpayer groan or complain, however, for he has no one but himself to blame. With utter disregard for the consequence he has gone about slaughtering the natural enemies of the squirrels, pursuing them relentlessly even to the most remote parts of our valleys and hills. It is little satisfaction to reflect that much of the constantly increasing expense of insect control might have been spared had the native insectivorous birds been protected and encouraged to make their homes in our orchards and vineyards. Only an enlightened public conscience, an awakened interest in the birds of our or-

(Continued on Page 581.)

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Prune Diseases

PROF. H. P. BARSS of Oregon agricultural college has made investigations as to many plant diseases, giving particular attention to spots, brown rots, and scabs of prunes, apples and peaches. His conclusions are that many plant and fruit diseases are not the result of bacteria or fungus activities, but may be due to physical condition induced by lack of moisture. We quote from that section of the article touching upon prunes as given in a number of the Oregon Grower, organ of the Oregon Growers Cooperative Association:

By H. P. Barss

Prune Diseases

We are very much concerned about the prune disease situation in some of our orchards. First is the brown rot. We always have that to be afraid of. The brown rot is a persistent disease—it is with us always—and one which is very difficult to combat because through the entire season from bloom period on to harvest, favorable weather conditions may bring about an epidemic of brown rot.

When I first studied the disease I thought it might be possible for us as prune growers to put on a certain definite program of sprays beginning in the spring and continuing on through the season, but I soon found that in a good many of our seasons a large proportion of those spray applications would be wasted, that is, would be practically useless, because weather conditions so often were unfavorable to the development of the brown rot that the disease would not make its appearance to any great extent. There was one application, however, which, applied to the prune trees, always gave benefit. That was an application given about a month before the harvesting of the fruit. It is against this most severe period of brown rot infection that we must protect our orchards if possible. In some years you will find the protection at the same time will do a great deal more good than it would in other years. That will depend on the severity of the epidemic, but in any case our experience is that a spray given in August as a protection for the fruit against picking time infections is well worth while. You may want to know what material would be best to employ. Lime-sulphur is not desirable because it has a tendency to cause burning of foliage and some injury at times to the fruit when applied during the summer season. I am speaking of the prune, but it applies equally well to apples, as you know there is much tendency to burning the fruit after an application of a sulphur spray on apples during the hot summer weather.

Prunes are even more susceptible. All stone fruits are more susceptible to the effects of lime-sulphur than apples, and our experimental tests show that this is true; therefore we advise the use of Bordeaux mixture. I would not use a strong mixture, not more than 3-3-50 or 4-4-50 strength, but I would aim in that application to get as thorough a coating on the surface of the fruit as possible, and in order to do that it is practically necessary to use a spreader, because ordinary Bordeaux won't stick to the waxy surface of the prune fruit very well and you will have simply a few spots of spray and leave spaces between which are favorable for infection of brown rot.

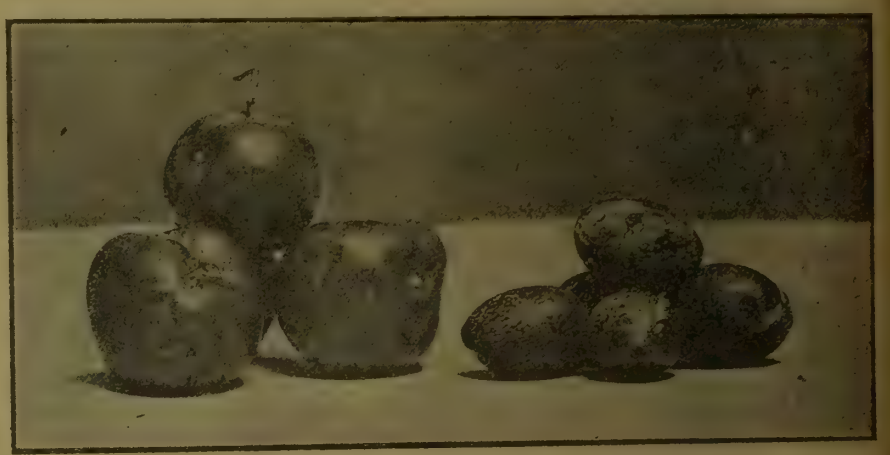
Brown Rot Develops

Now brown rot develops at the time nearly mature fruit is ripening and a good many fruits are dropping to the ground, where they are injured in dropping, and the brown rot gets into the cracks; also, when fruit is cracked by rains in the fall the brown rot may get a start there in the cracks in spite of spray, but even under those conditions this spray will prove of material advantage to the grower. A spreader should be used. I think casein would be the best material to use; soap would be desirable, and I had hoped that we might find an oil that could be used, but we tested an oil in Salem a few years ago. It produced the most beautiful spreading of the spray on the surface of the waxy fruit I have ever known but we found the spreader attacked the waxiness on the surface and caused a checking of the skin of the fruit, and my hopes of finding a good material for the use of prune growers were blasted at that time. But we have been trying out the use of casein and find that is nearly equal to the oil and has no tendency to produce the effect of checking on the skin of the fruit which I have mentioned.

Knock Out Brown Rot Clusters

It should be the effort, if there is help enough, for every prune grower to send somebody through the orchard at this time and later to knock out the clusters of brown rot fruit from the tops of the trees as far as they can be detected. You don't want the brown rot fruit hanging in your trees and producing millions of spores every day just where they can float down onto the other prunes in the tree. The only way to avoid that is

(Continued on Page 582.)



Troubles Which Are Not From Fungus

The apples at the left have drouth spots caused by lack of moisture, causing the leaves to absorb moisture from the fruit. The prunes at the right are attacked by "water-spot" or "gum-spot." These troubles, especially those pertaining to the prunes, are discussed by Prof. Barss in this week's issue. Engraving courtesy Oregon Grower.

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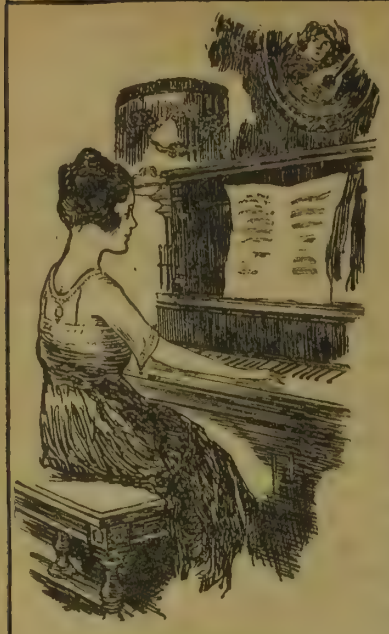
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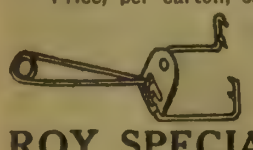

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Walnut Association Building

GROUND was broken a few days ago for a $300,000 office building and by-product factory at Seventh and Mill Streets, Los Angeles, which will be occupied by the California Walnut Growers Association not later than September 1. The front of the building will be seven stories high, with basement; the back, three stories. It will be a Class A, reinforced concrete structure, fireproof throughout.

At the present plant in the Los Angeles Union Terminal it is necessary to handle culls from five to eight times before they are finally reduced to their ultimate by-products. In the new plant the nuts will be elevated to the seventh floor when they arrive, and from there they will travel by gravity down to the cracking room and to the sorting room on the third floor. They will then gravitate down to the salvage machines and packers on the second floor and finally go to the basement for storage until shipped. New and improved machinery for swift handling of products and reduction of overhead costs will be installed as soon as the new structure is ready for occupancy.

In commenting upon the necessity for such a building, C. Thorpe, general manager of the association, points out that the business of the associated growers is doubling every four years and that the percentage of the crop handled by the organization is growing steadily, being now beyond 81 per cent of the state's annual production.

He calls attention to the fact that in 1913 the association did a business amounting to $1,500,000 and that now its yearly business amounts approximately to $14,000,000. During the last eight years the organization has outgrown its quarters twice, and it now finds that quarters capable of encompassing its future development are an absolute necessity.

The building proposition was taken up more than a year ago. At that time the site was purchased for $45,000, but construction was postponed pending a drop in building costs. Mr. Thorpe is of the belief that the association saved at least $45,000 by waiting until this year to build and made considerable by purchasing the site before real estate values experienced a substantial appreciation.

It is expected that the new building will be in readiness to handle this year's crop. It is to be erected by the Walnut Growers Company, a subsidiary of the association, from which it will be leased by the association. According to the plan which has been evolved the association will be paying rent for the use of its new quarters but will practically own the establishment at the expiration of ten years. The total investment, which will run in the neighborhood of $300,000, Mr. Thorpe says, will represent only from two to three per cent of a normal year's walnut sales.

According to Secretary W. T. Webber, who is handling the financing of the new building, the Walnut Growers Company already has $50,000 worth of stock subscribed. A Los Angeles bank has agreed to loan it $150,000 on a first mortgage, leaving only $100,000 to be raised among the associated growers.

Grading and Packing Asparagus

By L. J. Weishaar

FRESH asparagus from the delta section is prepared for shipment and loaded at about half a dozen points, but Sacramento, Locke (near Walnut Grove) and Antioch are the most important.

At the beginning of the season and while market conditions continue favorable for the movement of the fresh green product, shipments are made daily, but as soon as prices decline to a point where distant markets assure no substantial profit, fields are quickly prepared so as to yield only the white fully blanched stalks for canning purposes. This is accomplished by hilling up the rows promptly.

When harvesting asparagus for shipment in fresh state the lug is used as field box. The gross weight of lugs evenly filled is 50 pounds and contains 40 pounds net weight of asparagus. Filled lugs are shipped by boat or hauled by truck to the packing house.

Stalks are sorted and graded by hand, no mechanical apparatus being in use in this section. In most packing houses four grades are made; occasionally an "extra fancy" grade is added, consisting of the very largest and most perfect stalks. Grading is done at long tables on which there is an arrangement of open shelf like compartments, stalks corresponding to the different grades being placed in the respective compartments, spear ends of stalks pointing one way. Diameter of stalk and its otherwise perfect appearance determine its grade. Stalks which are too thin, crooked, or otherwise defective to permit packing into regular grades are generally designated "culls" and are shipped loose in lugs to local markets. Only well graded, carefully packed stock is used for long distance shipment.

A patent buncher is used. Into this the stalks are carefully placed until it is filled. A clip at both ends of the buncher hold the bunch securely until it is tied with a ribbon about 1½ inches from each end. Butts are cut off evenly so that total length of bunch is 8½ inches. Bunches are then placed in shallow tray of water in order to freshen before packing. After a few minutes bunches are wrapped in a neatly branded paper and 12 bunches packed to the crate, floor of crate being bedded with a layer of moist moss. Crates are then nailed and ready for loading into cars

Pyramid Asparagus Crate

Parts: 2 heads, 9½ inches top width, 11 inches bottom width, 10⅜ inches high, 11/16 inch thick; 1 center, 9½ inches top width, 11 inches bottom width, 10⅜ inches high, 7/16 in thick; 2 top pieces, 3⅞ inches wide, ¼ inch thick, entire length of crate; 1 piece each side, 3 inches wide, ¼ inch thick, entire length of crate; 1 piece each side, 2 inches wide, ¼ inch thick, entire length of crate; 2 bottom pieces, each 5¾ inches wide, ¼ inch thick, entire length of crate; 4 d. cement coated nail used. Length of crate, 19½ inches.

Grading

Extra Fancy, 9-15 stalks per bunch.

stalks above 6/8 inch diameter; First Grade, 15-22 stalks per bunch, stalks approximately 6/8 inch diameter; Second Grade, 22-28 stalks per bunch, stalks approximately 5/8 inch diameter; Third Grade, 28-36 stalks per bunch, stalks approximately 4/8 inch diameter; Fourth Grade, 36 or more stalks per bunch, stalks approximately 3/8 inch diameter.

Bunches weigh approximately 2¼ pounds each. Crate of 12 bunches weighs net approximately 27-28 pounds. Crate of 12 bunches weighs gross approximately 33-34 pounds. Patent buncher has two clips. Diameter of buncher at butt end of bunch, 4¾ inches. Diameter of buncher at spear end of bunch, 4⅜ inches. PFE cars ordinarily load 608 crates asparagus: 2 layers high, 8 rows wide, 19 stacks, each layer stripped. Express cars ordinarily load 720 crates asparagus: 5 layers high, 8 rows wide, 18 stacks, each layer stripped.

TRAVELING SCHOOL FOR FIG GROWERS

A traveling school for fig growers as a part of the campaign of the California Peach and Fig Growers to produce in California the best fig grown anywhere in the world will be held during the week of May 16 to 21 inclusive, according to an announcement of association officers. The association writes: "This is the first time in the history of the fruit industry that this step has been taken by a cooperative organization and marks a milestone of progress in the growth of the idea that growers must back up their marketing organization with quality at the orchards.

"According to the announcement, the classes will be under the management of Professor Ira J. Condit, chief of the horticultural department. The plan calls for visits by grower classes to the orchards of the state where they will hear talks by practical growers and discussions of methods from planting down to the final operation of packing the fig for the market. The growers will travel about the state in a motor cavalcade and the itinerary of the first class calls for a week in the field.

"The move is in keeping with the campaign of the California Peach and Fig Growers to bring the quality of the California fig to the highest standard obtainable and through this standard establish the American fig as a quality leader in the markets of the world.

"The tentative schedule of the first class is as follows: Monday, May 16, Modesto-Ceres district; Tuesday, May 17, Merced district; Wednesday, May 18, Fresno district; Thursday, May 19, Clovis and Fresno district; Friday, May 20, Reedley and Dinuba district; Saturday, May 21, Sultana-Orosi district.

"All phases of fig culture will be discussed and demonstrated as far as the season permits in the classes. Special subjects such as picking and packing fresh figs, the Kadota fig and its possibilities, pruning, irrigation, caprifigs and caprification, fig diseases, soils and soil moisture, frost and frost injury, varieties, topworking, drying, preserving, canning and packing.

"Growers desiring to participate in the traveling class are requested to communicate with Professor Ira J. Condit, 304 Mattei Building, Fresno. No fees will be charged, the members of the association simply looking after their own expenses."

Yucaipa reports no frost damage to apples.

AVOCADO ANNUAL

The Cultivator recently gave detailed program of the annual of the avocado growers to be held at Pasadena, May 6-7. In outline, the program will begin Friday at 1:30 at the Hotel Maryland with an experience meeting. This will probably be of interest largely to the members of the association. That evening at 6:30 will be held the annual dinner; also at the Hotel Maryland. President Wm. H. Sallmon will be toastmaster. Presumably this dinner, especially the addresses, will be particularly "dry." All of the addresses scheduled in the regular program are by farm paper men. Saturday, beginning at 9:30 in the morning, will be given up to addresses by experts of the state university and the U. S. department of agriculture. Officers of the association are: President, Wm. H. Sallmon; vice-president, W. L. Hardin; treasurer, J. M. Elliott; secretary, R. Agnes McNally.

ECONOMIC STATUS OF CALIFORNIA BIRDS

(Continued from Page 577.)

chards and fields, can save the remnant of our birds for the generations to follow.

Boys are presented by their parents with air guns and small rifles and allowed to make Saturday excursions into the country, shooting at will as their fancy dictates. Hundreds of unwanted cats are annually carried away in autos and dumped along our canals and country roads where they must either live on a diet of small birds or starve. Residents of many of the west side towns still take their toll of game birds out of season and of non-game birds at all seasons, while the pleasure bound Sunday auto parties which invade the hills and mountains each summer carry far too many rifles, pistols and shotguns at a season when the birds are nesting and have lost some of their fear of man. Who is going to plead the cause of our birds? Can our farm bureaus be induced to take up this work? It will be no easy task for prejudice is deeply rooted and ignorance and apathy are everywhere apparent.

As a cold dollars and cents proposition our farmers and fruit growers should familiarize themselves with the common birds of their fields and orchards and learn to distinguish between the beneficial and the injurious. Don't shoot the bird in your orchard when you find the center of the fruit bud eaten out. Give him the benefit of the doubt and begin to search for cutworms. All through the valley one may see the bodies of barn owls and red tailed hawks nailed to the ends of barns and garages, despite the fact that for a number of years the University of California annually sent out a train of exhibits through our counties and displayed, among other things, a graphic showing that each barn owl is literally worth its weight in gold on any farm. Thousands must have seen this but, apparently, it made no lasting impression. We cannot expect soon to reform the Sunday hunter who kills for the mere gratification of his lust for blood, but our orchardists, stockmen and farmers generally must put away their shotguns until such a time as they have learned to identify the beneficial birds about them. Nature, unassisted by man, maintains a very good balance in all things. Nature, handicapped by man's ignorant wastefulness, wages a losing battle but, with the cooperation of intelligent, thoughtful, unprejudiced men, can make this valley a garden such as no one has ever pictured.

It cost some of the Eastern states millions of dollars worth of crops annually before they learned to protect the birds. Shall California's present prosperity blind the eyes of our agriculturists until disaster threatens?

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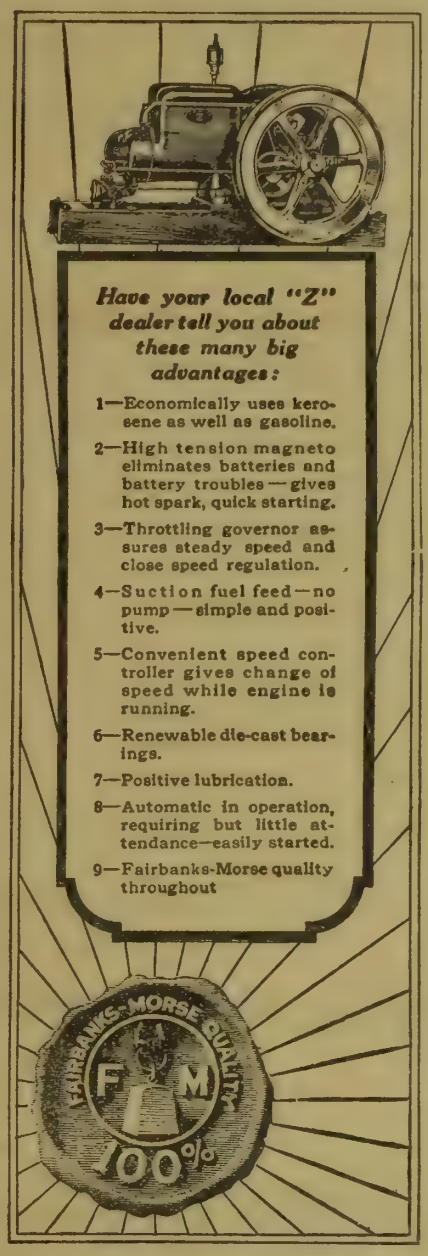
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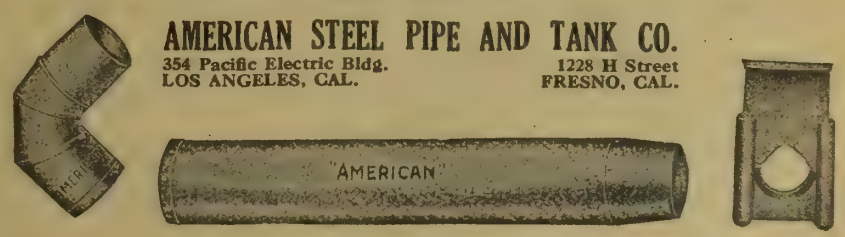

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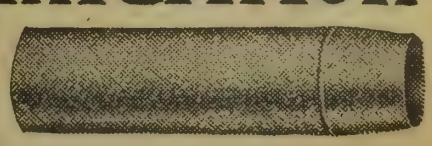

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Dependable Motor Oils

PRUNE DISEASES

(Continued from Page 578.)

to carry out similar measures as far as it is practical for you to do so, and the growers who have done this have found to their own satisfaction that it paid them. If possible those prunes should be removed, because if allowed to fall and get buried in the soil they will put up a crop of fruiting spores about 18 months afterwards and start brown rot another season in your orchard.

Destroy the Mummies

Of course it gets started anyway, but to allow a lot of these to get buried in the orchard is very bad policy. A lot of fruit that falls is attacked already, or becomes attacked after it has fallen on the ground. Growers who have a chance to put hogs in sufficient numbers into the orchard will have these brown rot prunes cleaned up and that gets rid of those brown rot mummies that eventually get buried and later on produce a new crop of spores.

Prune Gum Spot

Another kind of trouble is appearing in prune orchards and that is the prune gum spot. I call it "gum spot" because there is a spot there that pops open and from this spot gum exudes onto the surface of the prune. It looks a good deal like the injury that the insect known as curculio produces on prunes in the eastern part of the state, but it is not produced by an insect nor by any fungus and not produced by bacteria. The first thing that the orchardist notices is a rather bluish spot or water soaked spot just under the skin of the fruit. As a matter of fact, we find this water soaked appearance is due to the formation of a watery kind of gum which is produced in considerable quantities at a certain spot in the flesh of the fruit, and then it continues to be produced until the pressure is so great under the skin of the fruit that it bursts and the gum comes out onto the surface in this fashion. We have made careful study of the gum spot in previous years. It almost invariably appears in August or the latter part of July. Generally around the fifth of August we begin to get specimens sent to us for identification at the college. We have made microscopic examinations and have tried to discover by our technical methods whether there is a parasite present, and have never been able to find any parasite in connection with the spots. What we have found is a little tiny dead spot in the flesh of the fruit and it occurs at a time in the season when there is very great heat, usually, and very dry atmosphere. I do not know, and I think no one knows, the exact cause of the trouble, but it is associated with climatic conditions in some way. A certain combination of climatic conditions will probably produce this effect, but just what the combination is I do not know.

That is, I do not think anyone can predict from observing the weather just when an outbreak of this sort might be expected. I think that it is probable that the gum spot comes as a result of excessive evaporation from the leaves of the tree at a time when the soil has about as little moisture in it as it has at any time during the season, a time when the roots have a hard job to get enough water to push up to the tops of the trees to supply the tremendous demand for water which is caused by the high rate of evaporation from every leaf these hot, dry days. We know that each leaf is able to evaporate a certain amount of water from its surface. That goes on all the time. It sort of pulls moisture up from below and the water is carried out into the atmosphere by evaporation just as a damp rag held out in the air will gradually dry off—so a leaf is damp and it gradually dries, but there is a constant supply of water from the root system to make up for the evaporation.

When the day is unusually dry, and when the root system is not able during the heat of the day to give enough water to keep that leaf in perfect shape, it gets its water from the fruit.

California Experiments

In California we know by experiments that every day the oranges give up water to the orange tree foliage and every night there is enough water pumped up by the root system to make up for the loss, but it is differently constructed from a prune or apple, and they are likely to suffer. You will find little brown spots in the apple flesh sometimes and I believe it is a combination similar to this that brings about this gum spot in the prune. Where the apple is injured you don't get gum formation but you always get gum formation wherever a stone fruit is injured, so the gum is not especially indicative of the kind of disease. It isn't a symptom of a certain disease; it indicates some sort of injury in the flesh of that fruit.

The Remedy

The only thing that I can think of as a remedial measure for such things as this is to do what we can to keep as large and abundant supply of moisture in the soil as possible, keeping our root system in just as healthy condition as we can. We find some seasons there is very little and others there is a good deal of it. The fruit affected in this manner very frequently drops, but if it goes through to harvest and sometimes matures you can hardly tell that it has been affected by this condition. There is just a little slit in the skin that seems to have healed up and that is about the only evidence of this gum spot condition.

WHAT WILL THE 1921 HARVEST BE?

E. B. Beeton, Beaumont, Riverside County

I have thought best to give an amended report of the one sent you April 11 on the present condition of fruits at Beaumont. Protracted cold weather since April 3 has had a detrimental effect on some of the fruit setting. Summing up the situation at the present time, we believe the crop look to be as follows:

Apples are a fine prospect; undoubtedly will prove a full crop.

Almonds are unusually large, look good, and will justify a guess of 10 per cent normal.

Cherries have suffered most, especially Royal Ann.

It is hard to determine the loss as the frosted fruit is still on the tree mixed with the good fruit—probably 60 per cent of a normal crop.

Pears, 70 per cent of normal.

Apricots, 80 per cent of normal.

Peaches, 60 per cent of normal.

Prunes, 60 per cent of normal.

Grapes have been frosted but are not grown in commercial quantities here.

N. E. Mathews, Santa Ana, Orange County

Apricots: Growers at this time estimate about 40 per cent of normal crop.

E. W. Curtis, County Agent, Tehama County

With regard to the condition of the fruit crop in Tehama County would state that the frost of April 14 did considerable damage in some localities, though it was not general over Tehama County. The damage done was largely on Muir peaches, prunes and grapes. Muir peaches in the Red Bluff section were damaged perhaps 60 to 75 per cent, while Elberta peaches were damaged much less, perhaps only 30 per cent. Almonds and apricots escaped entirely, the reason for this being that the fruits were getting to be quite large and the trees well protected with heavy foliage. Prunes were damaged in the Bend section perhaps 20 per cent. Grapes all over the county were quite badly frosted and considerable damage was done wherever there were vineyards of any kind.

Prospects are very good for an exceedingly good crop of almonds, apricots, prunes and peaches with the exceptions noted above.

J. C. Metzgar, Secretary Santa Ana Chamber of Commerce, Santa Ana, Orange County

Almonds: Not grown commercially.

Apples: Promising condition.

Apricots: Probably 55 per cent normal. Late rain while in bloom caused damage.

Cherries: Not grown.

Peaches: Very few; no commercial orchards.

Pears: Very few; no commercial orchards.

Prunes: None except scattering trees.

Grapes: Not plentiful; what there is promises well.

No frost damage to any crops here whatever this year.

A MIGHTY THIN SLICE

(Continued from Cover Page.)

"The question which naturally arises is 'Why is such a small sum devoted to the development of our great basic industry?" One answer is that the farmers themselves have been very little interested in what was expended by the federal government for agriculture. Over $1,000,000 is spent in California by the federal department of agriculture each year, and there is scarcely a farmer who knows where as much as $50,000 of this sum is being expended. Some excellent work is being done in California by federal employes, but we know entirely too little about it. The work of some of these men is probably open to criticism that it has not been affiliated closely enough with the agricultural industries which it is supposed to be assisting; but it must also be granted that these industries in many cases have not been interested in the federal specialists who are working on their problems."

BERRY CONTAINERS

An announcement has been issued relative to berry containers, showing standards prescribed by superintendent of weights and measures and tolerances permitted as follows:

Strawberries, 12 ounces minimum contents (pint 33.6 cubic inches). Tolerance ¾ ounce in deficiency; 2 ounces in excess.

Loganberries and blackberries, 12 ounces minimum contents (pint 33.6 cubic inches). Tolerance ¾ ounce in deficiency; 2 ounces excess. Eight ounces minimum contents (½ pint 16.8 cubic inches). Tolerance ½ ounce deficiency, 1 ounce excess.

Raspberries, 8 ounces minimum contents (½ pint 16.8 cubic inches). Tolerance ½ ounce deficiency, 1 ounce excess.

The pint or 12 ounce basket is the standard container for strawberries while both the pint and ½ pint may be used for loganberries and blackberries

Raspberries must be marketed in ½ pint baskets.

CULTURE OF GLADIOLUS

It is time all gladiolus bulbs were in the ground. In the last issue of the Hawaiian Forester we find an instructive article on these plants by E. M. Ehrhorn, a former Californian, that fits the mainland culture so well that we quote from it:

"The culture of gladiolus in the garden is rather simple, for it thrives in all ordinary garden soils in sunny, airy locations. Deep, moist, sandy loam is the best. Stiff clayey soil should be avoided but can be used by filling in spaces with sandy loam or leaf mould. Liberal applications of well rotted manure should be dug in around the plants after they have made a good start. If a suitable bed for gladiolus can be prepared a month or so before planting the bulbs, so much the better, but the bed should be loosened up before planting.

"Bulbs should be planted from two to four inches deep, according to the condition of the soil; in light soils four inches deep, in heavy soils two inches deep, and from four to six inches apart. It takes from two to three months for the bulbs to flower, and those contemplating planting in groups or beds may plant the bulbs from eight to ten inches apart and then two weeks later new bulbs can be planted between the growing ones, thus prolonging the flowering period. If grown in rows they should be 12 inches apart. In dry weather the plants should be watered liberally, especially when the plants are developing their buds and flowers.

"After the plants have finished blooming and are ready to be taken up, great care should be exercised when removing the bulb not to lose the small bulblets, botanically known as cormels, as these, if taken care of, will soon produce flowering bulbs. These small bulblets can be placed in sand and kept for a few months and then planted in drills like peas in some good spots in the garden, where they will increase in size and flower in less than two years in our climate."

COMING EVENTS

May Day Picnic, Oakdale, April 30.
National Dairy Marketing Conference, under auspices of American Farm Bureau Federation, Chicago, May 3-4.
Floral Pageant, Woodland, May 4-6.
California Avocado Association, Pasadena, May 6-7.
Butte County Farm Bureau Annual Picnic, Paradise, May 14.
Fig School (traveling), May 16-21.
California Valencia Orange Show, Anaheim, May 17-22.
Rose Carnival, Portland, Oregon, June 8-10.
Citrus Institute, Whittier, between June 20 and 30.
Yuba County Agricultural Fair, Browns Valley, Aug. 29-31.
California State Fair, Sacramento, Sept. 3-11.
Southern California Fair, Riverside, Oct. 11-16.
California Association of Nurserymen Annual Convention, Exposition Park, Los Angeles, Oct. 20-22.
Date Festival, Coachella Valley, Oct. 21-23.
California Horse Breeders Association, Los Angeles, Oct. 30-Nov. 5.
Stanislaus County Poultrymen's Association Show, Winter Garden, Dec. 4-7.

Butte County farm bureau will hold its annual picnic at Paradise, May 14.

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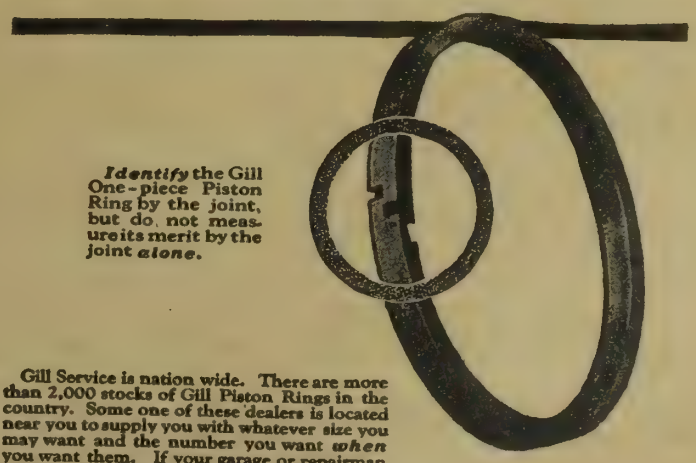

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"A Russell Thresher owned by W. F. Kreimeier threshed 68 bu. oats in 10 minutes, dropping the straw on a canvas. The straw was then removed carefully and the residue of chaff run through a fanning mill and when all cleaned up to the last kernel, only 2 1-4 pounds oats were secured; the grain run through the Russell showed a loss of less than 1-8 of 1 percent. This is also a record for fast threshing, being at the rate of 4080 bushels per day of 10 hours." ---Editorial in Manhattan Messenger, Manhattan, Ill.

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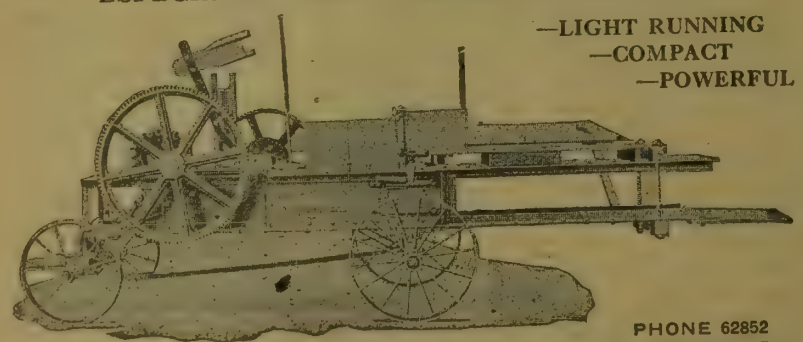

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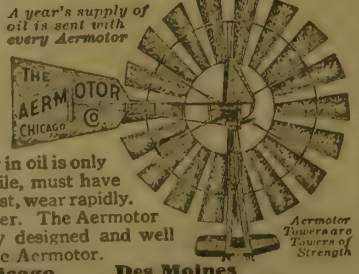

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Reconstruction Period in Salt River Valley

By M. E. Bemis

FARMERS were the last to get the benefit of higher prices incident to the general boost following the outbreak of the war and farmers were the first to feel the results of the general downward revision of prices.

Arizona farmers and particularly those in the Salt River Valley, representing probably 50 per cent of all in the state, have been no exception to the general class of farmers throughout the country. High prices for Long Staple cotton was the inducement for greatly increasing the acreage from 1916 to 1920 inclusive.

Shortly after the outbreak of the war in Europe there was little demand for cotton and the price dropped to 18 cents per pound. In 1915 it was found that Long Staple cotton could be used for the fabric of automobile tires and this at once boosted the price. By the early spring of 1917 farmers were enthusiastic over the outlook and buyers were offering to contract for around 30 cents a pound. Acreage and price increased up to planting time in the spring of 1920, when the price reached $1.25 per pound, and the acreage planted was 185,000 acres, or almost two-thirds of the entire area.

Land values, rents, labor and every item that enters into making a crop, advanced. The 1920 crop in consequence was the most expensive crop ever grown and when grown there was no market. Gin yards and warehouses are piled with cotton which less than a year ago was in world demand at fancy prices.

Banks have advanced as much as is safe, but farmers who have their capital tied up in cotton are needing money for making the 1921 crop. Many will plant alfalfa. The limiting factor in alfalfa acreage has been the impossibility of clearing the cotton fields in time for planting alfalfa. As it is, a good deal will be planted rather late. The grain acreage is considerably increased, but the same limiting factor applies to grain as to alfalfa. This will leave a considerable area to be filled in Sudan grass or other summer crops.

The dairy cows that were banished or butchered to make way for cotton are coming back. There is a determined effort on the part of bankers, the state dairy commission and the state experiment station to see to it that only first class cows are brought in, in other words, to re-establish the dairy industry and see that it is placed on a stable basis.

Land values have dropped somewhat, and even with pre-war prices for alfalfa hay and dairy products the careful farmer has an excellent chance to make good.

The jolt in farm product prices, the disappointment in cotton and consequent money losses are inducing farmers to play safe. The reconstruction period for farmers is a disillusionment. Dreams of sudden riches have vanished. It is hard, of course, for the farmer who has spread out, who has farmed 100 to 200 or more acres all in cotton, with teams and tractors and a small army of men, to come down to one or two men and farm 40 acres or even less.

"The big point now is that the big fellows are looking enviously at the small farmer who didn't have the nerve (or had too much sense) to sell off his cows and plunge in cotton. These small dairymen are the boys that have the money now. Some of them have a bale or two of cotton standing somewhere, waiting for a time when markets are stabilized. In the meantime these farmers are not worrying—or at any rate not as much as the other fellows whom they rather envied a year ago. Unfortunately, many who went in heavily for cotton last year are indicating that they will go just as far the other way this year and not plant a seed.

I have contended that Long Staple cotton would not drop as much relatively as other commodities. Short Staple cotton is now quoted at pre-war prices or less. There is no market for Long Staple that may be counted as establishing any real price, although some few bales may have been sold on a speculation basis.

Sea Island, of which there is but little, is quoted in Savannah at 40 cents. Egyptian Sakellaridis is quoted at 39 cents landed at New York or Boston, for Fully Good, and 32 cents for Good Fair. These are above pre-war prices, and almost certainly cannot go lower. If this view of the situation is correct we may expect to see the man that raises a little cotton, say 25 per cent of his acreage, as some dairymen have done this past year, making a good yield to the acre and a good profit.

We are coming now to a saner contemplation of the matter and may expect to see worked out a crop rotation system that will fit every farm. We may expect to see 40 acre farms the ideal acreage, with an orchard, garden, a few chickens, some live stock, dairy cows, hogs and beef cattle, alfalfa to be the principal crop and grain and grain sorghum to fit into a rotation in which cotton is the money crop. Such a system of farming will establish homes and build up communities because it will be a system that will be moderately profitable in good times as in bad. There will be no illusions to be broken, no disappointing market quotations, but a steady forging ahead, a more prosperous and more progressive community.

CASTOR BEAN CROP

An item of some interest to Californians, who during the war investigated the possibilities of profit in raising castor beans for oil, comes from Madras, India:

"The area under castor in 1920 is estimated at 350,000 acres, as compared with 454,000 acres estimated at the same date last year (December 24). The area actually recorded last year at the close of the season was 474,600 acres. The decrease is general but is heaviest in the Circars and Deccan, where the partial failure of the southwest monsoon prevented the usual area being sown. In the south a large initial decrease has to a certain extent been made up by late sowings. The crop has been badly affected by caterpillars in parts and generally by the irregular rains. The yield is therefore below normal and is estimated at 35,504 short tons for the whole presidency as against 50,17 tons in 1919."

Farm bureau organization continues in Arizona. Bureaus have been organized in Graham County at Safford, Thatcher, Central, Ashurst, Pima, Lebanon, Artesia and Glenbar.

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is the produce of the same fields located in the same section where our seed has been grown for a number of years.

Each season previous to harvest our own representative inspects the fields and every precaution is exercised in order that there may be no off-type seed in the stock which we select for seed purposes.

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of the reputation we have gained on Dwarf Milo Maize seed and it is very gratifying to have the many unsolicited favorable expressions from our customers each season in which they state that the seed was all we claimed for it and more.

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Earth augers, rock drills and combined machines. Engine or horse power. *Write for easy terms and free catalog.*
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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Sow Bugs or Wood Lice

Can anyone tell me what to do for sour bugs? I have some plants in my garden that show them thick underneath the leaves, and some of my plants have withered and dried. Would appreciate very much if somebody could tell me of something that would kill the bugs but not the plant.—Subscriber, San Luis Obispo.

Presumably the soil is very moist and there may be decaying leaves and decaying wood around which attract these pests. They will attack living tissue, however. It is possible that raking and drying up the surface would control or scattering lime around. Another method of control is by making a mixture of sugar and Paris green and sprinkling on the ground. Thin slices of potatoes with Paris green sprinkled over are also effective in the control of this pest.

About the Reds

I would like to know the difference, if any, between a Duroc-Jersey hog and a red Duroc.—Subscriber, Ruth.

This is simply a difference of terms in referring to the one breed. They are all red hogs. Their perfectly proper name is Duroc-Jersey, but n these days of valuable time it has become very common to reduce to simply Duroc.

Thrips

I have a young prune orchard. There are numerous small insects which are found in the closely folded leaves of the tip ends of the new growth. These insects are about half the size of an aphis, have a long pointed body, and are a light yellowish gray color. Some which seem to be young are yellow and appear to have no wings. The others have wings which do not seem to assist them much in flying when there is no wind. When knocked onto a piece of cloth they are fast travelers on foot and occasionally stop and turn up their tails and ruffle their wings. They do not mind dry sulphur. They do not seem to hurt the vigorous growth but on some of the smaller shoots the small tips dry up and when touched drop off, leaving a clean tip which does not seem to start growing again. Would like to know the name of these insects and the best way or means of control.—Subscriber, Laton.

Plainly a case of thrips. The nicotine dust spray is considered as having many advantages for control of this pest. This is applied by either power blower or hand duster. The hand duster or knapsack type of machine has proven very effective. The dry process has proven especially effective with the nicotine and kaolin mixture. However, where one is fitted for the liquid spray use distillate emulsion 10 gallons and nicotine sulphate one pint, water to make 200 gallons.

Cottonseed Hulls for Goats

Will you please tell me if there is anything posonous to goats in the cottonseed hulls used for fertilizers. I find the goats are very fond of them.—Subscriber, Alta Loma.

No, we do not think that there is anything poisonous, neither anything exceptionally nutritious in cottonseed hulls. Henry's "Feeds and Feeding" says: "Cottonseed hulls, which contain somewhat less digestible nutrients than oat straw, are extensively employed in the South as roughage for cattle feeding. The hulls are low in crude protein, of which but a small part is digestible. With only .3 pound of digestible crude protein in 100 pounds the hulls have the extraordinarily wide nutritive value of 1:122, the widest of any common feeding stuff. Obviously they should be used with feeds which are rich in protein. Fed with cottonseed meal to steers by Willson at the Tennessee station, cottonseed hulls produced somewhat lower gains than corn silage, 100 pounds of hulls replacing 170 pounds of corn silage. Because of their low palatability and digestibility cottonseed hulls are not well suited to dairy cows, corn stover having a higher feeding value."

Twin Heifer Barren?

Regarding barrenness of heifers in case of twin bull and heifer Walter S. Chase of San Bernardino calls attention to Farmers Bulletin 1167, "Essentials of Animal Breeding" of the U. S. D. A., containing this statement: "The laws of the inheritance of fecundity are not all known, but to some extent it is dependent on inheritance from the mother; therefore, the selection of females which have a tendency to produce a large number of young at a birth will tend to increase the returns from the flock or herd. This is of practical importance in the case of hogs, sheep, goats and poultry. Twins in cattle are objectionable unless of the same sex. When a heifer is a twin with a bull calf, the heifer is known as a 'freemartin' and in the majority of instances is sterile." This statement also appears in another place in this issue of the Cultivator because of liberal quotations which we are making in the livestock department from the bulletin.

Killing Blue Gum Stumps

Take three or four buckets of boiling hot water and pour it on them slowly, so as to scald. For large stumps more is needed. Some stumps will die in a few days and others may take three or four weeks. If it does not kill, repeat. I have had good success killing blue gum stumps by this method.—Robt. Boehner, Olive.

Powdery Mildew

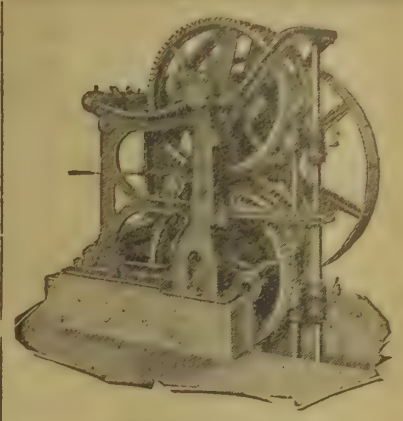
I would like to know the trouble with my rose bushes. The leaves curl up and drop off every year. They have plenty of water.—Subscriber, Vina.

The leaves show a bad attack of powdery mildew, common to some roses the world over. The popular cure-all for mildew is flowers of sulphur, but sulphur is not effective except under the most favorable circumstances. It is probably better to use a liquid spray of liver of sulphur (sulphide of potash), one ounce to three gallons of water, and spray under sides of leaves as well as from above. This solution does not hold its strength so a fresh mixture should be made for each application. In bad cases, while plants are still wet with spray, dusting sulphur on foliage would add to the effect if weather prove favorable to generation of sulphur fumes.

In addition it might be well to examine closely for aphis and if found, spray with nicotine mixture.

Strawberry Red Spot

I have received so much help from your paper that I thought perhaps you could help me out in my present trouble. Last February I set out 100 everbearing strawberry plants. They all lived and grew well for a while but lately the leaves are drying up and they die. I spread chicken manure over the bed before it was plowed. Have given the plants plenty of water



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Duplex Plunger
Deep Well Pumps

and hold down the most important item of expense in your water supply, which is the power bill.

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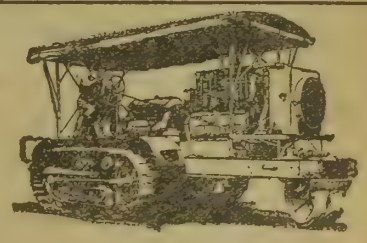

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Overloading causes 60% of tractor upkeep expense. Eliminate that 60% with this "Caterpillar" 75—the most powerful tractor on the market today.

Remember, the extra big power of the "75" costs but little more to buy and run. Play safe by having this extra power when the big jobs loom up.

There is a different size "Caterpillar" Tractor for every power need—send postal for complete description.

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Farmers, Miners, Builders — people in every kind of business are saving money buying used or renewed pipe from us. We sell every kind of pipe. Send in a list of your requirements today and get our prices. We have saved hundreds of people 33 1-3 to 50 per cent on their pipe bills. Here's a partial list of some of the miles of pipe we have in stock for immediate delivery.

8,000 ft. 6 Inch Riveted 16 Gauge
700 ft. 8 Inch Riveted 16 Gauge
5,000 ft. 12 Inch Riveted 12 Gauge
1,000 ft. 18 Inch Riveted 12 Gauge
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All above pipe thoroughly overhauled and inspected and ready for immediate use.

We also have large quantity standard pipe and screw casing, pressure tested and guaranteed.

Don't delay—write for our prices on your pipe requirements today.

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Samson Trucks, both the 3/4 ton and the 1¼ ton truck, are the result of ripened experience in invention, designing, engineering and manufacturing experience.

They go where others fail to.

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Samson Tractor Company of California,
Stockton, California.

Without obligation on my part send me booklet on "How to Reduce my Farm Operating Costs."

Name .....

Address..... C.C.

Samson Tractor Company of California
Subsidiary General Motors Corporation,
Stockton, California

Garden Seed
THAT GIVE SATISFACTION
For a Good Many Years Our Seeds
Have Been Giving
RESULTS
to Critical Growers. Send Us a Trial Order
Send For "Hints on Gardening" It's Free
Morris & Snow Seed Co.
439 South Main Street Los Angeles, Cal.

PERFORATED TREE PROTECTOR

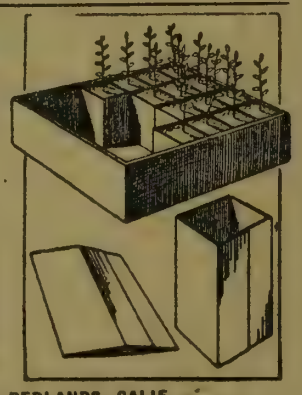
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

COLLAPSIBLE PLANTING POTS

Why not raise your early

Tomatoes, cabbage, chili, and egg plant for home use or for market. Do you know that you can start Cucumbers, Cantaloupes, Melons of all kinds in these pots in flats until they have three and four leaves, then plant pot and all, have melons two or three weeks earlier for market. Just the thing for Propagating Eucalyptus and Olive cuttings.

Write for samples and prices of both Pots and Protectors. State which you are interested in.



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and cultivated them well.—Subscriber, Denair.

From above description this would appear to be "red spot" (a sphaerotheca). Small red spots appear thickly on leaves and continue to grow larger until practically all the surface is affected, when the leaves die. The remedy is spray of Bordeaux mixture, a 5:5:50 solution will do. If this does not eliminate the trouble, send in some leaves for determination of the cause of their death. In all such cases it is, however, a good precaution to spray at once with Bordeaux.

Avocados and Loquats

Can a seedling loquat tree about 25 years old be budded or grafted with success to an avocado? Which avocados are most hardy? If grafting to avocado would be undesirable what time of year could the loquat tree be grafted over to a larger kind of loquat?—Subscriber, Orange.

Avocados cannot be made to grow on loquats. The former belongs to the laurels, the latter to the rose family. The best time for topworking loquats is in the fall, about October, allowing buds to remain dormant until spring. Use same method of budding as in citrus trees. The buds will, of course, be somewhat larger than citrus buds. The Northrup, a small thin skinned variety of avocado, fruits well in parts of the San Joaquin and Sacramento Valleys. Of the larger type, the Fuerte, a hybrid, is the hardiest and in frosty sections is preferable to others. Wherever lemons escape injury it is safe to plant any variety of avocado now in the market.

Asparagus Culture

I have a number of asparagus plants now in the second year from seed. Should the tops be kept cut off or allowed to grow till the end of season (or fall)? Any information regarding the complete culture of asparagus will be gratefully received.—Subscriber, Orange.

It must be recognized in garden practice that growth is made and strength stored for next year's crop in all bulbous plants after the period of flowering. The plant food for this development is manufactured by the foliage. If you cut this away before ripening you starve the bulbs. Wait until tops begin to turn yellow and then cut them off on all bulbous plants whether asparagus, lilies, or daffodils. Burn asparagus tops; you may thereby prevent rust. Asparagus needs a deep, rich, thoroughly pulverized soil, preferably sandy and cool. Plant seed in beds or rows; cover about one inch. Keep watered and weeded first year, and if too thick in beds thin out to two or three inches apart, and you get better roots. After one year's growth they can be transplanted to rows three to four feet apart and one foot apart in the row. Although two year old plants are preferable for transplanting, they will then produce the following spring. Cultivation should be done early in the spring before the shoots start and in the fall after cutting is over.

Value of Manures

Please give me the relative fertilizing value of chicken, sheep, cow and horse manure.—Subscriber, Pasadena.

Poultry manure contains about 1 per cent of nitrogen, .8 per cent phosphoric acid and .4 per cent potash. (These figures are only approximate for analyses of various samples show a variation of from .75 per cent for fresh manure to 2.13 per cent for air dried.) Sheep manure contains about .9 per cent nitrogen, .5 per cent phosphoric acid, .45 per cent potash. Cow manure where solid and liquid are mixed contains about .6 per cent nitrogen, .15 per cent phosphoric acid, .45 per cent potash. Horse manure where solid and liquid are mixed contains about .7 per cent nitrogen, .25 per cent phosphoric acid, .55 per cent potash. The above figures as to the manures are percentages of plant food constituents in fresh excrements and are only approximate, for methods of feeding and of preserving the manure vary greatly.

CASH ONLY

"Marse Henry" Watterson said at a Louisville dinner:

"One day I met an old negro toting a fine ham under his arm. It was a gray, cold day, windy and threatening snow, but the old fellow had on a ragged seersucker coat and seersucker trousers—you could see his black skin through the holes.

"'Ephriam,' I said, 'why did you spend your money for that magnificent ham? You'd have done better to buy an overcoat.'

"Old Eph rolled his eyes at me and said solemnly:

"'Marse Henry, when Ah axes mah back fo' credit Ah gets it, but when Ah speaks to dis'—and he gave his stomach three or foor whacks with the ham—'it calls fo' de cash.'"—Washington Star.

California Wonder Corn

Now is the time to plant California Wonder Corn — the best and biggest yielding corn ever introduced. Bears 3 to 12 good ears per stalk. Best plots at my seed farm have averaged 6 ears per stalk—over 300 bushels per acre. I am now selling seed from this same stock direct to you with full printed cultural directions telling just how to plant and care for it. It only costs five dollars per acre, postage paid to your door, to seed to this big money making crop. Invest five dollars or more in California Wonder Corn and watch it grow into thousands. You can do it. Big, sure and quick profits are yours this year if you act promptly.

Send for my free photo illustrated booklet showing many individual stalks and field scenes—tells all about it and gives prices on shelled corn, corn on the ear and stalks with the ears all on them. Better still send in $5 for each acre you want to plant and receive your seed by return mail.

Plant them according to directions and begin now to turn your dreams of big profits into Real Dollars—You Can—It's up to you to act. Send in that order right now before you forget it and big profits will be yours at harvest time.

EDWIN FRAZEE
CORN SPECIALIST
Santa Rosa, California

Household Department

WHEN THE BABY'S SICK

Say! Y' know our baby?
Well! he's sick t'day,
An' yisterday the doctor
Jes' couldn't stay away.
He come three times a-runnin',
An' runnin' good an' quick,
Fer Pa won't stand fer foolin'
W'en the baby's sick!

Ma she's jes' a-jumpin'
Fixin' up the bed,
An' tellin' all the neighbors
What the doctor said;
Pa can't read his paper,
Ner go t' work, ner joke,
Jes' waiitn' on the baby,
An' tryin' not t' choke.

Sis she does the cookin',
An' bein' awful nice,
An' she's been a-cryin',
Fer I seen her twice!
"Looks like I been cryin'?"
Say! Y're not s' slick!
You ain't got no baby,
An' our baby's sick!—C. I. J.

TAKE CARE OF YOUR SHOES AND SAVE MONEY

DO not discard shoes as soon as they begin to show signs of wear. Proper care means a reduction in shoe bills of from 25 to 50 per cent, and at the same time insures good looking footwear. Keep your shoes in repair, and wear them as long as they are serviceable. An economical plan is to have two pairs which are worn on alternate days, thus permitting each pair to become thoroughly dry between the periods of wearing them. Shoe trees are of great assistance in retaining the original shape of the shoe. Shoes designed for heavy out of door work should be kept clean and greased, while those for street wear should be kept clean and polished.

Send your boots or shoes to the shoemaker for repairs the minute they begin to rip at the seams, the upper leather cracks through at a crease, a heel becomes twisted out of shape, or the heel lift wears through. Especially avoid wearing away the welt. Any delay may mean that the shoe soon will be so badly damaged that it is no longer worth repairing, and from $2 to $5 has been lost by neglect.

Ripped seams in the uppers can frequently be stitched at home, and a handy man, with the aid of a repair kit, can put on new heel lifts, rubber heels, half soles and metal heel or toe plates without much difficulty. The equipment necessary for repairing shoes includes a last holder, three or four iron lasts of different sizes, a shoemaker's hammer, a pair of pincers, one or two leather knives, a leather rasp or file, awls, nails for soles and heels, flax shoe thread, bristles and wax. Made up repair kits, containing all the necessary articles, or the separate articles, can be purchased from dealers in hardware or shoe findings. Waxed linen or flax thread should always be used for sewing, the flax being stronger and more durable than cotton, and the wax making the thread more water resistant and the stitch holes more impervious to water.

Drying

Boots and shoes are peculiarly subject to damage after they have become soaking wet. The wet leather is soft and therefore readily stretches out of shape. The stitches cut through the wet leather much more easily than through dry leather, and wet soles and heels wear away rapidly.

Great care must be taken in drying wet boots and shoes, for they often burn before it seems possible. Moreover, if dried too fast and without proper attention, they shrink, becoming hard and misshapen.

To dry wet boots and shoes properly, first wash off all adhering mud and grit with tepid water, and, in the case of work or rough shoes, at once oil or grease them. Then straighten the counter, heel, vamp, and top to the proper shape and stuff the toes with crumpled paper, which helps them to hold their shape and shortens the drying period. Finally, set the shoes aside in a place that is not too warm and allow them to dry slowly. Wet leather burns very easily, much more readily than dry leather. If it bear, it is almost sure to burn. The shoes should not be worn until they becomes hotter than the hand can have become thoroughly dry.

Oiling and Greasing

The rational use of the proper kind of oil or grease will greatly increase the wear of shoe leather. Boots and shoes, especially those worn on the farm, should be oiled or greased whenever the leather begins to harden or dry, or when it does not turn water well. The purpose of doing this is to make the boots last longer, and to keep the feet dry and comfortable.

Before oiling or greasing, brush the boots or shoes thoroughly to remove all the dirt and dust, warm them carefully, bearing in mind the danger of burning them if they are wet, and apply warm oil or grease with a swab of wool or flannel. The oil or grease should never be hotter than the hand can bear, and it should be rubbed well into the leather, preferably with the palm of the hand. Special care should be taken to work the grease in well where the sole is fastened to the upper, as the water soaks in most frequently at that place. After being greased the shoes should be left to dry in a warm, but not hot, place.

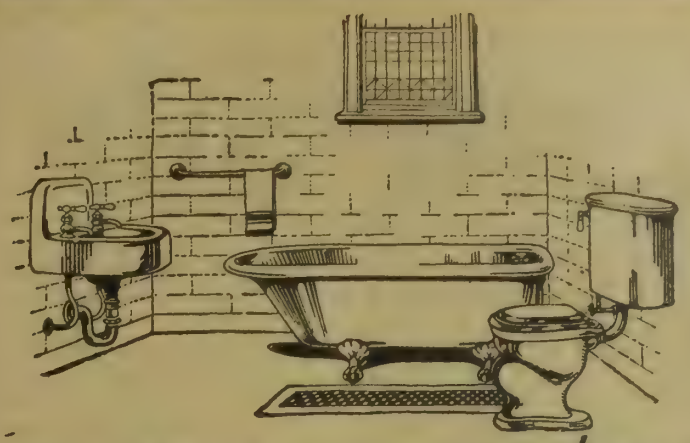
Among the best oils and greases for this purpose are neatsfoot, cod and castor oils, tallow, and wool grease, or mixtures of them. Cylinder oil and vaseline or petrolatum also are good, but are improved by being mixed with animal oils or greases. The application of any oil or grease darkens light colored or russet leather. Where this is objectionable the shoes should be kept in good condition by frequent polishing.

Castor oil probably is the most satisfactory oil for use on shoes that are to be polished. Apply the oil lightly to the clean, dry shoe, and rub it into the leather until dry. If the application is light the shoe may be polished immediately, although it is better to wait until the next morning. If the oil is applied too heavily it will be difficult to polsh the shoes satisfactorily even after two or three trials.

Waterproofing

It is often desirable, especially at certain seasons of the year, to grease boots and shoes heavily to make them water resistant, since it is highly important both for health and for effective work to keep the feet warm and dry. The ideal shoe would permit the perspiration from the foot to pass out, at the same preventing the entrance of water. Such a shoe, however, does not exist.

Dependence for keeping the feet dry must, then, be placed on rubber overshoes and boots or waterproofed leather shoes and boots. Although rubber overshoes and boots will keep water out, they also keep the perspiration in. Moreover, they are cold in winter and hot in summer. For these reasons, as well as because of exces-



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Send me..... pairs of Viscolized Shoes as marked below, postpaid, at once. I will pay postman for them on arrival. If I am not entirely satisfied I will return Beacon Shoes and you will refund my money immediately.

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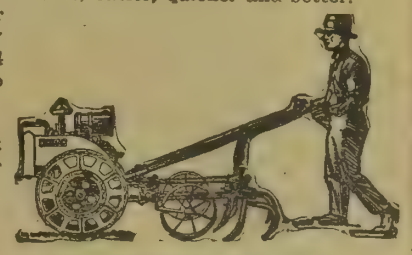

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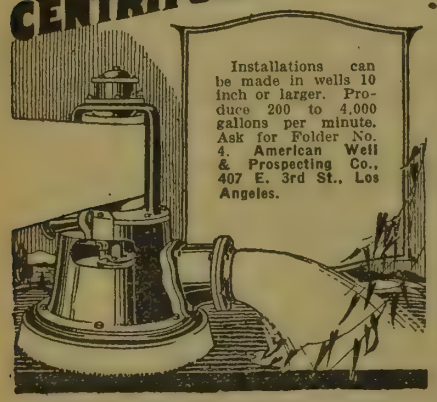

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The Sievert Oil Burner burns either distillate or kerosene oil in cook stoves, heaters, furnaces, pasteurizers, boilers, prune dippers, dairy sterilizers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Installed it yourself. Write for circular and prices on different sizes. Address Sievert Oil Burner Co., 710 North Main St., Los Angeles.

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FOR PROFIT

Growers netted this year $1000 per acre. April, May and June are absolutely the best months to plant for full crop next winter and spring. We can supply plants—all sorts for large fields. Write for price list. J. B. WAGNER

Rhubarb and Berry Specialist, Pasadena, Cal.

sive weight, rubber footwear is objectionable to many people.

Some boots which are well made of best quality leather and which are properly treated are practically waterproof under most conditions of wear. Nearly all of the leather shoes and boots made nowadays, however, when treated to make them water resistant, allow the entrance of some water, owing principally to the difficulty of completely waterproofing the seams. Such footwear cannot be expected to keep the feet perfectly dry if worn for a long time in wet weather, nor will it take the place of rubber overshoes or boots for walking in water, slushy snow or very soft mud.

Waterproofed leather boots and shoes are very satisfactory, however, for protecting the feet during rain or snowstorms and for use on wet pavements or wet ground where there are no deep puddles. They also keep the perspiration in, but are not as objectionable as rubber in this respect.

In summer the grease used for waterproofing shoes and boots should be harder than that used in winter. Since heavily greased shoes have a tentency to cause the feet to perspire and swell in hot weather, and there is also less need for water resistant shoes in summer than in winter and spring, it is rarely advisable to put as much grease on the shoes at that time of the year. In summer the quantity of grease used should not exceed the amount that the leather will take up without leaving its surface greasy. In winter, especially if it is desired to secure the maximum water resistance, a mixture of grease and oils which is not too hard when cold is required, while more of this grease than the leather will absorb may be used. An excess will do no harm and will make the leather more water resistant.

Waterproofing Formulas

For waterproo,ng boots and shoes, here are some simple formulas given by the department of agriculture.

Formula 1—Neutral wool grease, 8 ounces; dark petrolatum, 4 ounces; paraffin wax, 4 ounces.

Formula 2—Petrolatum, 1 pound; beeswax, 2 ounces.

Formula 3—Petrolatum, 8 ounces; paraffin wax, 4 ounces; wool grease, 4 ounces; crude turpentine gum (gum thus), 2 ounces.

Formula 4—Tallow, 12 ounces; cod oil, 4 ounces.

In each case the ingredients of the mixture should be melted together by warning them carefully and stirring thoroughly. Better penetration is obtained if the grease is applied warm, but it should never be hotter than the hand can bear.

Grease thoroughly the edge of the sole and the welt, as this is where shoes leak most. The sole should also be thoroughly impregnated with the grease, thereby increasing its water resistance, durability and pliabilty. The sole can be most convenently waterproofed by letting the shoe stand for about 15 minutes in a shallow pan containing enough of the melted waterproofing material to cover the entire sole. Rubber heels, however, should not be allowed to stand in the grease, as it softens the rubber.

HIS PREFERENCE

"On a day like this, melodious with the songs of birds and odorous with the sweet smells of springtime," rhapsodically spoke J. Fuller Gloom, "I hear the call of the land as at no other season of the year, and feel that I should like to be a farmer—preferably a retired farmer."

HINTS FROM HOUSEKEEPERS

Can Dried Fruit

Whenever I cook dried prunes, peaches or apricots I prepare sufficient quantity so there will be three or four cans to put up in addition to all we will eat. These are very convenient to have on hand for immediate use, especially at this time of the year when my fruit shelves are thinning out. Besides one is apt to prepare rather more of the dried fruit than the family really relishes at one time and perfectly delicious stewed prunes by oft appearing on the table come to be considered something of a joke or even distasteful. By canning up the surplus the family's prune appetite is never surfeited and the rich, spicy, fragrant fruit is appreciated as it deserves. — Housekeeper, Los Angeles.

Sugar Pie

I saw an inquiry regarding sugar pie in one of the papers a week or two ago so I thought I would send my recipe. Line pan with paste, then sprinkle over it one tablespoon of flour, ½ cup sugar, ½ cup of milk, dot with butter, sprinkle with cinnamon and bake in a moderate oven.—Mrs. C. A. Willis, Lodi.

Calla Lily Stains

The subscriber from Riverside desiring to remove calla lily stains could try Clorox (purchased at a grocery). The writer has found it most helpful, in fact wonderful.—Another Subscriber.

GIRL CANNERS MAKE MONEY

A girls' canning club in Arkansas started a contest to determine which of the members could produce the most tomatoes at the least expense, and with the lowest percentage of waste. Annet Sargo, on the Mount Valley route, near Hot Springs, grew 3,140 pounds of tomatoes on one-tenth of an acre at a cost of $31.40 and net returns of $109. With the same expense her sister, Fannie, grew 3,020 pounds and had a net return of $107.89. Ada Rosamond grew 2,803 pounds, costing $27.42, with a net return of $76.66, and Ruby Waddell at Bonnerville had 3,070 pounds, costing $29.91, with net returns of $68.

JELLY MAKING

In the household department of the issue of March 26 an inquirer, A. B. of Orange, asked why her loquat and crabapple jelly turned to sugar, and in the partial answer given at that time we promised to reprint from a University of California leaflet directions for successful jelly making, explaining method of determining amount of pectin present in the fruit juices and amount of sugar required. The directions follow. They are taken from "Fruit Juices and Jellies," published in August, 1917, by the Agricultural Experiment Station of the University of California at Berkeley, and written by W. V. Cruess, author of "Home and Farm Food Preservation."

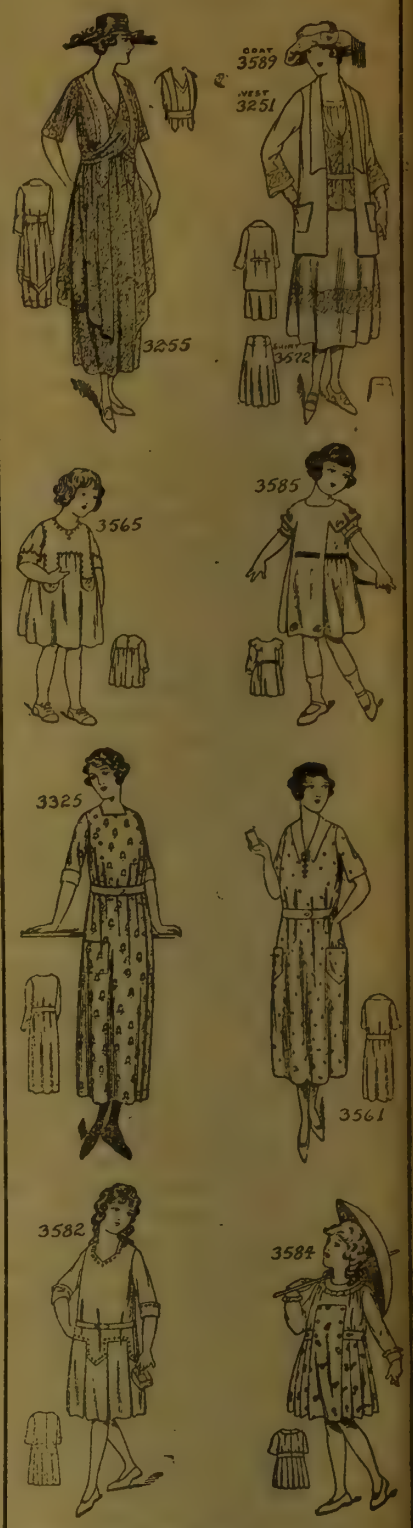
Boiling Fruit

Boil the fruit until tender (cut and sliced if hard) with just enough water to prevent scorching. Strain off the juice and press the pulp in a coarse bag. Keep the pressed juice separate.

Clearing Juice

Filter through a jelly bag. The pulp from red currants and sometimes crab apples and loganberries contains an excess of pectin and can be reboiled with a little water, strained and

The Cultivator Patterns



3255 A charming Gown—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 7⅛ yards of 40 inch material. The width of the skirt at lower edge is 1⅞ yard. Price 10 cents.

3565. Child's Dress—Cut in 4 sizes: 2, 4, 6 and 8 years. Size 4 wil require 3 yards of 27 inch material. Price 10 cents.

3325. Ladies House Dress—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 6 yards of 36 inch material. The dress is of comfortable width at the foot. Price 10 cents.

3582. Girl's Dress—Cut in 4 sizes: 8, 10, 12 and 14 years. A 10 year size will require 4 yards of 36 inch material. Price 10 cents.

3589-3251-3572. A Smart Suit—Coat 3589 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Vest 3251 cut in 4 sizes: small, medium, large, and extra large. Skirt 3572 cut in 6 sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. To make this suit for a medium size will require 7¾ yards of 40 inch material for coat and skirt, and 2 yards of 27 inch material for the vest. The width of the skirt at the foot is 2¾ yards. Three separate patterns 10 cents for each pattern.

3585. Girl's Dress—Cut in 4 sizes: 4, 6, 8 and 10 years. An 8 year size will require 3⅛ yards of 36 inch material. Price 10 cents.

3561. Ladies' "Apron Dress—Cut in 4 sizes: Small, 34-36; Medium, 38-40; Large, 42-44; Extra Large, 46-48 inches bust measure. A medium size will require 5½ yards of 27 inch material. Price 10 cents.

3584. Girl's Dress—Cut in 4 sizes: 4, 6, 8 and 10 years. An 8 year size will riquire 1¾ yard of 24 inch material for the waist and 2¾ yards for the skirt. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cents) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS; we guarantee safe delivery of all patterns.

CATALOGUE NOTICE

Send 15c in silver or stamps for our Up To Date Spring and Summer 1921 Catalogue, containing over 500 designs of Ladies', Misses and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various, simple stitches) all valuable to the home dressmaker.

PATTERN DEPARTMENT
California Cultivator
Los Angeles

mixed with the first juice. It will have less flavor and acid.

Testing for Pectin

To a teaspoonful of juice add an equal quantity of 95 per cent alcohol. Mix and allow to stand. It should form a thin jelly. If it does not, add some crabapple juice or other juice rich in pectin until a good test can be obtained.

Test Acidity

Compare the taste of the juice with a lemonade made of one teaspoonful of lemon juice with nine teaspoons of water. If less acid add lemon juice or other sour fruit juice.

Addition of Sugar

Add a cupful of sugar to each cupful of juice and boil down until the Baume tester shows 30 degrees or a thermometer in the boiling juice shows 220 degrees Fahrenheit, or until it will thicken quickly on a cold spoon. If the fruit is poor in pectin use only from one-half to three-fourths of a cup of sugar to each cup of juice.

Sealing

Pour into jelly glasses with care not to wet the glass above the jelly. When set, cover with hot melted paraffin. Exposure to the sun before covering will assist jellying.

JELLY JUICE, A NEW PRODUCT OF UNIVERSITY INVESTIGATION

Experiments carried out by Professor W. V. Cruess of the University of California during the last five years are declared to have shown that all jelly fruits may be preserved in liquid form indefinitely in cans or jars for jelly making. This fact is said to make the foundation of a new fruit product industry possible.

The "jelly juice" is said to be very convenient for use in the kitchen. "All that the housewife needs do is to open the can, empty the jelly juice into a pot, add an equal volume of sugar, boil a short time, and pour into glasses. The jelly is ready to use as soon as it has been allowed to cool overnight."

USE LESS SUGAR IN JELLIES AND JAMS

One-fifth to one-quarter less sugar can be used in making jelly and jams, experiments made by household experts in the United States department of agriculture experimental kitchen indicate.

Another sugar saving wrinkle tested by the experiment kitchen is to add one-quarter teaspoon of salt to each cup of fruit juice for jelly or pulp for jam, marmalade and conserve. In the case of non-acid fruit this makes the absence of the full amount of sugar less noticeable. The salty taste will disappear after the product has stood for a few weeks, but the flavor will be much the richer for the addition of the salt. Salt was so used in England during the war, and the method suggested was based on reports of the process.

With fruits of pronounced flavor, or where lemon and orange peel or spices are used for flavoring those with mild flavor, various syrups take the place of part of the granulated sugar. Usually half and half is the proportion used in substitution.

The seagulls of San Francisco Bay have such a broad taste that it is necessary to fasten the windows of the ferry building with strips of metal instead of putty, the last named commodity proving an irresistible delicacy to these sea fowl.—Southern Pacific News.

NEW PRUNE RECIPES

These come from Oregon, home of the "Mistland" prune grown and packed by the Oregon Growers Co-operative Association:

Prune Soup

Place 1 pound prunes, 1 stick cinnamon and rind from 2 lemons in boiling water; let stand over night. Boil until thoroughly cooked the next morning. Strain and mix with soup stock to cream. Make butter and flour mixture and add to soup in small quantities 1 cup of cream, stirring meanwhile. To season, add desired amount of salt and pepper.

Prune Puff

Place two cups of cooked prunes in a buttered baking dish. Pour over them a batter made from 3 cups flour, 3 teaspoons baking powder, ½ teaspoon salt, 2 of melted butter, a cup of milk and 2 beaten eggs. Bake until the crust is light and brown and a straw comes out clean. To be served with butter and egg sauce, as follows: One-half cup butter creamed with one of sugar. Set in bowl over a kettle and whip in the white of one egg until foamy.

Prune Luncheon

Puree of Prunes
Crisp Celery Ripe Olives
Sugar Cured Ham, Prune Sauce
Prune Sweet Potato, Southern Style
Tea Biscuits
Prune Salad Imperial
Prune Mince Meat Pie
Coffee

Prune Cake

1 cup sugar, ½ cup shortening, 2 eggs, 1 cup milk, 2 cups flour, 2 teaspoons soda, 1 teaspoon cinnamon, 1 teaspoon nutmeg, 1 cup cooked prunes.

Filling.—About 1 cup prunes, 1½ tablespoons cornstarch, ½ tablespoon lemon juice, ½ cup sugar.

Iceing.—1 cup prune juice, 1½ cup sugar, 1 teaspoon cinnamon.

HOUSEHOLD HINTS

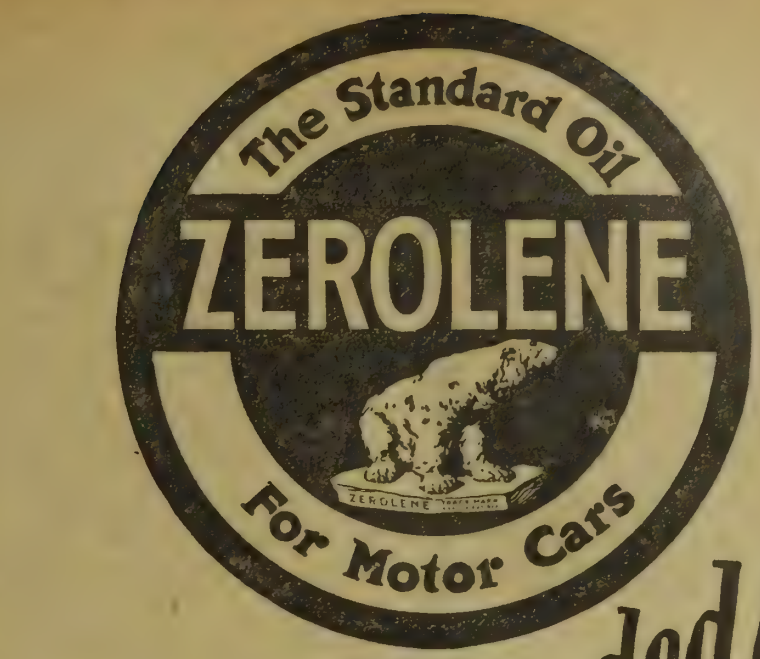
To give window glass and mirrors an extra shine after washing them, rub a little thin cold starch over the surface, let dry and then rub off with soft cloth.

To prevent machine stitching from drawing after a garment is washed, soak the thread in a glass of water over night and let dry before using.

To preserve the color of a print dress, wash in warm soapsuds with a tablespoon each of powdered borax and comon salt added to the suds and put this also in the warm rinsing water. Wring tightly and roll up in a coarse towel until dry enough to iron.

When thin dresses need freshening, put a tablespoon of borax powder in a small bowl of water and dampen the entire dress with this, then press on the wrong side with a hot iron. To give thin white waists and all sheer materials just the right degree of stiffness, wash and dry without stareching. Put a tablespoon of starch and one of borax into a gallon of water. When dissolved, starch garments in this and roll tight until ready to iron. They will not be stiff, but just like new.

To remove ink stains and peach stains that have dried in the cloth, use peroxide of hydrogen. As soon as it is dry from one application, put on more until the stain disappears, then rinse out at once in clear water. Molasses rubbed on grass stains will often remove them, but for fine goods it is better to rub the stains with lard and then with alcohol camphor before washing.—A. M. H.



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Use Zerolene for the Correct Lubrication of your truck, tractor and automobile. Get a Zerolene Correct Lubrication Chart.

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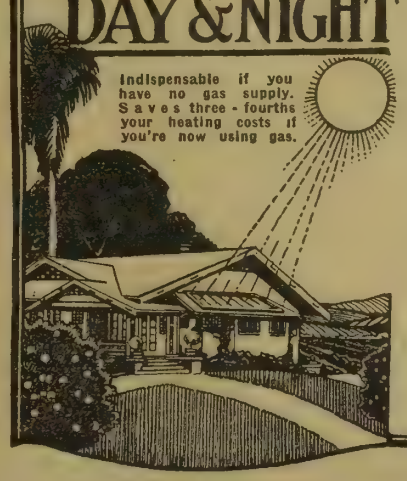
A grade for each type of engine

Let the SUN give you plenty of HOT WATER

DAY & NIGHT



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Think of the saving in gas this system insures you—fully three-fourths of your expense of heating water. Think what a necessity the DAY & NIGHT is if you have no gas supply. Adapted to country or city home — mansion, bungalow. Can be installed in new buildings or old; no expense after first cost. Write for illustrated folder giving detailed explanation of the DAY & NIGHT. Address Dept. E.

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Thousands Picnic at the University Farm

By R. P. Royce

THE well defined superstition that 23 is an unlucky number failed to impress the students of the university farm school and the college of agriculture in making their plans for the annual farm school picnic which was held at Davis, Saturday, April 23, for those embryonic farmers organized and staged an event that was a revelation to many visitors and a distinct credit to the student body.

Those who had attended former picnics found not many marked departures from the plans followed in past years. Even the weather was slightly different—if at all, the famous north wind was a trifle stiffer and a wee bit sharper. But the crowd, estimated at nearly 10,000, didn't seem to mind and laughed at any discomfort and proceeded to enjoy themselves and to take advantage of the occasion to become better acquainted with the institution and the things it has to offer the agricultural industry of this state. And that, after all, is the main purpose back of this annual affair.

Throughout the varied program that started at eight o'clock and lasted until midnight there was a distinct effort made to stress those features of the activities of the institution that could be turned to profit by the visitors.

Each deparment was on dress parade, so to speak, and had arranged a comprehensive exposition of the work being carried on. Instructors and assistants were on hand to explain the exhibits, to answer questions and to dispense, to the best of their ability, such information as was sought.

The principal event of the morning was the annual livestock judging contest. Twenty students who had qualified in the preliminary contests entered the finals. Each student was required to place one class of horses, beef cattle, dairy cattle, sheep and swine, and to give their reasons before the judges of the contest. The contest held the center of interest during the morning and the following results were announced:

Champion judge.—California Cultivator trophy, B. H. Thomas, Oakland; second, L. A. Sagehorn, California Breeders Sales and Pedigree Company trophy.

Best judge of horses.—A. H. Powers, Santa Anita Rancho trophy.

Best judge of beef cattle.—R. C. Rathbone, California Cattlemen's trophy.

Best judge of dairy cattle—N. D. Hudson, California Dairy Council trophy.

Best judge of sheep.—B. H. Thomas, American Southdown Sheep Breeders Association trophy.

Best judge of swine.—R. E. Rider, California Swine Breeders Association trophy.

Following the judging contest there was held a fitting contest. This contest was arranged to promote interest in the fitting and showing of livestock. The contest was judged on the degree of improvement made by the contestants during the time they had been working with their entries. The awards follow:

Horses.—1, L. C. Jones; 2, J. B. Woodford; 3, F. B. Alexander. The three prizes were donated by the Horse Association of America.

Hereford cattle.—1, S. H. Iuenbeck; 2, G. V. Steed; 3, T. W. Ralston. The three prizes were donated by the Pacific Coast Hereford Cattle Breeders Association.

Shorthorn cattle.—1, T. J. Compton; 2, C. E. Tegner; 3, E. R. Smith. The California Shorthorn Breeders Association contributed the three prizes.

Jersey cattle.—1, M. D. Wood; 2, R. D. Moore; 3, R. Tuttle. The Jersey prizes came from the California Jersey Breeders Association.

Holstein cattle.—B. H. Thomas, C. M. Wyatt and L. A. Pellissier were the winners of the three prizes from the California Holstein Breeders Association.

L. C. Jones won the Elkhorn Farm trophy for Ayrshires. N. G. Sheesley won the trophy offered by the dairy cattle herdsmen for the Guernsey fitting. G. C. Wood was awarded the trophy offered for the best fitted Angus that was offered by the beef cattle herdsmen. S. M. Gilbert was first in the Hampshire sheep contest and won the cup given by Calla Grove Farm. Charles Bender and K. C. Hardy were second and third. I. W. Beck was the Shropshire winner and F. E. Corwin and R. W. Guilford were second and third.

In the swine fitting contest W. R. Benedict was first in the Poland China class and W. Curl and C. C. Rider were second and third. All received prizes from the California Poland China Breeders Association. The three trophies offered by the Western Berkshire Congress were won by N. D. Hudson, F. E. Needham and C. H. Spurlock. O. L. Aldrich, H. E. Porter and C. Cordon won the awards offered by the California Duroc-Jersey Breeders Association.

During the noon hour the visitors spread their lunches picnic style under the campus trees. The management served free coffee to all.

Immediately after lunch the main feature of the day, the parade, held the center of the stage. The improvement of this year's parade over former years was quite marked, more originality and artistic effort being displayed. Headed by a magnificent four horse hitch drawing the animal husbandry float, each division was represented along with many special floats entered by the students. A regrettable feature marred the full spectacular value of the parade. Through some oversight scarcely any of the horses or cattle were permitted to participate. The animal husbandry float was declared the most artistic, the agricultural engineering entry the most original and the entomology float the most educational.

The parade over, the crowds were free to entertain themselves or to be entertained. All divisions were open, so, too, the barns. In addition to the above there was a circus, side shows, athletic events and many other features that helped to make the day one of pleasure and profit.

For those who remained for the evening ample opportunity was provided for dancing and other amusements.

Mayhap the writer drew too heavily on his imagination, but it seemed that there was a new note about this annual event this year that could hardly be missed. It seemed that a new atmosphere was about the campus—an atmosphere of hope and assurance that the future holds great things in store for the institution. Members

of the faculty appeared to feel that a new order of things was about to be established; that many of the things the institution has so sorely needed were about to be supplied by an awakened administration. The students appeared to enter into the spirit of the event with new enthusiasm and the visitors were free in expressing their determination that California must have an institution of agricultural instruction and research the equal of any in the United States.

FARM SCHOOL ALUMNI MEET

One of the largest gatherings of former students of the university farm attended the annual banquet and meeting of the University Farm Alumni Association, which was held at the farm dining hall, Friday evening, April 22. Besides the members of the alumni association were many members of the farm and college of agriculture faculties, including Prof. E. C. Voorhies, Prof. J. E. Dougherty, Prof. C. M. Titus and John Jacobson.

Following the banquet the annual meeting and election of officers was held. Prof. Voorhies discussed the new plan of courses to be offered by the university, which is to require that the first two years of agricultural work be carried on at the university farm and the remaining two years at Berkeley. Considerable time was given over to the discussion of the future policy of the association relative to changes at the farm and various farmers problems.

The officers elected for the ensuing year are: L. B. Rowland, president; A. E. Brown, vice-president; Lawrence Barnard, secretary-treasurer, and Carl Spurlock, alumni editor.

LOS ANGELES DAIRYMEN MEET

Fully 300 members of the Los Angeles County farm bureau gathered at the Pellissier Ranch between Puente and Whittier, on April 23, to attend the meeting of the dairymen's branch of the farm bureau. The picnic was promoted by G. E. Gordon, assistant farm adviser, who was assisted by members of the Milk Producers Association and the Dairy Council.

The morning was taken up in a judging demonstration of Holsteins from a show ring standpoint and in a guessing contest on the production of eight grade cows. In the former there were some differences of opinion but in the latter the records could not be disputed, and the point was driven home that no one can afford to buy cows by sight alone, for some of the best looking ones were the poorest producers.

In the afternoon medals won in the county cow testing association since November were passed out and a talk on the work of the association was given by Mr. Gordon. At its inception in May, 1918, the average production per cow in the association was 28 pounds of butterfat a month. By weeding out the boarders found by testing, the average for March, 1921, reached 39.2 pounds per cow with 3,285 cows in the association, or a net gain of over 11 pounds. With butterfat at $1 this means a net gain of $11 per cow to the producer in one month. Once tried the cow testing association is never given up. It is the only sure means of telling whether a cow is paying her way or not.

A speech by Sam Greene on the work of the dairy council informed the gathering of the importance of the work being done by that body.

Dr. J. P. Iverson of Sacramento told something of the work of the state department of agriculture in attempting the control of bovine tuberculosis and a general discussion of Senate Bill 98, which has passed both houses and is up to the governor for his signature, ensued. The meeting went on record as being opposed to the bill and petitions were circulated asking the governor to veto it in favor of Assembly Bill No. 38, which covers the same ground without the confiscatory terms of Senate Bill 98. The meeting very strongly urged every dairyman to ask the governor to veto the senate bill.

Geo. W. Brown of Burr Farm acted as chairman of the meeting

FEW AND FAR BETWEEN

London Punch says that a Scotchman recently was asked by a friend:
"How is the world treating you, Sandy?"
"Verra seldom," Sandy replied.

King Alko Hall is off the throne,
King Gas Oline is on it.
The king is dead, long live the king—
But he's much too high, dog gone it.

O Liberty! Liberty! how many bonds have been issued in thy name! —The Freeman (New York).

When selling a customer, be sure to sell him a round trip to your store. It's the "repeater" who pays your rent.

Even a melting pot can't fuse Europe's refuse.—Albany Times-Union.

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Registered Holstein Heifers

Sired by a 37 pound grandson of King Segis.

These will make you money the way I have priced them.

All tuberculin tested and guaranteed right in every way. Come and see them.

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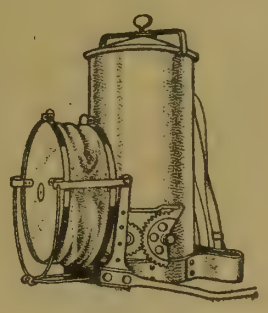

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OF ADULT VINE LEAF HOPPER
AT FRESNO

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"it keeps my stock in better condition," says Mr. J. M. Henderson, Jr., Sacramento, Cal.

Mr. Henderson is the owner of Purebred Stock Farms, and his ideas relative to feeding are soundly based and scientifically carried out. His estimation of the value of Pure Hawaiian Cane Molasses should count with every breeder or stockman.

His letter in greater detail "It has brought results in many ways. I do not hesitate to recommend it to other dairymen. It has enabled me to keep my stock in better **condition at less expense** than any other feed that I have had occasion to use."

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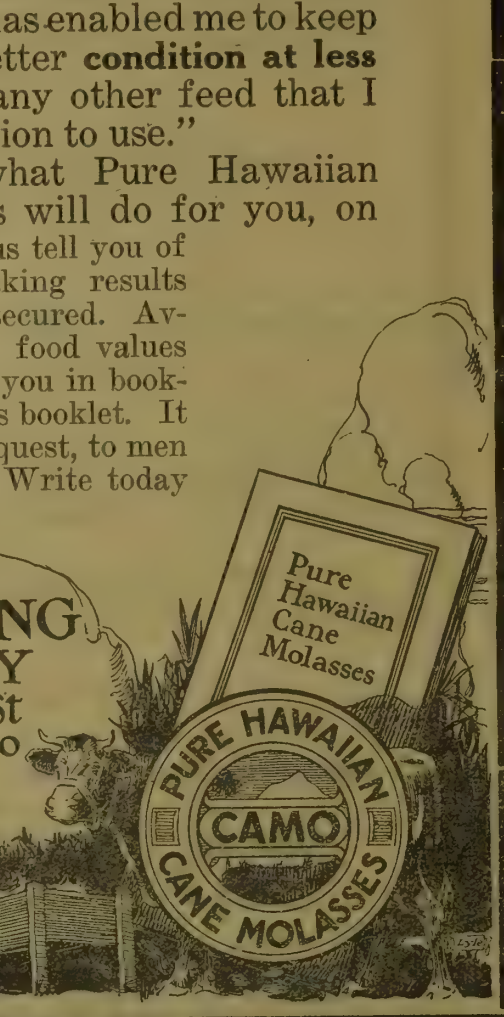

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Essentials of Animal Breeding

By George M. Rommel, Chief, Animal Husbandry Division

(Continued from last week.)

The Gestation Period

From the time the egg is fertilized, developments are rapid. The fertilized egg divides and subdivides with multitudes of subdivisions, until in time the embryo "begins to look like something," and we can make out the form of the animal and its parts. The time between the fertilization of the egg and the birth of the young animal is known as the period of gestation. This period varies with the kind of animal. The period for the common domestic animals is shown below, followed by a table to determine how long a time may be expected to elapse between service and birth. To make a practical application of the table count forward the correct number of days from the date of service.

Gestation period of various animals:

Mare	11 months (340 days)
Jennet	12 months (365 days)
Cow	9½ months (280 days)
Ewe	5 months (150 days)
Goat	5 months (150 days)
Sow	4 months (114 days)

Probable date of birth of young, female bred on first day of the month (Sewall Wright):

Date of service.	Probable date of birth. Sow.	Ewe.	Cow.	Mare.
Jan. 1	Apr. 25	May 31	Oct. 7	Dec. 7
Feb. 1	May 26	July 1	Nov. 8	Jan. 7
Mar. 1	June 23	July 29	Dec. 6	Feb. 4
Apr. 1	July 24	Aug. 29	Jan. 6	Mar. 7
May 1	Aug. 23	Sept. 28	Feb. 5	Apr. 6
June 1	Sept. 23	Oct. 29	Mar. 8	May 7
July 1	Oct. 23	Nov. 28	Apr. 7	June 6
Aug. 1	Nov. 23	Dec. 29	May 8	July 7
Sept. 1	Dec. 24	Jan. 29	June 8	Aug. 7
Oct. 1	Jan. 23	Feb. 28	July 8	Sept. 6
Nov. 1	Feb. 23	Mar. 31	Aug. 8	Oct. 7
Dec. 1	Mar. 25	Apr. 30	Sept. 7	Nov. 6

Variation in the period of gestation for animals of the same kind are not explained. Some animals, such as sows, are quite uniform in the length of the gestation period. In mares there is a considerable variation. It has been suggested that in mares some time may elapse between the moment of service and the actual fertilization of the egg by the sperm cell. In guinea pigs the size of the litter affects the period of gestation, the period being shorter for a large litter than for a small one. The health of the mother during pregnancy also has an effect.

During the gestation period the young animal is carried in the mother's womb and is not connected directly with her body. The blood vessels and nerves of the mother do not connect with those of the growing embryo, but from the start the little one has its own little system of circulation and its own nervous system. It is carried in an enveloping sac which is attached to the wall of the mother's womb by buttons (cotyledons) which become detached when the time comes. The young are nourished by blood passing from the mother's body through the walls of the uterus into the sac in which the fetus is carried, and thence into the body of the young animal by transfusion, much as water would pass into a paper sack if you should lower it into a bucket of water.

Incubation Period in Birds

In birds the incubation period corresponds to the gestation period in mammals. The period which elapses from the time eggs are put on to hatch until the chicks emerge is shown foll wing. Young birds are nourished in the embryonic stages of their development by absorbing from the yolk the nutriment needed.

Incubation period of various birds:

	Days.
Goose	30
Duck	28
Turkey	28
Guinea Fowl	25
Chicken	21
Pigeon	17

Much may be learned by any one of a studious nature by careful observations of the development of the embryo of chickens. The germinal disk may be plainly seen even in a fresh laid egg, which, whether fertile or not, looks the same to the naked eye. When put into an incubator, however, the fertile egg begins to develop rapidly, and the transformation in the brief period of three weeks is wonderful. The course of this development in fertile eggs can be distinguished easily from day to day by the familiar process of candling eggs, or it can be studied in detail by carefully breaking the eggs into a saucer.

Determination of Sex

As growth of the embryo progresses, sex becomes apparent. Sex seems to be determined by one of the chromosomes, and is probably settled at the time of conception. The determination of sex is therefore a matter of chance over which the breeder probably has no control. For practical purposes the breeder will find that, over a period of years, he gets nearly equal numbers of both sexes.

Fecundity

The subject of fecundity is of great practical importance to breeders of animals. Fecundity depends very largely on the number of eggs which are matured at a given time by the female. Animals in which multiple births are the rule (of which sows are a common example) not only mature a considerable number of egg cells at one period of heat, but each one is feltilized by a separate sperm cell. In some cases, however, the fertilized egg may divide and twins or a larger number of young result. Such twins are known as identical twins, and are usually of the same sex, with very strong points of similarity. Young from multiple births, resulting from the fertilization of different egg cells, show as wide a difference in individual characteristics as young resulting from separate births. The most prolific of the common domestic animals are the birds. The domestic hen may lay more than 200 eggs in a single year.

The common practice of British shepherds, known as "flushing" ewes, has been claimed to increase the proportion of lambs in the flock. This practice consists in giving the ewes an increase in their feed, both grain and succulent pasture, so that they are gaining in weight and condition at breeding time. No exact scientific data have been available until recent-

ly, when Marshall and Potts of the bureau of animal industry conducted experiments which confirmed the correctness of the British practice. They also have evidence which indicates that the success of the practice depends on cutting off the grain ration and putting the ewes on short pasture as soon as they are bred.

The rules or laws of the inheritance of fecundity are not all known, but to some extent it is dependent on inheritance from the mother; therefore, the selection of females which have a tendency to produce a large number of young at a birth will tend to increase the returns from the flock or herd. This is of practical importance in the case of hogs, sheep, goats and poultry. Twins in cattle are objectionable unless of the same sex. When a heifer is a twin with a bull calf, the heifer is known as a "freemartin" and in the majority of instances is sterile.

Prepotency—Mendel's Law

Prepotency is the power of an animal, male or female, to stamp its characteristics on its offspring. If this ability is handed on to sons and daughters, we say that the stock "breeds on." In rare instances an animal, usually a male, is found which has such power as a breeder that it leaves an indelible impress, even to the extent of becoming the fountain head of a new breed, such as the stallions Justin Morgan, Hambletonian 10, and Denmark.

Most of the cases of prepotency which the breeder usually meets with are probably instances of the operation of what is called Mendel's law. A clear explanation of this great law of heredity can not be made within the scope of this short article, and the interested reader, if he cares to go into the subject in detail, is referred to Dr. Wright's bulletin, U. S. Department of Agriculture Bulletin 905, "Principles of Livestock Breeding."

It must be pointed out, however, that most operations of heredity are not simple; on the contrary, they are highly complex and often extremely difficult to understand. The chief use which the practical breeder of domestic animals can make of Mendel's law at this time is to find in it an explanation of occurrences that otherwise have no rational explanation.

One of the most interesting applications of Mendel's law in cattle breeding is the inheritance of the polled characteristic. If we breed a horned cow to a Red Polled, Galloway, Angus, or other true polled bull, the chances are nine to one or better that we shall get a polled calf. The white face of the Hereford appears to be a similar instance. If we breed a common cow to a Hereford bull, we get a calf with a white face. We say, therefore, that polled breeds are very prepotent so far as "taking the horns off" is concerned, and that the Hereford is prepotent in putting a white face on his calves. This may happen either way; that is, polled bull and horned cow, or horned bull and polled cow, Hereford bull and plain faced cow, or plain faced bull and Hereford cow. The temptation is to make great claims for the prepotency of the breed as a whole on the evidence of one or two points only. For see what happens when we mate a Hereford with one of the polled breeds. Then we get a polled, white faced calf. These points are not prepotency at all, but manifestations of Mendelian "dominance." The polled character is dominant over the recessive horned character, and the white face over the recessive plain face; but these cases do not necessarily indicate that the animal is particularly prepotent in other characters of much more practical importance. The same rule seems to apply in the inheritance of the black color in sheep, black acting apparently as a recessive to the usual white color. It can readily be eliminated by culling out the black lambs.

A great many data have been accumulated as to the characters in animals which illustrate the operation of Mendel's law, but apart from the horns of cattle, coat color, eye color, and the like, the application of this law to livestock breeding has a long way to go before its principles are adaptable to practical use by breeders. It is fairly certain, however, that many of the obscure happenings in animal breeding are really manifestations of Mendelism. Most cases of atavism ("throw backs" to a remote ancestor), for example, are probably Mendelism in practice.

The animal structure is so diverse and complicated that the determination of the application of Mendel's law to the inheritance of the characters which affect the commercial value of domestic animals is a task of tremendous magnitude. Great progress has been made in laying the foundations for the scientific study of animal breeding by working out the principles of this law, and we may expect still greater progress in the future. Biologists who are studying heredity have their faces set in the right direction. The accomplishments of the last twenty years in the study of heredity have taken this subject out of the field of guesswork, and for this service all animal breeders are under obligations to Mendel and his disciples. If, by skillful selection and intelligent breeding methods we can get results of permanent value; if, with the present knowledge, we can make real progress in animal breeding, we can afford to wait for the more definite working out of Mendel's law, with the assurance that this law controls the mechanics of heredity in domestic animals and that any practical application of it to animal breeding will add to our store of useful knowledge and to the efficiency of our breeding methods.

LIVESTOCK VALUE DECREASE SHOWN

Value of livestock on farms and ranges in the United States has decreased more than two and a quarter billion dollars during the last year, according to estimates announced by the department of agriculture.

Livestock on farms and ranges January 1 were valued at $6,235,569,000, compared with $8,507,145,000 in 1920.

Horses numbered 20,183,000, a decrease of 2.9 per cent, and were valued at 1,664,166,000, a decrease of 298,337,000, with an average value of $82.45 per head.

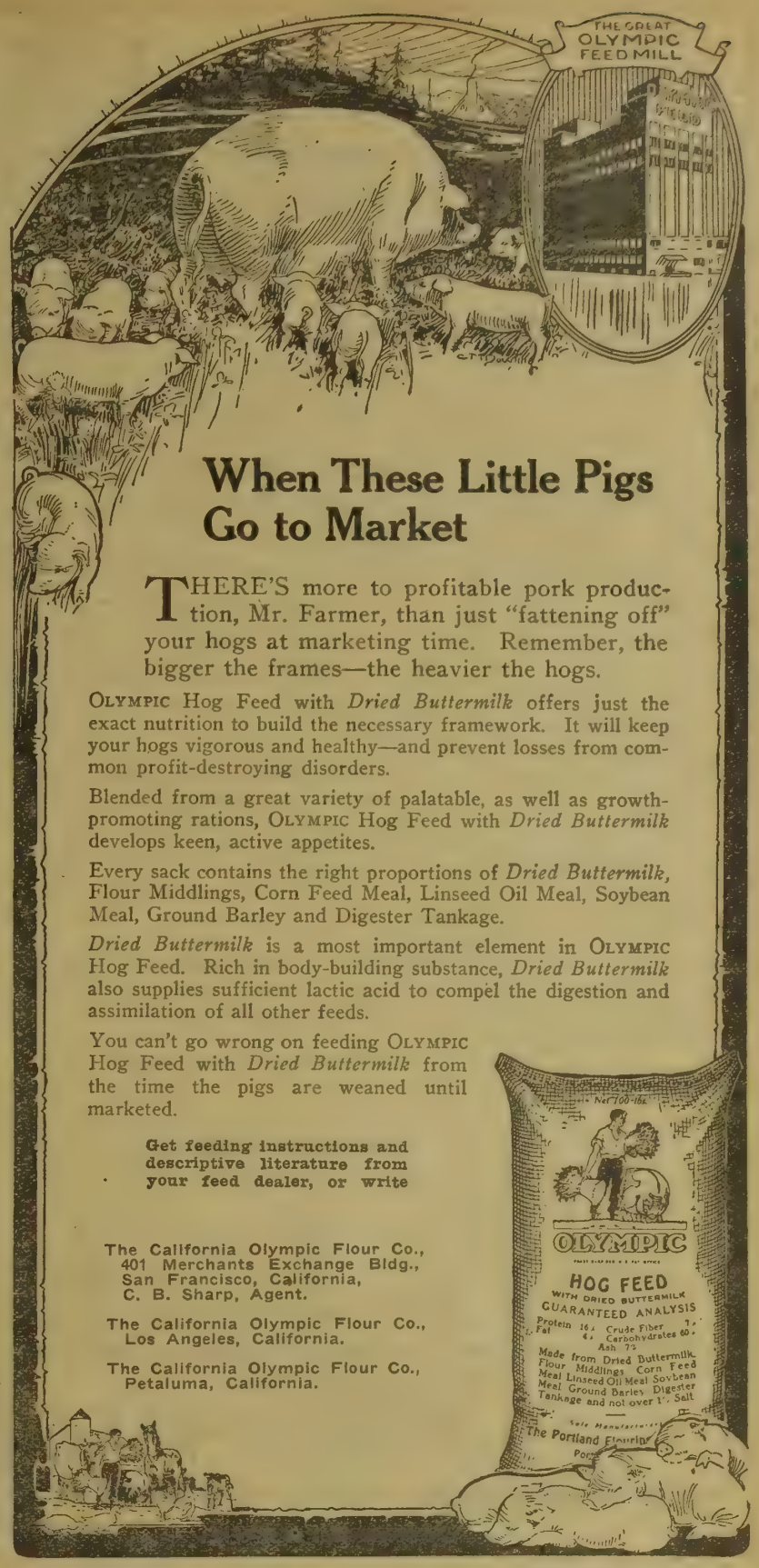
Mules numbered 4,999,000, a decrease of 8 per cent, and were valued at $578,473,000, a decrease of $162,927,000, with an average value of $115.72 per head.

Milk cows numbered 23,321,000, a decrease of 1.3 per cent, and were valued at $1,491,000,000, a decrease of $518,228,000, with an average value of $63.97 per head.

Other cattle numbered 42,870,000, a decrease of 4.2 per cent, and were valued at $1,346,665,000, a decrease of $587,520,000, with an average value of $31.41 per head.

Sheep numbered 45,067,000, a decrease of 4.3 per cent, and were valued at $288,732,000, a decrease of $206,928,000, with an average value of $6.41 per head.

Hogs numbered 66,649,000, a decrease of 7.1 per cent, and were valued at $865,633,000, a decrease of $497,636,000, with an average value of $12.99 per head.



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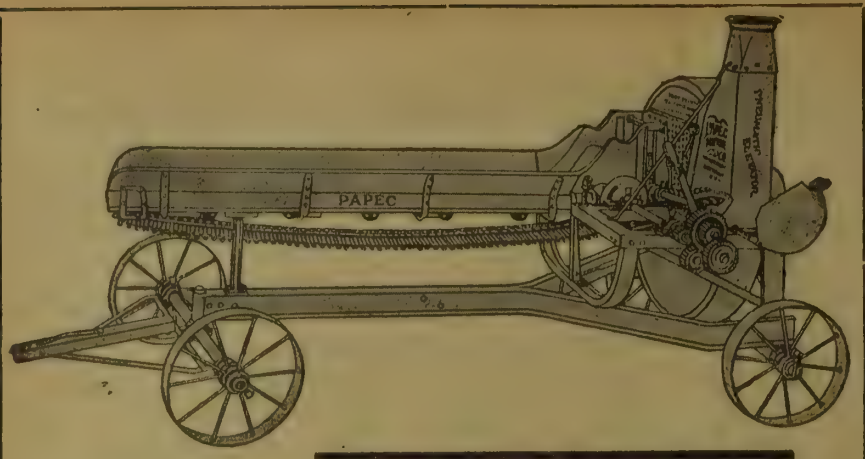

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The 40 cows and heifers are evenly divided between desirable Scotch sorts and proven American families. Every Female will either sell with a calf at foot sired by, or bred to

Imp. Caledonia **Gainford Matchless**
Pine Grove King

10—Top Young Bulls—10

The bulls included in the sale are such that should make strong appeal to the man seeking to improve the quality of his herd. There are several good herd bull prospects among them.

Watch for further details.

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HOLSTEIN *Fred Hartsook* RANCH CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

Sir Aaggie Mead Tops Toyon Sale---$9,250

The dispersal of the Toyon Farms Association's herd of Holsteins at the farms near Los Altos, April 20-21, resulted in what is declared to have been the highest average price ever obtained in this state for a sale containing as many young things as were listed in that event. One hundred and thirty-four head of cataloged bulls and females, many of the lots being yearlings or two year olds, made a general average of $397. One hundred and thirteen females averaged $351 and 21 bulls $641. Twenty-nine buyers absorbed the offering. From every standpoint the sale was regarded as a marked success. The dispersal of the herd was made necessary in order to adjust the interests of Messrs. Hill and Lewis. Mr. Lewis is retiring from the Toyon Farms Association and it is understood that Mr. Hill expects to re-engage in the breeding of Holsteins at an early date.

The feature of the sale, aside from the keen appreciation shown the young stuff, was the sale of the herd bull, Sir Aaggie Mead, to W. J. Higdon of Tulare and F. S. Borror of Tipton for $9,250, the second highest price ever paid for a bull of any breed in a California sale. Much speculation had been indulged in prior to the sale as to who would secure this splendid son of Sir Aaggie De Kol Acme and Aralia De Kol Mead. Several leading breeders were interested in this bull, among them being Frank Helm of Fresno and Gotshall and Magruder of Ripon. The latter firm was the runner up.

No extremely high values were recorded for any of the females. George W. Wendt, who is establishing a herd near Madera, secured the top female in Lucy Segis 2d at $1,100. E. Swift Train of San Francisco took Toyon Piebe De Kol Korndyke for $1,025. A. J. Molera of Monterey was the heaviest buyer, taking 35 head, 34 females and one bull. E. Swift Train selected 11 females of the better sorts. George Wendt took 14 cows and heifers. Among the buyers will be noted many men making their first purchases. The Glenn County Calf Club representatives displayed rare judgment in the nine head of young things they purchased. One of the very best buys of the sale must be credited to Mrs. W. R. Harriman, whose husband is the manager of the Los Angeles County Farm. Mrs. Harriman "put one over" on the ringside talent when she secured Toyon Grant Mead, one of the top daughters of Sir Aaggie Mead, for $460.

The sale was held under the management of C. L. Hughes of the California Breeders Sales and Pedigree Company. Col. Ben A. Rhoades of Los Angeles established the selling price from the box and was assisted by Col. John A. Davis of Manteca, who worked the ring. A representative list of sales follows:

1, Leda Hengerveld De Kol Korndyke, April 1912, 30.8 lbs., M. P. Martin, Santa Clara, $240.
2, Cascade Johanna May Fayne, June 1917; Frank Hatch, Modesto, $485.
3, Cascade Mercedes, Dec. 1916; Geo. W. Wendt, Madera, $425.
4, Ormsby Piebe of Cascade, Jan. 1919; Geo. W. Wendt, $325.
5, Cascade May Korndyke, April 1917, 21.68 lbs.; Geo. W. Wendt, $510.
6, Toyon Juanita Ormsby, April 1919; E. Swift Train, San Francisco, $1,008.
11, Toyon Flora Mercedes, May 1920; lbs.; Peter Peterson, San Jose, $475.
8, Toyon Fleta Johanna, April 1919; E. Swift Train, $710.
9, Toyon Lady Van, June 1920; A. J. Molera, Monterey, $250.
10, Toyon Beauty Mercedes, April 1930; A. J. Molera, $285.
11, Toyon Flora Mercedes, May 1920; E. Swift Train, $375.
12, Toyon Vickery Mercedes, April 1920; W. D. McCann, San Francisco, $325.
13, Toyon America Mercedes, April 1920; Geo. W. Wendt, $375.
14, Toyon Fobes Mercedes, June 1920; A. J. Molera, $375.
15, Ashburn Grace Ormsby Peep, April 1920, 17.27 lbs.; A. J. Molera, $500.
16, McCloud Bonheur De Kol Canary, Nov. 1917; Millbrae Dairy, Millbrae, $700.
17, McCloud Quidee Pietertje, Jan. 1918, 14.52 lbs., Millbrae Dairy, $700.
18, McCloud Ormsby De Kol, Oct. 1917, 11.76 lbs.; Millbrae Dairy, $725.
19, Jessie Milky Pontiac, Nov. 1919; E. Swift Train, $700.
20, Belle Washington Pontiac Maid, Mar. 1919; E. Swift Train, $625.
21, Toyon Diamond Pietertje, Jan. 1920; A. J. Molera, $400.
22, Toyon, Skylark Mead, July 1920; E. Swift Train, $450.
23, Toyon Boskadel Mead, July 1920; Brooks and Peckham, Reno Nev., $325.
24, Toyon Mercedes Mead, July 1920; E. Swift Train, $425.
25, Toyon Dominita Mead, Oct. 1920; E. Swift Train, $600.
26, Toyon Maid Colanthus, Sept. 1920; W. D. McCann, $300.
27, Toyon Colantha Mead, Sept. 1920, W. D. McCann, $300.
28, Toyon May Mead, Nov. 1920; E. Swift Train, $450.
29, Toyon Grant Mead, June 1920; Elinor Harriman, Los Angeles, $460.
30, Toyon Queen Fobes, June 1920; Glenn County Calf Club, Willows, $245.
31, Miss America Model Bessie, Nov. 1919; Chas. O. Stock, Fernley, Nev., $250.
32, Toyon Pride Fobes, Feb. 1920; O. S. Zieber, Pacific Grove, $250.
33, Lilith De Kol Tritomia, Nov. 1918; Los Angeles County Farm, $410.
34, Tritomia Bessie, Nov. 1916, 21.92 lbs.; A. J. Molera, $300.
36, Toyon Minnie Segis, Aug. 1919; A. J. Molera, $385.
37, Korndyke De Kol Tritomia, Oct. 1919; Chas. O. Stock, $270.
41, Toyon Clyde Mercedes, Feb. 1920; Glenn County Calf Club.
42, May 1920, daughter of King Korndyke Pontiac 20th; W. D. McCann, $675.
43, North Star Toyon Johanna, May 1919; M. J. Haas, San Jose, $410.
44, Bonnie Longfield De Kol, Nov. 1916; A. J. Molera, $575.
45, Maldeta Mercedes Fobes, Oct. 1914, 20.10 lbs.; Los Angeles County Farm, $525.
46, Lucy Segis 2d, Aug. 1917, S. O. 526.21 lbs., 351 days; Geo. W. Wendt, $1100.
47, Moxie Johanna Queen, Oct. 1917, 394.21 lbs., 305 days; A. J. Molera, $285.
48, Toyon Mona Fobes, Nov. 1919; Geo. W. Wendt, $235.
49, Toyon Bessie De Kol, May 1920; A. J. Molera, $250.
50, Moxie Inka Colanthus Wit, Oct. 1918; Dairy Delivery Co., $460.
51, Moxie Inka Colanthus Fayne, Oct. 1918; Dairy Delivery Co., $460.
25, Toyon Dominita Mead, Oct. 1920; E. Swift Train, $600.
54, Toyon Topsy Colantha, Sept. 1919; T. A. Work, Monterey, $260.
55, Queen Bessie Mutual Fobes, June 1919; Dairy Delivery Co., $330.
56, Queen Bessie Longfield Fobes, May 1919; A. J. Molera, $270.
57, Vernway Ormsby Segis Johanna, Sept. 1919; T. A. Work, $300.
58, Segis Pontiac Elinor, Dec. 1918; Geo. W. Wendt, $285.
59, Vernway Ormsby Segis Josephine, Sept. 1919; E. Swift Train, $425.
60, Meadow Lea Countess Doede, Dec. 1919; A. J. Molera, $235.
61, Meadow Lea Princess, Oct. 1919; A. J. Molera, $310.
62, Meadow Lea Segis Fayne, Nov. 1919; A. J. Molera, $260.
63, Meadow Lea Grace Bonheur, Mar. 1919; John G. Rapp, Olema, $210.
68, Meadow Lea De Kol Kaan, Oct. 1919; Geo. W. Wendt, $285.
69, Meadow Lea Gertje Johanna, Oct. 1918; A. J. Molera, $285.
70, Meadow Lea Ona, Oct. 1919; A. J. Molera, $210.
72, Meadow Lea Inka Johanna, Mar. 1919; A. J. Molera, $360.
74, Isabelle Ormsby Valdessa, Sept. 1918; A. J. Molera, $335.
78, Toyon Josephine De Kol, July 1920; A. J. Molera, $215.
80, Toyon Piebe De Kol Korndyke, Sept. 1919; E. Swift Train, $1025.
81, Toyon Vale Valdessa, Oct. 1919; A. J. Molera, $385.
82, Toyon Valdessa Hengerveld, Mar. 1919; Brooks & Peckham, $685.
83, Toyon Valdessa Beauty, April 1919; Brooks & Peckham, $475.
84, Toyon Countess Lyons Valdessa, Dec. 1919; A. J. Molera, $310.
85, Toyon Valdessa Armona, Feb. 1919; A. J. Molera, $300.
86, Toyon Valdessa Susan, Feb. 1919; A. J. Molera, $335.
88, Toyon Colantha De Kol Veeman, June 1920; O. S. Ziegler, Pacific Grove, $225.
90, Snowstorm Ormsby De Kol 2d, Nov. 1915, 18.92 lbs.; W. C. Saxton, Glenn, $210.
91, Lady Jess Segis, Aug. 1913; W. C. Saxton, $235.
92, Toyon Korndyke Princess, April 1917, 18.32 lbs.; Brooks & Peckham, $435.
93, Lily Woodmont Aakrum, Mar. 1911, 23.01 lbs.; Brooks & Peckham, $400.
95, Meadow Lea Beauty Queen, June 1917; Geo. W. Wendt, $310.
96, Pine Row Lulu Hengerveld, Mar. 1915; Geo. W. Wendt, $325.
97, Oakwood Jessie Pauline Fobes, Jan. 1917; Brooks & Peckham, $485.
98, North Star Fayne Champ., May 1916, 501.10 lbs., 365 days; A. J. Molera, $460.
99, Toyon Ava Pietertje, April 1919; M. J. Haas, San Jose, $410.
101, Oakwood Rag Apple Ellen, Nov. 1916, 315.58 lbs., 3 yr.; John G. Rapp, Olema, $210.
103, Beauty Bessie Maldeta Fobes, Dec., 1917; Brooks & Peckham, $360.
104, Jessie Pietertje Fayne 2d, June 1918; Los Angeles County Farm, $375.
106, Toyon Tritomia, Dec. 1918; A. J. Molera, $385.
107, Diamond Korndyke Pietertje, Oct. 1915, 606.73 lbs., 241 days; Geo. W. Wendt, $575.

(Continued on Page 603.)

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Imp. Caledonia

Caledonia Shorthorns constitute one of the choicest collections of the breed owned in America. Our herd bulls, Imp. Caledonia, Gainford Matchless, grand champion at the 1919 San Francisco show and Pine Grove King stand out prominently in the West. Our females represent choice Scotch and American families, and are noted for their type and quality. We can at all times furnish foundation material and bulls suitable for any herd or for the range. Our prices are moderate and every animal is guaranteed. Visit our farm and herd. Send for special bull list.

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

May 11, Victory Herd, Carruthers.
May 18-19, James McGillivray, Sacramento.

Shorthorns

May 26, Caledonia Farms, West Sacramento.

Announcement is made this week of a sale of Shorthorns to be held by Howard Vaughn of Dixon on May 26. Mr. Vaughn moved to this state from Iowa last year, where he was one of the prominent breeders, as well as secretary of the Iowa Shorthorn Breeders Association. This sale will be the first of what Mr. Vaughn expects to make an annual event. About 40 head of bulls and females will be in offer. The sale will follow the annual spring vendue from Caledonia Farms, West Sacramento, May 25.

Gardiner Blackman of Long Beach reports the sale of his prize winning Berkshire sow, Model Lady 69th, to George A. Stingle of El Monte. He also states that he has sold his Jersey show heifer, Burnside Bee's Gipsy, to Ferdinand R. Bain of Palms. Mr. Blackman is one of Southern California's younger breeders and formerly a member of the Inglewood High School Pig and Calf Club.

Carnation King Sylvia, the famous $106,000 Holstein bull at the head of the Carnation Stock Farms herd, died last week. Probably no bull of the breed was better known than Carnation King Sylvia and his fame did not rest on the sensational value placed on him. While still a young bull his record in the breeding herd has been such that great things were expected of him.

John A. Bunting of Mission San Jose reports the sale of a young Hereford bull to W. O. Wool of Milpitas. The calf was sired by Beau Columbus. Bunting states that Mr. Wool is convinced that range operators cannot afford to use any but the best bulls obtainable.

Shorthorn breeders will regret to learn that Blackhawk Roan Lady, shown by Easton and Ward in the two year old classes last year, died recently as the result of a wire entering the stomach in the feed. Blackhawk Roan Lady had improved greatly since the fall shows and it was expected that she would be a strong contender for high honors this year. She was sired by Roan Radium and her dam was Roan Lady 37th.

Following the purchase of Sir Aaggie Mead in the Toyon dispersal sale, W. J. Higdon announced that Frank Helm of Fresno had taken over the bull, Sir Aaggie De Kol Acme 2d, recently purchased by Mr. Higdon from Alex. Whaley of Tulare.

Jessie Segis It, a junior four year old Holstein owned by H. E. Spires, Caruthers, has completed a seven day record of 26.205 pounds butter from 561.1 pounds of milk; Eldorado Beryl, a junior three year old, has completed a seven day record of 19.332 pounds of butter from 451.1 pounds of milk and has to her credit a 30 day production of 79.526 pounds of butter from 2,109.8 pounds of milk. The final and corrected record of Norma Korndyke Cornucopia for seven days is given as 38.416 pounds of butter from 673.1 pounds milk. In 20 days she has 104.18 pounds of butter from 2,043.7 pounds of milk.

Experimental Defender, the Duroc-Jersey boar at the head of H. P. Slocum & Son's herd, djed recently. This is the third valuable herd boar lost by Messrs. Slocum within the past year.

Burr Farm of Los Angeles is having wonderful luck with King Korndyke Pontiac 20th in the way of a sire, as seven of his first nine calves have been heifers. As he is being bred to only the choicest cows, the farm will have a wonderful lot of his daughters before long.

A Big Opportunity

to buy registered Holsteins that are bred in the lines of the breed's greatest milk production; young cows bred to bulls with tremendous milk and butter production back of them; the largest number of fresh cows and heavy springers that have ever appeared in a western Holstein sale; just the sort of females that are ready to make profit for the buyer the minute he gets them home.

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Owned by James McGillivray

177 REGISTERED HOLSTEINS 177

167 Females—10 Bulls

Wednesday and Thursday
May 18-19, 1921

28 DAUGHTERS OF
DUTCHLAND SIR KORNDYKE COLANTHA
who is by a full brother to the great foundation cow Pontiac Clothilde De Kol 2nd, the first cow to make over 37 lbs. butter in 7 days and over 1260 lbs. in one year. His dam is a 24 lb. daughter of Colantha Johanna Lad that milked 657.2 lbs. in 7 days and made 750.48 lbs. butter from 22,645.6 lbs. milk in one year.

18 DAUGHTERS OF
KING PONTIAC RUBY BURKE
who is by King of the Pontiacs, the only double century sire, and out of a 25 lb. half sister to the former world's record milk cow Riverside Sadie De Kol Burke. He already has seven yearly record daughters with records up to over 850 lbs. butter for a 3 year old.

17 DAUGHTERS OF
PRINCE BUTTER BOY WALKER
who is by Prince Gelsche Walker out of a dam that made 828.62 lbs. butter from 19,543.2 lbs. milk in one year, she by the same sire as the 1008 lb. yearly record cow Miss Blaney.

14 DAUGHTERS OF
KORNDYKE COLANTHA PARTHENEA
Who is by Dutchland Sir Korndyke Colantha (see above) and out of the great breeding and producing cow Minnewawa Louise, who has seven A. R. O. daughters with records up to over 32 lbs. butter in 7 days.

10 DAUGHTERS OF
KING MEAD OF RIVERSIDE
the famous sire of yearly record producers, including the world's strictly official yearly record cow Aaggie Acme of Riverside 2nd. A number of these have large yearly records as well as 7 day records.

8 DAUGHTERS OF
YOLO VALDESSA HENGERVELD
Who is by the 41 lb. bull King Valdessa and out of a 30 lb. dam.

The sale also includes daughters of such sires as King Korndyke Pontiac, King Pontiac Topsy, Colantha Sir Pontiac Aaggie, and King Segis De Kol Mead.

COWS AND HEIFERS WITH RECORDS UP TO OVER 32 POUNDS BUTTER IN 7 DAYS.

A CONSIDERABLE NUMBER OF COWS AND HEIFERS WITH YEARLY RECORDS.

DAUGHTERS OF COWS WITH RECORDS UP TO OVER 32 POUNDS BUTTER IN 7 DAYS AND UP TO OVER 1000 POUNDS BUTTER IN ONE YEAR.

WILLOWMEAD HERD contains over 500 head of registered Holsteins at the present time. This sale includes every cow in the herd that is in salable condition. The oldest cows and some with defective udders are kept to furnish milk for the large number of young calves in the herd.

OF THE 167 FEMALES in the sale 93 are 2, 3 and 4 year old heifers; 49 more are 5 and 6 year old cows. There are 85 fresh cows in the sale, many others milking heavy right along, also a large number of heavy springers.

MORE THAN HALF OF THE FEMALES are bred either to COLONY ZARILDA NEWMAN, son of the great 33,000 lb. Canadian cow Zarilda Clothilde 3d De Kol, or to PRINCE ECHO SYLVIA SEGIS, who is sired by a son of the great producer May Echo Sylvia.

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C. L. Hughes, Sales Manager, Sacramento, Cal.

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in a Holstein sire in California was for another son of the same cow. Of the six leading herds in Southern California headed by sons and grandsons of this great cow, only one has HER GRANDSON, HER BROTHER FROM THE SAME WORLD RECORD DAM, AND A BROTHER OF THAT DAM.

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The Milch Goat and Her Kid

By Jean A. Koethen

"MY problem is goats," writes a Madera subscriber, Mrs. S., a young mother who declares goat milk saved her baby's life. "How do you feed a fresh goat and kid? Should the goat be salted? I understand they can be overfed. How soon should milk be used after the goat kids? Is it better to milk twice a day or more frequently? How soon would you breed, and how soon should you quit milking before the goat kids? Anything you can tell me will be greatly appreciated."

It is customary to dry up a milch boat about two months before she is to be fresh, which is exactly 150 days from the day she was bred. She should be kept on a milk ration, however, and if this is her first kidding she should be fed for milk for two or three months before. Rolled barley, which Mrs. S. says she is feeding, is a standard feed for goats of all ages, but it is not really a milk producing feed. Bran and dried beet pulp are both better and the ration generally used includes the three, as well as alfalfa or other good green. Alfalfa is, I suppose, the best single feed for goats, but it must be accompanied by bran and barley or the ration will not be balanced. Dried beet pulp is considered one of the best feeds for a milk goat, but they do not like it as well as other things, and the method of feeding must be suited to the doe's taste. Before my goat came fresh she liked the pulp dry, and would eat a pint of it at a time. After she kidded she seemed to prefer it soaked and mixed into a mash with bran and barley, which is the best way to feed it. Later she conceived a distaste for the moist mash, and I gave her dry pulp alone for breakfast and bran and barley for supper. After a while she refused the beet pulp alone, and I mixed it with the bran and barley, equal parts.

Can a goat be overfed? Not if they are all like mine. If there is a fastidious eater in this world, it is a milch goat. She eats what she wants, which is presumably what she needs, and you cannot coax her to eat more.

There is a salt cake sold at feed stores which is generally kept before goats when they are not staked out. Its only purpose is to make the doe thirsty so she will drink more water, and therefore give more milk. Mine would never touch it.

Opinions differ about how soon after kidding the milk should be used. Some think it should not be used for ten days; others say it is all right after a dozen milkings. As soon as it tastes all right and looks all right it cannot be far wrong, one would think. Goat people generally hold that a goat, like a cow, should be milked more frequently at first than later. Three times a day for the first three weeks is the rule. This establishes the flow of milk. I do not know that it is necessary to feed three times a day when you milk three times a day, but it does no harm and the doe is better satisfied.

In regard to time of breeding there are also differences of opinion. Some people breed as early as seven months of age, others hold that a goat should not begin to produce till she is two years old. Undoubtedly seven months is too young, but I have known a number of does, bred at 10 and 11 months, that came in excellent milkers. It depends somewhat upon the size and maturity of the doe, somewhat upon the season. There are those who hold, too, that a doe may be bred three or four months after she has kidded, if for any reason it is desirable to bring her fresh earlier the next season, but this seems hardly reasonable. One kidding in 12 months, with two months rest from producing, will surely conserve the doe's health and vigor and make her a better producer and a producer for a longer time. Because the milch goat is willing and faithful is no reason for driving her beyond her strength. Treat her kindly and humanly, with due consideration for her likes and dislikes, and she will be your best friend.

Feeding the Kid

Milk, it goes without saying, is the one best ration for any young animal, but milk is expensive, and gruel is a good substitute. I fed my kids on a gruel made by boiling rolled barley in water for 15 or 20 minutes, then straining it and adding as much milk as I could spare. This gruel should at the first be two-thirds milk, but as the kid grows older and stronger and drinks more the amount of milk may be diminished till there is barely enough to color the gruel. When I ran out of barley for a day or so I tried oatmeal gruel which I think is even better but costs more. The kid was fed four times a day at first, but the number of meals was reduced to three as soon as she would stand for it. As soon as she would eat rolled barley she was given a little each day, and presently bran was added to the barley. If a kid is kept on barley alone it is hard to induce her to eat other grains.

How is a little kid fed? I thought she would drink from a basin as an older one does, but I was disappointed. Some folks can teach a kid to drink the first day by putting a finger in the milk and letting the kid suck it. I had to send for a nipple and give mine the bottle for several weeks before she would consent to drink.

STARTS NEW HOLSTEIN HERD

George Stam, who recently returned from Holland, has decided to establish a pure bred Holstein herd on his ranch near Kirksville in Sutter Basin. Stam has started with some high class cows which he purchased from Fred J. Kiesel of Sacramento, who recently sold his herd at an average of $490 a head.

"I intend to have none but pure breds on my place," declared Stam. "They are the most economical cows in the long run. I look forward to seeing thousands of dairy cattle in Sutter Basin and it is my purpose to raise pure bred bulls to supply these farmers with the best stock obtainable. I have headed my herd with the Holstein sire, Aristo Korndyke Pontiac, one of the best young bulls of the Kiesel herd. This bull is out of the famous cow Ontario Blonde Pietje, which has a seven day butter record of 33.07 pounds. He was sired by It, a very famous Southern California bull imported from New York."

Stam's first string of pure bred cows numbers 12, which were purchased at the Kiesel sale. This string will be augmented from time to time. Stam is now having plans prepared for a model dairy barn and paddocks, which will be the home of his high class cattle. A recent arrival from Holland who is an expert dairyman is to take charge of the herd. This is very much in keeping with the entire project as the native home of Holstein cattle is Holland.

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W. G. Lynch, Secretary, American Shire Horse Association, Box H, Tonica, Illinois.

How About It, Mr. Farmer

By Frank D. Tomson

For several years past there have been frequent expressions to the effect that the prevailing prices for pure bred stock were too high to attract farmer patronage; the term "farmer" being generally applied to land owners or tenants not growing pure bred stock.

Through this period, however, there was a more extensive trade among farmers than ever before. Many of the farmer buyers planned definitely to become growers of pure breds exclusively while others recognizing the necessity of growing animals of better quality, more weight for the feed consumed, and certain to make larger profits, were buyers of pure bred sires. Gradually the prices on pure breds, more particularly those that represented the more popular blood lines, increased and reached levels out of range of the farmer trade. Not necessarily out of range after these farmers had become adjusted to the pure bred business, but too high for immediate profits.

There exists today, however, a situation that is altogether favorable to the farmer investor. There is just as much need under present conditions for shifting from inferior or grade standards to the more responsive and consequently more profitable pure bred types as ever and at present costs the advantage rests very decidedly with the farmer. In beef cattle trade very good individuals among pure breds representing established blood lines may be obtained now at prices that leave no excuse for the farmer producing cattle of the common sorts. The difference in the original investment and the cost of maintenance is all in favor of the pure breds of worthy type. There is no question but that pure bred values will gradually work toward a higher plane so buyers of the present time are assured an increased valuation. Certainly any farmer who has a liking for livestock and with a reasonably serviceable set of farm improvements can make a paying investment now by selecting a few pure breds of individual merit and allow their numbers to increase on his farm until finally his entire herd is made up of pure breds. Under present conditions I would encourage any farmer to invest in a larger number of pure breds than I would have advised during the days when the prices ruled on higher levels. The farmer need not expect pure bred values to decline. Whatever change comes will be in an upward direction. It is a question now of the farmer's plan; if he intends to stay on the land and grow livestock his best opportunity for profits is with pure breds. He should keep this in mind, whether prices are high or low, a pure bred will sell ordinarily for from two to four times as much as a grade. There are occasional exceptions, but these exceptions more often are in favor of pure breds than of grades; in fact, the better class of pure breds, that is, good individuals representing the more popular lines of breeding, will command prices from five to ten times higher than the best grades and usually much more. But I have in mind when discussing the sorts which the farmers are most liekly to be interested in, worthy individuals of miscellaneous breeding that are not generally sought after by enthusiastic buyers who are pedigree critics and who make the pedigree the first consideration, but not disregarding individuality. For all practical purposes the other sorts will suffice equally well. Individuality must be sought after for it is this individuality that insures the difference in profits and values.

As a suggestion to the farmers, breeders are now giving their herds a careful sorting, retaining the best of the blood lines which they desire to have represented in their herds and are permitting the others to go. It is just as important that the farmer should sort his herd and substitute for those of the less profitable kind animals of better and more efficient standards. It will be found that many of these which well established breeders are willing to dispose of at very moderate prices are just the kind that will fit into the farmer's situation. The breeder is disposing of them not for lack of individual merit, but because of his desire to maintain only the more fashionably bred kind. He has an established trade, his patrons are looking to him for these popular blood lines and he wisely selects his animals with that in mind. This gives the farmer an opportunity which he should not hesitate to take advantage of.

We cannot ignore the gradual upward tendency of production costs. Presumably these costs will be lessened somewhat from those of the past two or three years, but the tendency is upward generally and there is no other way for the livestock man to operate profitably under these growing costs than to produce a better class—more pounds at a given age and better quality which can only be assured by the increasing use of pure breds.

GUERNSEYS SOLD IN 1920

Five hundred and eight dollars was the average price paid for 2,464 Guernseys in 49 sales reported in the Guernsey Breeders Journal from January 1, 1920, to December 15, 1920, inclusive. Two thousand and eighty-eight females brought $1,107,489.70, an average of $530.41. Three hundred and seventy one bulls brought $144,551.46, an average of $389.63. Six Guernseys whose sex was not stated brought $365, an average of $60.83. The total sales amounted to more than one quarter millions of dollars, to be exact,$1,252,406.16.

The average for 1920 is indeed encouraging in view of the depression in business conditions. Some sales have brought low averages and have tended to cast a gloomy aspect upon the entire pure bred dairy cattle situation, but when the facts are brought out we find that the past year has been very flourishing for Guernsey breeders. The average for 1919, which was $546, was not quite reached, but the total number of cattle sold in the last year exceeded the number sold in 1919 by more than 88 per cent.

HOW TO CONTROL HOG MANGE

Hog mange is spread mainly by direct bodily contact, according to investigations recently conducted by the United States department of agriculture. The disease is contracted most rapidly among hogs of low vitality, especially those kept in small enclosures. It spreads more slowly among vigorous animals kept in pastures or in clean, well lighted, roomy pens or buildings. The disease can be eradicated by four dippings in a lime-sulphur or arsenical solution with intervals of six or seven days between dippings.

Dispersal of Choice Holsteins

Norma Korndyke Cornucopia 38.41 lbs. butter from 673.1 lbs. milk in 7 days. She is a granddaughter of Pontiac Korndyke, and is the highest 7 days record cow ever sold at public sale in California.

THE VICTORY HERD

Owned by

H. E. Spires and J. M. Crawford

Hillcrest Ranch

Carruthers, Cal.

Wednesday, May 11, 1921

This dispersal is necessary in order to dissolve the partnership existing between H. E. Spires and J. M. Crawford, as the only means by which they can arrive at the actual value of the herd.

Neither partner will retire from the breeding of registered Holsteins, but they have made a positive agreement that neither one will bid on or buy a single animal in this sale, in order that there may be absolutely no question in the minds of other buyers as to the position of the owners.

THE VICTORY HERD is a choice collection of young cattle, including several really outstanding animals. The herd has been handled under average dairy conditions and in official test work has developed some splendid producers.

The sale contains the highest 7 day record cow ever sold at public auction in California, and a group of twenty-four granddaughters of the famous Hackney bull King Segis Pontiac Count, affording California buyers their first opportunity to buy so many females of this breeding at home. The list of females includes

NORMA KORNDYKE CORNUCOPIA, 38.41 lbs. butter from 673.1 lbs. milk in 7 days. She promises to make about 150 lbs. butter from 3000 lbs. milk in 30 days, milking as high as 114 lbs. in one day, and will be carried on test right up to sale day and sold open. She is a most attractive individual, with plenty of size, and is sired by a son of Pontiac Korndyke and out of a daughter of King Korndyke Cornucopia, whose 26 lb. dam made 722.07 lbs. butter from 17,245.4 lbs. milk in 278 days, and she is a daughter of the century sire Aaggie Cornucopia Johanna Lad. Last year, as a junior 4 year old, Norma Korndyke Cornucopia made 28.72 lbs. butter from 665.1 lbs. milk in 7 days.

A YEARLING DAUGHTER of Norma Korndyke Cornucopia, sired by Sir Piebe De Kol Segis Pontiac, son of King Segis Pontiac Count and a 717.46 lb. yearly record cow.

A HALF SISTER TO NORMA KORNDYKE CORNUCOPIA, by the same sire, out of a granddaughter of the century sire Changeling Butter Boy.

A HALF SISTER TO NORMA KORNDYKE CORNUCOPIA, by the same sire, out of a granddaughter of the century sire Sir Pietertje Hengerveld Segis.

TWO DAUGHTERS of the above cow, full sisters, sired by Sir Piebe De Kol Segis Pontiac, both with over 15 lbs. butter in 7 days as 2 year olds.

A DAUGHTER OF A 27 POUND COW that milked 637.1 lbs. in 7 days, heavy with calf to Sir Piebe De Kol Segis Pontiac.

A 27 POUND 3 YEAR OLD granddaughter of King Hengerveld 6th out of a granddaughter of Pontiac Korndyke, bred to Sir Piebe De Kol Segis Pontiac.

A DAUGHTER of the above 27 lb. 3 year old, by Sir Piebe De Kol Segis Pontiac, bred to King Pontiac Alcartra Prilly, 36 lb. son of the three times grand champion King Segis Alcartra Prilly.

A 26 POUND JUNIOR 4 YEAR OLD that milked 561 lbs. in 7 days. She is by a grandson of King of the Pontiac, out of a dam sired by a grandson of King Segis.

A 22 POUND 4 YEAR OLD, bred to Sir Piebe De Kol Segis Pontiac.

TWO DAUGHTERS of the above 22 lb. 4 year old, full sisters, sired by Sir Piebe De Kol Segis Pontiac.

A 19 POUND JUNIOR 3 YEAR OLD sired by a 31 lb. son of Segis Pontiac De Kol Burke.

A DAUGHTER OF MERCI LAD KORNDYKE BURKE, grand champion at 1920 California State Fair, out of an 18 lb. 3 year old daughter of Prince Gelsche Walker. Heavy with calf to Sir Piebe De Kol Segis Pontiac.

24 DAUGHTERS OF SIR PIEBE DE KOL SEGIS PONTIAC, therefore granddaughters of King Segis Pontiac Count, many of them bred to King Pontiac Alcartra Prilly.

BULLS IN THE SALE

SIR PIEBE DE KOL SEGIS PONTIAC, born Feb. 16, 1914. He is by King Segis Pontiac Count, the famous bull owned by Senator Hackney in Minnesota, and is out of a dam that made 717.46 lbs. butter from 17,635.2 lbs. milk in one year. He already has 10 A. R. O. daughters, splendid producers, and he is only a young bull yet.

KING PONTIAC ALCARTRA PRILLY, the junior herd sire, is by King Segis Alcartra Prilly, the Bridgford three times grand champion whose daughters are starting off with extraordinary production at first calving. His dam is Spring Farm Pauline Pontiac 2nd, 36.63 lbs. butter from 816.1 lbs. milk in 7 days, 982.32 lbs. butter from 26,262.2 lbs. milk in one year. She has three 7 day records averaging 31.49 lbs. butter and 703.3 lbs. milk. His seven nearest dams average 31.02 lbs. butter in 7 days, and five of them have yearly records up to 1127.85 lbs. butter.

A NUMBER OF YOUNG BULLS, some good enough to head breeding herds, others that will no doubt go at dairymen's prices.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer.

NOTE: This herd has been tuberculin tested regularly since its establishment five years ago. Only two animals have ever responded to the test, and one of these was an animal brought in by purchase subject to 60 day retest. Every female in the herd, of milking age, has dropped a normal living calf within the last year, and there has never been a case of abortion in the herd.

Catalog of sale free on request.

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Baby Chicks—You are looking for the largest returns for your "Baby Chick Money." To get this you want chicks that will live, have vitality and will produce. Our Anconas are all from first class Hoganized stock. The White Leghorns are all mated to roosters from trapnested stock of 229 eggs or better. Now we also have especially good layers in the R. I. Reds, Fancy Dark Reds, Fancy Anconas and Barred Rocks. Our stock will produce the eggs. We have as well an equipped hatchery as there is, and know how to hatch strong sturdy chicks. May and June prices on White Leghorns are $16.00 hundred, $150.00 thousand. Anconas, R. I. Reds, Barred Rocks, $19.00 hundred, $180.00 thousand. Fancy Dark Reds and Fancy Anconas, $24.00 hundred. All chicks are sent Prepaid by Special Delivery Parcel Post. Can give immediate delivery, or will return your money at once. ORANGE COUNTY HATCHERY, Santa Ana, California.

For Sale—All eggs for hatching from our $4.00 to $10.00 pens, one-half price commencing May 1. A few breeding yards for sale. We are not in the day old chix business but will offer 400 chix, hatched May 13, F. O. B. our yards, for $50.00 per hundred; not less than 25 chix sold; these are from our $4.00 and $5.00 pens. A limited number of Silkies (two and three months) specially priced. Send for our mating lists. Alles San Dro Poultry Yards, 523 E. Rosemont Avenue, Los Angeles, California.

Petaluma Hatchery — Established 1902. Capacity 30,000 chicks a week. White Leghorn chicks from heavy laying free range stock after April 15th, $15.00 per 100, $140.00 per 1000. During May and June $14.00 per 100, $130.00 per 1000. Brown Leghorns $1.00 per hundred more than White Leghorns. We positively guarantee safe arrival and full count of good strong chicks and no questions asked. L. W. Clark, Proprietor, 615 Main Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from heaviest laying (hoganized) stock. Safe delivery; live vigorous chicks guaranteed. No money in advance; pay on delivery. Price from May 15 to June 30 $3.50 per 25, $7.00 per 50, $12.50 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh St., Petaluma, California.

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Baby Chicks—"Only the best," May and June delivery. White and Brown Leghorn, R. I. Reds, Barred Rocks. Safe arrival guaranteed. All vigorous chicks from good layers. Send for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67-D, Palo Alto, California.

Baby Chicks from My Hoganized, heavy laying strain of pure bred S. C. White Leghorns, May and June delivery, at the very reasonable price of $13.00 per 100, $60.00 per 500. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Baby Chicks — Barred Plymouth Rocks and Rhode Island Reds in 25, 50 and 100 lots 20c each. Hatching eggs $2 per 15. We ship by Parcel Post, pay all charges. Write for circular. Hargett & Son, Route 2, Compton, California.

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. Eggs from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

Baby Chicks hatched to order from Black, White and Buff Minorcas. Eggs for sale. Also 4 White Minorca Cockerels $5.00 and $10.00 each. Black Cochin Bantam Eggs. Horace W. Crowell, 58 N. Craig Avenue, Pasadena, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

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Place your order for BABY CHICKS for SPRING DELIVERY with the Stevenson Hatchery, Watsonville, California.

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Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

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Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

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BUILDING UP A HIGH PRODUCING DAIRY HERD

(Continued from Page 575.)

cut down the amount for a few feeds, and they are generally ready to eat it again. Sometimes they get tired of the same feed and a change of grain for a few feeds does them a lot of good, giving them a new appetite. If a cow is going to be a good producer she must be kept satisfied and contented.

I realize also that to get good results a man has to have good cows to work with and to build up a good herd is a trying proposition. I have been very fortunate in getting together my present herd. I bought 14 first calf heifers two years ago, and with them as my foundation I have culled and bought more as I have been able. About one-half of my present herd are first and second calf heifers raised from the herd of 30 cows I sold at auction two years ago for an average of $205 per head. The heifers are large persistent milkers and in most cases high testers. Most men consider that the cheaper they buy a cow the more money they save, but not so with me. If I find a cow that comes up to my dairy cow judgment and I have good reason to think her a good producer, I don't stop at the price, but buy her at any cost within reason. I have paid up to $325 for a grade cow, and she has proved well worth the price. I judge a cow's worth by the amount of butter fat she will produce in a year. If she produces 400 or 500 pounds she is worth whatever the butter fat will bring, deducing feed costs.

I am very particular about milkers. They must be conscientious men that will milk a cow clean and be gentle with them. I will not have a man who mistreats my cows.

The cows are being milked three times a day. The increased production is between 20 and 30 per cent. For instance, I have a second calf heifer that has milked over 80 pounds milk a day, and if she had been milked only twice a day she could not have given over 60 or 65 pounds because her udder is not large enough to carry more than 30 pounds at one time. It is also good to milk first calf heifers three times a day as it develops their udders and trains them to milk persistently.

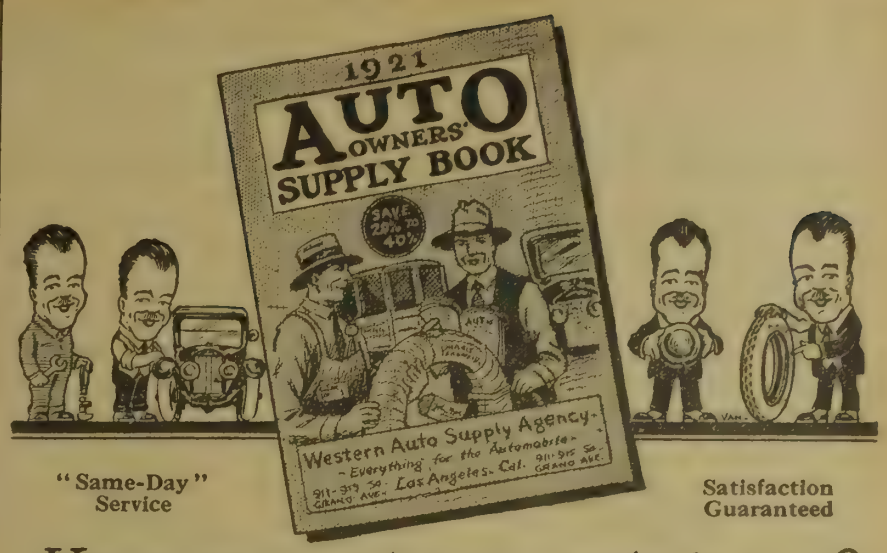
I consider that I owe my success to both feeding and breeding. As I have said before, I have always had good cows and have always used good pure bred bulls, but a man can breed and breed forever and if he fails to feed he will have no more production than if he had common scrub cows.

I always say every dairyman should belong to a cow testing association to really have a fair chance to cull his cows. I have belonged to one for the last four years and have sold a number of cows to the butcher because of it. I feel I have been well paid for my trouble and expense.

So when you get right down to the facts, the main reasons for success are to keep all good cows, feed them the best always and be sure to keep a good pure bred bull.

I am sorry I cannot give the names of the sires of my heifers that are now milking, but I didn't use to keep any record of which bull I bred the cow to and I have most always kept two bulls. The sire of some of them is King Beets Sola De Kol. I had him two years ago when I sold my herd.

The bulls I am using now are Sir Parthenea Alcartra Korndyke, King Mead Mita, and for my heifers, Sir Veeman Segis De Kol Burke, a son of my 33.06 pound three year old cow, Princess Maida Veeman. She made over 20,000 pounds milk and 750 pounds butter in a year as a junior two year old. The last two bulls I have raised and know they have good producing dams.



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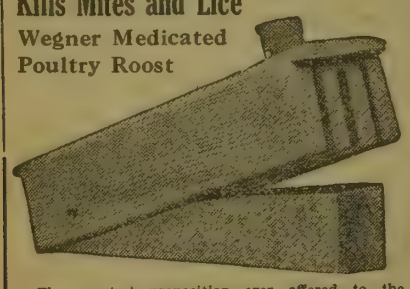

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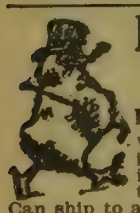

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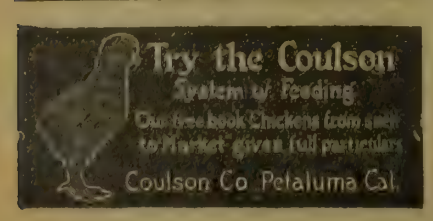

Roup a Preventable Disease

By Jean A. Koethen

THE first step in eradicating any disease is to find its cause. To cure is one thing, to eradicate is another. Roup is easily curable for the time being—but to eradicate roup means to get rid of every one of its causes, and then to get rid of all the stock that has been affected or infected by the disease. An expert whose name I have forgotten is quoted as saying that as long as he cured roup he had roup in his flock. When he ceased to try to cure it, except by means of that most certain remedy, the ax, he eradicated it for good and all.

The causes of roup may be summed up under two heads, filth and dampness. Filthy air in the roosting house is one of the most potent causes. Damp air, which is usually filthy as well, is another. Now damp air may be of any one of several varieties. It may be damp because of the weather. There is no harm in the damp air we all have to breathe during a rain, provided the roosting quarters are dry and comfortable. It may be damp because the henhouse is located in a hollow and the heavier air falls from the higher levels upon it. I doubt if roup can ever be entirely eliminated in such a place. Again, and more frequently, and worst of all, it may be damp because ventilation is insufficient, and what little air the hens are allowed is loaded with moisture from the bodies of the birds as well as with odors from the dropping boards. It is because of the difficulty of keeping the air fresh in a house in which several hundred hens are confined that experts have made the rule of three square feet of floor space to a hen. Even with this amount of room the air will be foul if provision is not made for circulation. With the front of the house entirely open and an air current coming in behind the roosts but kept off the heads of the birds by a ceiling of wood or beaver board or tarred paper the problem is usually solved.

Winds and Drainage

Roup is quite sure to occur in a flock that is exposed to a damp or very chilly wind. For this reason it is important that the house should front away from the direction of prevailing winds, and that there should be some protection from winds that cannot be thus avoided. Take, for instance, certain localities near the coast where north winds sometimes prevail. Here, if the front of the house is away from the north wind it is exposed to the west or southwest coast breeze, which is always damp and frequently chilly. Such a house needs more provision in the way of shutters and windows for keeping out the wind than is necessary in dry inland valleys. The yard should also be protected, or at least a part of it, by some windbreak that will permit the hens to be out of doors and still out of the wind. A high fence answers this purpose very well. Hens dislike a high wind rather more than they dislike rain, and it is a greater menace to their health.

Water drainage we all understand and it is not necessary to emphasize the importance of placing poultry yards in such a location that water from higher ground cannot drain into them. Air drainage is not so readily understood, and yet it is just as important. Wherever possible a southern slope should be chosen for the location of the poultry plant just because on such a slope dampness is at the minimum. Water and damp air drain off and the hill cuts off the cold north wind.

Naturally, a south slope is not always available, and when it is not sanitation must take its place. An open front house which admits the winter sun to its farthest corner, with back and ends closed tight against drafts, three feet of floor space for every bird, dry floors with clean scratching litter, frequent removal of droppings and cleaning of dropping boards, monthly disinfection of walls and roosts, clean nest litter, fresh water, above all, ample protection from wind and rain, these are the chief secret of roup prevention.

Recognizing Roup

But how shall the novice recognize roup? In the first place roup is a cold, but it is more than a cold. It is not always easy to distinguish between an ordinary cold and real roup, but distinguishing it is not very important. A catarrhal cold today may run into roup tomorrow, and the same conditions produce both. In general, when there is a watery discharge from the nostril or slight rattling in the throat, we say the bird has a cold. When the discharge is thick, with noticeable odor, when it gathers in swellings under the eyes, when the eyes are swollen or sticky or closed, or when the throat contains whitish or grayish patches or exudate, we say the bird has roup. These symptoms are seldom all present. If they are, the bird is in a very bad way and might as well be killed. Many cases of chicken pox are accompanied by roupy symptoms. In fact this occurs so frequently that some authorities declare roup and chicken pox are practically the same disease.

As soon as a single bird in the flock shows any of the above symptoms or the fever and dullness which frequently accompany them, she should be removed, put in a dry, warm place and treated. It is hard to say just how contagious the disease is, but there is some danger of contagion. When many cases occur it shows that there is something radically wrong in housing and sanitation, and the error must be corrected before the disease can be wiped out.

Treatment

There are plenty of cures for roup, both proprietary medicines and home remedies, all good in their way, but none of them will permanently cure the disease unless the cause is removed. The potassium permanganate treatment has often been mentioned on this page and need not be described again. Its chief virtue is its simplicity. It must be remembered, however, that while potassium permanganate is an excellent antiseptic and very useful for cleansing the nasal passages, it is of little use, if any, when taken internally. When used in the drinking water it may prevent contagion but has no other virtue, and it loses its strength very quickly in solution.

Dr. Sanborn recommends this solution for a spray for all the mucous surfaces: Extract of witch hazel, 4 tablespoons; liquid carbolic acid, 3 drops; water, 2 tablespoons. This is applied twice a day with a bulb syringe, squeezing the bulb 5 times for each nostril and twice for the mouth. ties of nose and thoat with peroxide Dr. Salmon advises washing the cavi- of hydrogen diluted 1 to 3 times with water. When the eyes are affected they may be cleansed with cotton dipped in a solution of boric acid or of boric acid and chamomile. When there are swellings under the eyes they should be opened and thoroughly cleansed with some antiseptic.

A successful turkey breeder uses this spray for roupy turkeys: 2 teaspoons castor oil, 1 teaspoon turpentine, 1 teaspoon kerosene. Nostrils, cleft in mouth and any abscesses that have been opened are sprayed once a day with this mixture.

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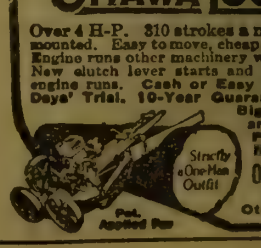

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Poultry Queries

Conducted by Jean A. Koethen

Will They Hatch?

My two turkeys, a hen and a tom, are both young. The other day I found the hen sitting on 11 eggs out in the grass. I took them from her and put them under a hen. Can anyone tell me if these eggs will hatch and how soon my turkey will start to lay again?—Subscriber.

Nobody can say whether or not any given egg will hatch. You can find out if the eggs are fertile by testing them before a strong light just as you would chicken eggs. You can buy a tester at any poultry supply house. If they are dark inside they are fertile; if clear, you know they are infertile. If there are dead germs this is sometimes indicated by a red ring, but you cannot always be sure about it, especially toward the end of incubation. The germs in eggs from a young hen mated to a young tom will not be as strong as they would if the parents were of different ages, but you may get a good hatch for all that. It depends on the vigor of the birds and their care and feeding. The hen ought to be laying again in a week or so.

Roup of the Eyes

Some of my three weeks old White Leghorn chicks have their eyelids stuck together. When I pull them open they can see, but there seems to be a film growing underneath the eyelid.—Subscriber, Chino.

I am afraid your chicks have roup of the eyes. You should isolate all the affected ones and wash their eyes morning and night with a boric acid solution, about one-half teaspoon of boric acid in one-half pint of warm water. You can drop the solution in the eyes with a bit of absorbent cotton. Before they are shut up for the night, anoint the edges of the lids with pure white vaseline, the kind that comes in a tube, to keep them from sticking together. Something is making your chicks take cold. Is it that they are not warm enough at night, or that they are overcrowded and therefore too warm, or are they, perhaps, exposed to a strong wind during the day? The only permanent cure for roup is removal of the cause.

Various Troubles

I am losing my turkey hens and chickens and would like some advice. We cut open a hen today and found her liver normal though light in color, but surrounded by great clots of blood. The turkey hens have a whitish diarrhoea, lose their appetites and stand around and die. A chick died this morning. Its crop was full of water, which ran out when I pressed the crop. —Subscriber, Fillmore.

The hen you cut open may have had cholera. That bloody condition of the intestines suggests it. The chicks had indigestion and probably inflammation of the crop as well. The turkeys are dying of blackhead. There must be something wrong with your feeding and care. Have the birds clean ground to run on and plenty of greens? Are their houses clean? Are they getting a balanced ration? Chicks should have a growing mash before them constantly and hard grain in litter so that they will have to scratch for it if they are confined. Hens require a laying mash and a grain mixture once or twice a day amounting to about a quart for 15 hens. Above all, they must have clean water, grit and shell, and green feed at least once a day, twice is better. Sour milk before both hens and chicks is a great help. Hens that have been on a heavy laying mash need a lighter ration as warm weather comes on. It would be a good plan to add some bran to the laying mash, and drop all corn from the ration till fall. A teaspoon of Epsom salts for each bird, dissolved in water and used to moisten the mash, may help to prevent more fatalities. Two doses may be given a week apart. It is too late to do much for the turkeys, but you might try giving each of the sick ones a liver pill. Give all the onion they will eat. If you can put them on alfalfa for a while they will not need much else. If I knew what you have been feeding I could advise you more intelligently. Barley and wheat are the best grains for turkeys except at fattening time, and they should have a laying mash during the breeding season.

Care of Poults

Please tell me something about the care of baby turkeys in your next issue and also the names of books that will help me.—Subscriber, Van Nuys.

Baby turkeys must be kept warm and dry and free from lice, and they must have enough to eat, but not too much, and always some green with every meal. Most turkey breeders consider onions indispensable but there are a few who do not use them. Hard boiled eggs, very stale bread or rolled oats, young onions and alfalfa, put through a meat grinder, and a little grit (fine chick grit) added, is the nursery feed most generally used. The greens should be at least half the mixture, and one egg is sufficient for a day's feeding for 20 poults. This is fed three or four times a day at first. No one can tell you just how much to feed. The only rule is, "Keep them hungry." After a week or so sour milk may be set before them for a little while each day, and later on all the time, and a chick mash after three weeks may be given in the same way. They should be out on green range when it is warm enough from the very first, and if the range is well supplied with bugs and worms and succulent green, should, after a couple of months, get a good deal of their living from it. Rolled oats, dry mash, and always onion, with as much sour milk or cottage cheese as is available, are the standard feeds for the first two months. After this they may be given bran and barley in hoppers or the rolled oats diet may be continued. If a hen is used as mother she should be frequently dusted for lice, and if the weather is cold or wet must be confined where she will be compelled to cover her charges, which are more susceptible to cold than chicks. The Cultivator book, "Poultry for Profit," contains full directions for raising turkeys.

Overfat

One of my White Leghorns pullets, seven months old, was taken sick in the morning with watery diarrhoea accompanied by great weakness, and died before three o'clock. On cutting her open I found a dozen small egg yolks, her liver five times normal size and her heart double normal size and much bloated. She was very fat. What was her disease?—Subscriber.

Enlargement of the liver and fatty degeneration of the heart, apparently, but her overfat condition was at the bottom of it. It is rare that Leghorns put on so much fat, and I suspect a Minorca strain, especially as you say her legs were white. Probably she had a more fattening diet than she could stand. See that the other pullets, which are laying so well, do not get much corn the rest of the season.

One prominent city police judge says it is the duty of motorists to avoid pedestrians. The idea is new and novel, but possibly has merit.

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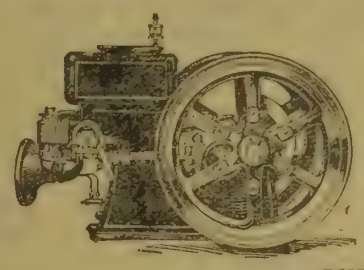

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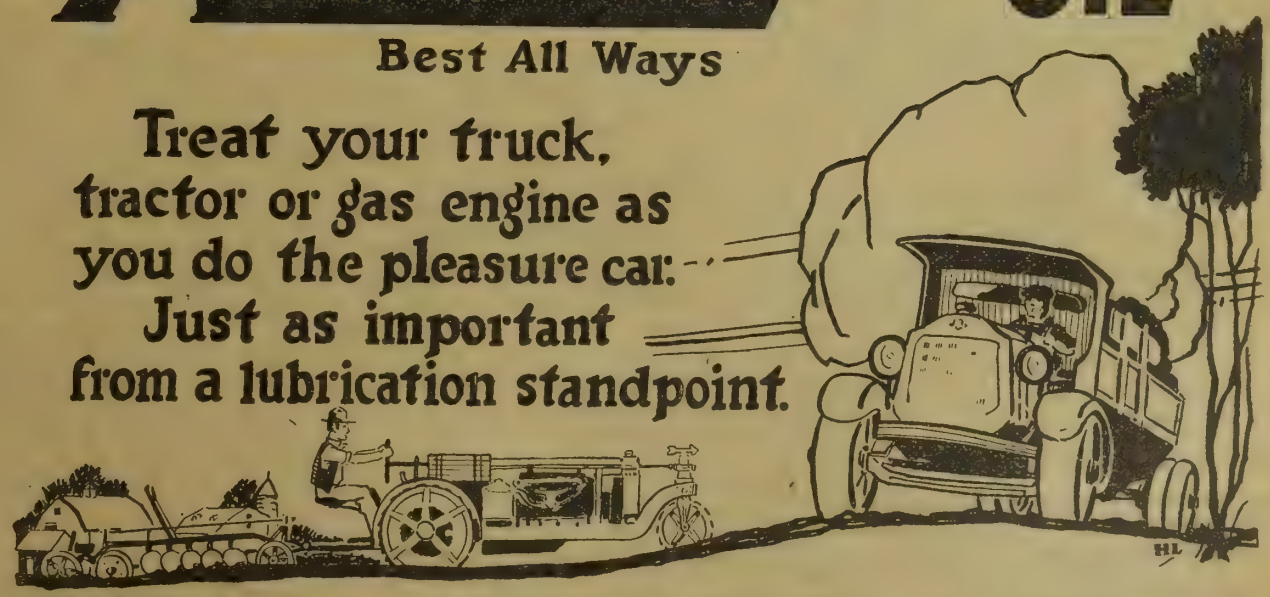

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The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

Los Angeles Markets

Los Angeles, April 27, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price, 37 cents.

Apr.	20	21	22	23	25	26
'21 ...	38	38	38	38	37	37

CHEESE

Brokers' prices:
California flats, 18@20.

EGGS

Fresh extras (case included): Produce Exchange closing price 26 per dozen. Case count Produce Exchange closing price 25. Pullets, closing price 23 per dozen.

Dairy Exchange price last week on extras:

Apr.	20	21	22	23	25	26
'21 ...	28	28	28	28	26	26

Eastern quotations are seriously off—lowest of the season with no promise of immediate betterment. Cal. whites are now quoted in New York at from 32 to 40 cents. Eastern stock is badly off as to quality. Nearly all local stock going into storage.

POULTRY

Price to producers: Hens, lt., 28; heavy 28; colored, 35; broilers, 20@36; roasters, 40; old roosters, 11; fryers, 48; ducks, old, 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 13@17; old, 9.

LIVESTOCK

Los Angeles, April 26. — Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 9.00; 175 to 225 lbs., 10.00.

Cattle (on foot, gross weight): Steers, good, 8.50@9.00; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Bulls and stags, 4.00@4.50. Calves, 125 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 4.00@5.00; lambs, 8.00@10.00.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe Avenue. Receipts from the interior for 24 hours ended at 10 a. m. Tuesday were: 74 hides, 34 pelts, 683 lbs. tallow.

Green and green salted hides: No. 1 heavy hides, 50 lbs. and up, 4 per lb.; No. 1 light hides, 25 to 50 lbs., 4 per lb.; No. 1 kips, 15 to 25 lbs. 5 per lb.; No. 1 calf skins, under 15 lbs.; 9 per lb.; No. 1 slunks, 10@30 each; No. 1 bull hides, 3 per lb.; No. 1 horse hides, over 50 lbs., 1.50 each; No. 1 horse hides, 40 to 50 lbs., 1.00 each; No. 1 horse hides, 30 to 40 lbs., 60 each; ponies and glues, half price; No. 1 grubby hides and skins, 1½ less; No. 2 hides and skins, 2 less; glue hides and skins, half price.

Dry flint hides—No. 1 hides, 16 lbs. and up, 8 per lb.; No. 1 kips, 6 to 16 lbs., 9 per lb.; No. 1 calf skins, under 6 lbs., 10 per lb.; No. 2 hides and skins, 2 less; glue hides and skins, half price.

Pelts—Large, long wool, 40@70 each; medium, 20@40 each; short wool and shearlings, 5@20 each.

Goat skins — No. 1 common, 10@30 each; No. 2, 5@10 each; badly damanged and small kids, worthless.

Tallow—No. 1 white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool—According to quality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock April 26, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market weak. Idahos: Russets mostly 2.35@2.50. Oregons: Burbanks 2.50. Washingtons: Round Whites 2.75. New potatoes: Supplies moderate, market weak, best 2.25@2.30, few 2.40, small 1.00@2.00 per lug, jobbing sales, best 2.00@2.15, few best 2.25 per lug. Sweet potatoes: Supplies liberal, market firm. Mostly 2.25@2.50 per lug. Oklahomas: 6½@7 per lb, jobbing sales 6 per lb.

Onions: Supplies heavy, market dull. Stocktons: White Globes, cold storage stock, 75@1.00; Browns, mostly 35@65 per cwt. sacked; local: per bunch, green mostly 12½. Coachella Valley; no sales.

Garlic: Supplies liberal, market dull. Wide range in quality and condition. Best mostly 10@13, poorer 7@9 per lb.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock April 26, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Best doz., 1.00@1.25; poorer wide range.

Asparagus: Market strong, supplies liberal: Local: Mostly 13@15 per lb. Northern, 11@14 per lb.; jobbing sales 11@13 per lb.

Beans: Supplies moderate. Per lb., Green Kentucky Wonders 32@33 per lb., green pods 17@21 per lb., Wax 17@20 per lm.

Beets: Doz., 30@40.

Cabbage: Field crate best mostly 1.15@1.35; poorer, 75.

Carrots: Doz., 35@40.

Cauliflower: Supply moderate, field cr., best, 2.25@2.50; poorer low as 1.25; few best high as 2.75.

Cucumbers: Hothouse, best, 3.00@3.25 doz.; poorer 2.75.

Lettuce: Local field crate quality poor, 1.00@1.25; best mostly 1.75; few high as 1.75.

Peas: Local: 5@6½ per lb.; few 7½; jobbing sales 4½@6 per lb.; few 7.

Radishes: 25@27 doz.

Rhubarb: Local strawberry 1.00@1.19 bx.; jobbing 90@1.00.

Spinach: Mostly 20; few best, 25 doz.

Squash: Summer, mostly 90@1.10; jobbing sales mostly 90; few 1.00.

Tomatoes: Mexican, per lug, best 4.00; repacked lug, 4.25; Imp. Valley crates small to large 2.75@3.25; jobbing 2.50@3.00.

Turnips: Doz., 40@45; few 50.

FRESH FRUITS

Strawberries: Supplies increasing, market weak. Per crate, 30 pints, best 4.00, few fancy 4.25@4.75, No. 1 3.50@4.00, No. 2, 2.75@3.00.

CITRUS FRUITS

Grapefruit: Supplies liberal, market firm on good stock. Local: per box, market pack 2.00@2.50, special packed brands 2.75@3.25.

Lemons: Supplies heavy, market dull, wide range in prices. Local: packed box 1.50@2.25, few high as 2.75, loose 75@1.00 per box, per lug mostly 40@50.

Oranges: Supplies heavy, market firm. Navels, market pack, large sizes 3.00@3.50 small low as 1.75, special brands, small sizes 3.00@3.50; large sizes 4.00@4.75. Packing house culls 25@50 per box, few best 75@90; Tangerines: Supplies liberal, market steady, lb. best, 6@7½; small 4.

HONEY

Supplies of honey are still generally heavy, but old crop is cleaning up in some sections. Poor wire inquiry. Movement slow, market weak. Carloads f. o. b. usual terms: Per pound, few sales of White Orange Blossom 12½@13; White Sage 12@12½; light Amber Alfalfa 6@6½; Light Amber Sage 7½@8½; White Alfalfa 7½@8; Hawaiian White 7; Light Amber 6; Honey Dew 4½. Producers are reported as offering contracts for new crop. White Orange Blossom 10 per lb., but buyers are holding off. Prospects for the honey crop are generally favorable throughout the state, except in the San Diego district and Salinas Valley, where rainfall has been very light. Darker grades of honey are now on cheap price basis and competing with sugar for commercial use. The outlook is for a continued downward trend in prices for the darker colored stock.

GRAIN AND FEEDS

Grain Exch. price bid April 26:
Wheat: Mixed feed Utah-Idaho, 28.25.
Corn: Bulk, No. 2, Yellow, 1.60.
Bran: Kansas, 28.25.

HAY

Alfalfa Growers of California report under date of April 25:

The markets for grain and feeding stuffs reached new low levels during the week under the influence of which the market for alfalfa continued dragging and inactive. It would seem as if in consequence of the apparently endless decline in the prices of all farm products prices had ceased to be a factor in the demand; in fact, the lower prices go the more buyers become frightened and timid, and the less they are inclined to buy beyond their most immediate needs.

There were 260 tons received on the Los Angeles tracks the week ending April 23 with 30 tons held over as against 600 tons the week before.

Rabbit Alfalfa	25.00
No. 1 Dairy	21.00
Standard	18.00
Stock	15.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@30.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@16.00
Straw	10.00@13.00

The Glenn-Colusa irrigation district has turned water into its distributing canals. Rice planters are getting in their seed very early this season.

San Francisco Markets

San Francisco, April 26, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 37½

Dairy Exchange prices extras this week and year ago:

Apr.	19	20	21	22	23	25
'21 ...	38	37½	37	36	35	33½
'20 ...	..	..	58	45	59	..

Rcts, four days ending April 25, 2,574 centals.

CHEESE

Dairy Exchange quotations:
Jack, full cream, street price ..... 22@26
Jack, half skimmed, street price .. 17@20
Cal. Y. A. 19
Cal. Flats 16

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 28½
Extra Firsts 28
Extra Pullets 24½
Undersized 19½

Apr.	19	20	21	22	23	25
'21 ...	28½	29½	29	29	29	28½
'20 ...	..	..	43½	45	46½	..

Rcts. four days ending Apr. 25, 537,742 dozen.

POULTRY

Wholesale prices are:
Hens: Colored, 37@40; White Leghorns, 25@29; strictly young roosters, 42@45; old roosters, 18@21; fryers, 50@60; broilers, small, 33@36; large, 40@50.
Squabs: 50@55 per lb.
Belgian Hares: Alive, 22@25 per lb.
Pigeons: Old, 3.00@3.50 per dozen.
Jackrabbits: 3.00@3.50 per dozen.

LIVESTOCK

Western Meat Company prices are:
Cattle: Steers, No. 1, 7½@8; steers, second quality, 6½@7; steers, thin, 4@4½; cows and heifers, No. 1, 5½@6½; cows and heifers, second quality, 5½@6; cows and heifers, thin, 3@4.
Calves: Light weight, 8@9; medium, 7@8; heavy, 6½@7.
Sheep: Wethers, 5@6; ewes, 2½@3½.
Lambs: Milk, 6@7.
Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 10; 200 to 250 lbs., 9; 250 to 300 lbs., 8½.

HIDES AND PELTS

No. 1 heavy hides, 60 lbs. up, 3; do, medium, 45 to 60 lbs., 3; do, light, 30 to 45 lbs., 5; do, native bulls, 2; No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 5; No. 2 wet salt kip, 15 to 30 lbs., 3; No. 1 wet salt calf, trimmed, 7½; No. 2 calf, 2 per lb. less.

Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good, 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20; milk lambs, 5@10.

POTATOES AND ONIONS

Wholesale prices:
Potatoes: Street prices: River, nominal; do, Oregon Burbanks, 2.25@2.60. Idaho Gems, 2.50@2.60. Sweet potatoes: Nancy Hall, 500@6.00 per 100 pounds. New: 3@5 lb.; Garnets, 5@5½.
Onions: Australian brown, 35@50 per bag. Green, lug, 1.20@1.50.
Garlic: New, 6@8 lb.

VEGETABLES

Wholesale selling price:
Asparagus: Lb., field run, 4@5; fy. graded, 7; graded, 8@9; green, 5.
Artichokes: Cr., 6.00@10.00.
Beets: 1.00@1.50 sk.
Beans: String, 20@25; Wonder, 3[illegible] Horse, 5@8; Wax, 20.
Carrots: 75@1.00 sk.
Cauliflower: Doz., 40@75.
Cucumbers: Hothouse, small, 4.00@4.5[illegible] box of 2½ dozen; large, 2.50@3.00 per doz[illegible]en; English, 2.50@2.75 per dozen.
Cabbage: Lb., [illegible]
Celery: Cr., 1.25@3.00.
Eggplant: Lb., 10@15; Imp. 25.
Lettuce: L. A. cr., 2.50@3.00; loca[illegible] 1.25@1.75.
Onions: Green, per lug, 1.25@1.50.
Peas: 8@9 lb.; Bay, 8@13.
Parsnips: Sk., 2.00@2.25.
Peppers: Bells, Southern, 5@20 lb. [illegible] green: Florida, 10@20.
Rhubarb: Alameda, 1.15@1.90; [illegible] Jose, 2.00.
Squash: Italian, 1.00@1.25; Imperia[illegible] Valley Summer, 90@1.00; Cream squas[illegible] 60@75 lug; Hubbard and Marrowfat, 1.7[illegible] @2.25 sk.
Spinach: Lb., 2½@3.
Tomatoes: Mex., 3.00@3.50 L. A. lug[illegible] cr., 3.25@3.50.
Turnips: Sk., 50@1.00.

FRESH FRUITS

Avocado: California, dozen, 3.00@7.0[illegible]
Bananas: Lb., 9@10.
Pineapples: 4.50@6.00.
Strawberries: Imperial Valley, 2.00@2.[illegible] cr.; Central Cal., 90@1.25 per dr.; [illegible] 2.00@2.50 cr.
Loquats: Lb., 12@15.

CITRUS

Navel oranges, 2.25@5.00; lemons, 2.[illegible] @2.75 per box; lemonettes, 1.50@2.0[illegible] grapefruit, new crop, 1.50@3.50; slightl[illegible] more on extra fancy.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-l[illegible]

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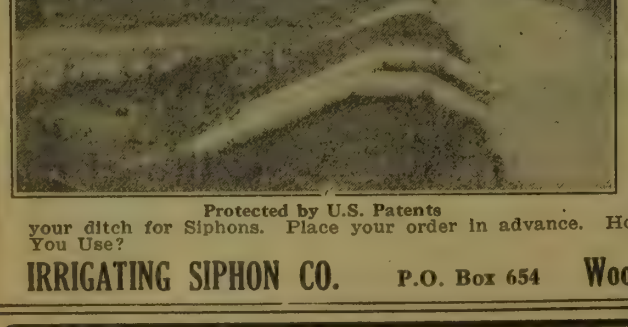

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Moline Tractor, complete with rear truck and double disc plow.....$950
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Racine Thresher, 22-inch, total use only 3000 sacks.....$700
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boxes, 16 lb.; Sunmaid, seeded, 36 15-oz. pkgs. 22½ lb.; seedless Sultanas, 25 lb. bxs., 20 lb.; Thompson Seedless, 25 lb. bxs., 21½ lb.; do, 48 15-oz. bxs. 23½ lb.; 3-cr. L. M., 25 lb. bxs., 19 lb.; 2-cr., do, 18 lb.; 1 lb. clusters, 20 lb. bxs., 5.40 box.

Apricots: Fancy 25 lb. boxes, 28 lb.; extra choice, do, 22 lb.; choice, do, 19 lb.; standard, do, 17 lb.

Peaches: Blue Ribbon brand, 48 11-oz. to cs., 7.00 cs.; Blue Ribbon brand, 24 2-lb. bxs. to cs., 8.00; fancy, 25 lb. bxs., 16 lb.; ex. ch. 25 lb. bxs., 12½; choice 25 lb. bxs., 12.

Figs: Fancy black, 25 lb. boxes, 12½ lb.; extra choice, do, 10 lb.; choice, do, 9 lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 extra choice, do, 10 lb.; choice, do, 9 4 oz. white, $1.25 bx.; 20 oz. white, $1.75 bx.; fancy 4 layer, 10 lb. bxs., $2 bx.

Prunes: 30-40s, 25 lb. bxs., 13 lb.; 40-50s, do, 10½ lb.; 50-60s, do, 9 lb.; 60-70s, do, 7½ lb.; 70-80s, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.; Persian dates, 17 lb.; Dromedary dates, 6,25 case; fancy silver prunes, 15 lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8½ lb.; choice, do, 7½ lb.

Pears: Fancy, 25-lb. bxs., 17 lb.; extra choice, 25-lb. bxs., 11; choice, 25-lb. bxs., 9.

BEANS

Below California Bean Growers Association shippers prices choice recleaned.

Large Whites	3.30
Small Whites	3.30
Pinks	5.65
Mexican Reds	7.75
Red Kidneys	8.75
Henderson Bush	5.05
Cranberries	6.80
Bayos	9.35
Blackeyes	9.35

GRAIN

Sales grain exchange, April 26:

Wheat: Milling, 1.90@2.00; feed, 1.80 @1.90.

Corn: Cal. Yellow, 1.35@1.45; White Egyptian, 2.10@2.25.

Oats: Red feed, new crop, 1.40@1.50.

Barley: Feed, 1.07½@1.12; off grades lower; shipping, 1.30@1.40.

Milo: Cal. Red, 1.75@1.85; Eastern Red, 1.55@1.65.

Kafir: Eastern, 1.45@1.55.

HAY AND FEED

Alfalfa Growers of California report under date of April 25:

No. 1 Dairy	18.00
Standard Dairy	16.00

Under date of April 23, A. W. Scott Co. says:

Receipts past week 875 tons as compared with 700 tons preceding week. Although receipts continue light they seem to be ample for all requirements, and there is practically no change in figures in any of the hay lines. Increased activity in farm work is interfering somewhat with hay movement both into local market and through the interior. A strong opinion on the part of the farmer that there will not be any great carryover of hay but that there will be demand to clean up his holdings sooner or later also has an effect of keeping country trading quiet and reducing the volume of shipping. The view of the old crop appears more favorable than that facing the new.

General conditions appear to be improved. Trading is more active and there is a little better local inquiry for hay and feed of all kind. An increase of building has indirectly helped our market and in general there is better tone than for some time.

Reports and indications are that conditions have been excellent all over the state; that an exceptionally large acreage will be cut for hay of which an unusual proportion will be of volunteer and possibly barley. Growing alfalfa is in an ideal condition as a whole and these indications of abundance together with the immense carryover stocks in some surrounding states leads one to believe that the surplus will exceed by far any possible demand at the time of the new harvest.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00
Straw	10.00@15.00
Barley, ground	31.00@35.00
Barley, rolled	27.00@30.00
Oats, Rolled Feed	34.00@36.00
Bran, Red	34.00@35.00
Bran, White	36.00@38.00
Millrun	35.00@40.00
Middlings	47.00@50.00
Linseed Meal	60.00@65.00
Cocoanut Meal	26.00@27.00
Alfalfa Meal	28.00@29.00
Cottonseed Meal	35.00@40.00
Sugar Beet Pulp	32.00
Molasses, Tanks	23.00
Molasses, Barrels	26.50
Milo	35.00@40.00
Corn Meal	35.00@40.00

Citrus Markets

Los Angelees, April 27, 1921.

Shipments are now going forward in excess of 200 cars daily, in fact nearly 1,500 cars weekly.

Prices are stiffening and very satisfactory condition prevails.

Lemons are likewise showing slight improvement. Sales are very limtied and importation is large.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 18,651 cars; lemons, 3,825; total, 22,476. To same date last season: Oranges, 15,134; lemons, 2,911; total, 18,045. From Central California to date, this season: Oranges, 4,684; lemons, 132; total, 4,816. To same date last season: Oranges, 4,304; lemons, 286; total, 4,590. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last sesaon: Oranges, 261, lemons, 22; total, 283.

AT THE AUCTIONS

April 20

New York: 29 or., 6 mixed, 1 lem. Nav. 3.40-5.55, Val. 3.80-4.60, Sweets 3.25-3.60, Bloods 3.35-3.95, Tange. halves 2.00-3.70, St. Mikes, 4.00-4.30, halves 1.55-1.75, lem. 3.20.

Boston: 28 or., 5 lem. Nav. 3.75-5.15, Jaffas 3.30-3.45, Val. 3.80-4.10, Seeds. 3.55, Mikes, 3.30-3.65, halves 1,35-1.55, Bloods 3.55-4.15, halves 1.80, lem. 2.15-4.05.

Pittsburg: 11 or., 1 lem. Nav. 2.50-4.80, Seeds. 3.25-3.40, lem. 3.20-3.85.

St. Louis: 10 or., 2 lem. Nav. 3.20-4.15, Val. 3.90, Mikes 3.20-3.65, halves 1.40-1.45, lem. 2.95-3.80.

April 21

New York: 34 or., 5 lem. Nav. 3.30-5.40, Seeds. 3.05-3.35, Bloods halves 1.90, Mikes 3.30-3.40, halves 1.25-1.50, lem. 2.60-3.75.

Philadelphia: 10 or., 2 lem. Nav. 3.40-4.90, Mikes 3.35-4.50, halves 1.60-1.75, lem. 2.50-3.70.

April 22

New York: 18 or., 2 mixed, 1 lem. Nav. 3.20-4.75, Val. 3.30-6.15, Sweets 3.55, Mikes 3.20-3.65, halves 1.35-1.45, Bloods halves 1.85, Tange. 3.50, halves 2.15, lem. 2.50.

St. Louis: 9 or., 2 lem. Nav. 2.45-4.35, Val. 2.70, Bloods 2.75, Seeds. 2.25-3.30, Sweets halves 1.50, Mikes 3.00, halves 1.65, lem. 2.10-3.25.

Baltimore: 2 or., 2 lem. Nav. 3.50-4.30, Bloods 3.25, lem. 2.80-3.90.

April 25

New York: 38 or., 3 mixed. Nav. 1.75-5.55, Val. 3.40-4.40, Sweets 3.55, Mikes 3.25-4.10, grapefruit 2.50, Bloods 3.45-3.80, lem. 1.40-4.05.

Cleveland: 12 or., 3 lem. Nav. 3.65-5.40, Val. 2.10-2.50, Seeds. 3.40-4.05, Rios, 3.45-3.80, lem. 2.60-3.45.

Boston: 25 or., 12 lem. Nav. 3.55-5.60, Seeds. 4.15, Bloods 4.60, lem. 70-4.05.

April 26

New York: 29 or., 2 mixed, 3 lem. Nav. 3.45-5.10, Val. 3.40-4.45, Mikes 4.20, Seeds. 3.30-3.50, Navelencias 3.85-4.70, grapefruit 2.55, lem. 2.40-3.15.

Boston: 21 or. Nav. 3.15-5.55, Val. 3.45-4.30, Seeds. 3.45-3.80.

SIR AAGGIE MEAD TOPS TOYON SALE—$9,250

(Continued from Page 594.)

BULLS

112, Toyon Tubie Sir Pietertje, April 1920; Hopland Stock Farm, Hopland, $250.

113, King Toyon Ava Mercedes, March 1920; Brooks & Peckham, $285.

116, Toyon King Ormsby Mead, Sept. 1920; M. D. Tognozzini, San Francisco, $310.

117, Sir Toyon Winifred Mead, Sept. 1920; W. D. McCann, $310.

122, Toyon King Walker Valdessa, April 1920; T. A. Work, $210.

123, Sir Toyon Neeltje Bonheur, May 1919; A. J. Molera, $335.

126, King Neeltje Mercedes, June 1920; M. D. Topnozzini, San Francisco, $210.

128, Toyon Reka King, Nov. 1919; T. A Work, $375.

130, Toyon Fobes Lad, May 1920; Dairy Delivery Co., San Francisco, $225.

131, Toyon Count Colantha, Dec. 1919; Dairy Delivery Co., $300.

119, Moxie Pearl Johanna, Aug. 1918; Bridgford Holstein Co., Patterson, $450.

121, Sunnyside Jesse De Kol 3d, Aug 1913; Geo. W. Wendt, $325.

132, Lulu Augusta Pontiac, Sept. 1918; T. A. Work, $210.

194, Ava Model Hengerveld 2d, Frank Hatch, $290.

138, Lill Black Nudine Fobes, Jan. 1919 A. J. Molera, $210.

137, Jetini De Kol Alban, April 1912 A. J. Molera, $300.

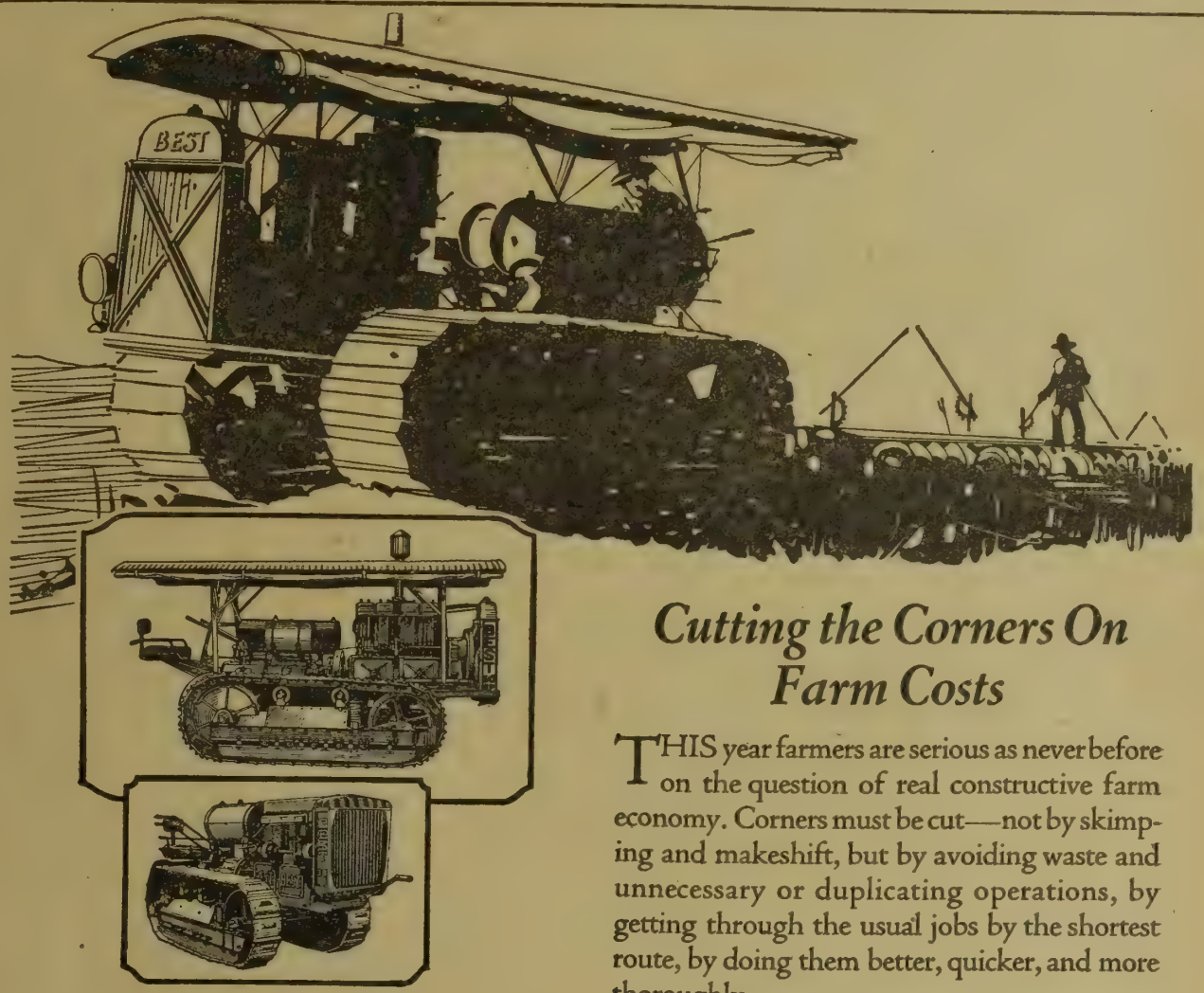
136, Parthenia Akkrum De Kol, July 1916; A. J. Molera, $385.

135, Toyon Ormsby Colantha, W. D McCann, $200.

WEATHER REPORT

San Francisco, Cal., April 23, 1921.

Stations	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	.59	44.85	41.68	60	42
Red Bluff	.36	25.80	22.87	86	44
Sacramento	.38	15.99	18.64	86	46
San Francisco	.15	22.64	21.03	76	48
San Jose	.12	14.18	15.84	80	42
Fresno	T	7.48	8.66	84	45
San Luis Obispo	.05	17.93	18.98	82	42
Los Angeles	.00	10.05	14.94	78	47
San Diego	T	4.54	9.42	72	47



Best Tracklayer Farm Tractors are built in two models: the Tracklayer "Sixty" and the Tracklayer "Thirty." The lower picture shows the "Thirty." Just above it is the "Sixty."

Tracklayer Tractors are *factory Built*—not assembled. Some of the accessories are bought, but the vital and important parts, including the motor, are built at the Best factory to fit perfectly into the Best proved tractor design.

Cutting the Corners On Farm Costs

THIS year farmers are serious as never before on the question of real constructive farm economy. Corners must be cut—not by skimping and makeshift, but by avoiding waste and unnecessary or duplicating operations, by getting through the usual jobs by the shortest route, by doing them better, quicker, and more thoroughly.

It is true that a *good* tractor is one of the farmer's greatest and most dependable helps in economic farming. Best Tracklayer Tractors, for instance, can be thrown into the fields and orchards at precisely the right time for maximum crop results. Soil preparation will be done in fast, unfaltering time and at the proper depths. The work will be thorough and uniform. You have saved time and money and hired help which is profit. When not in the field the Best can be put at a hundred and one jobs of belt work and save hired help and labor.

Your investment in a Best this season is doubly wise—because of immediate economies effected, and because it covers many years to come without thought of replacement. Best stamina, long-life and low operating cost have been established beyond any doubt.

Write at once for catalogs and full information, and the name of our nearest dealer.

C. L. BEST TRACTOR CO.
San Leandro California

BEST TRACKLAYER TRACTORS

The American Housewife—Insures the Success of Your Orchard

AN OPEN LETTER TO FRUIT GROWERS:

Do You Realize—

- that there are fifteen million -- and more -- of good housewives east of the Rockies, feeding 80% of one hundred million people?

- that every one of these housewives is striving to improve the dietary of her household, and increase its wholesomeness, consistent with economy?

- that the fruit foods you produce can be used green, dried or canned as staple food in innumerable ways, ECONOMICALLY, and at a SAVING IN LABOR?

- that every one of these housewives has an intense, romantic interest in California and your products?

- that of these fifteen million housewives, the great majority do not employ any one of the numerous California Fruit Foods excepting on rare occasions, and many never?

- that not one out of a thousand of our very best housekeepers is AWARE OF THE INNUMERABLE uses in which every one of our staple California Fruit Foods can be employed economically, as well as wholesomely?

In our own household, consisting of the writer, Mrs. Bergtholdt and half a dozen of assorted sizes and ages, Mrs. Bergtholdt employs annually on the family bill of fare, approximately fifty pounds each of Almonds and Walnuts, ten gallons of ripe olives, several hundred jars of jams, jellies and preserved fruits, as well as 150 pounds of Raisins, Prunes and other dried fruit, ten to fifteen boxes of Apples, eight to ten boxes of Oranges, four or five boxes of Grape Fruit, and throughout the Summer and Fall months all that we can consume of other fruits in season. She does this economically. She does this at A GREAT SAVING IN LABOR. Every article used is not alone NUTRITIOUS and WHOLESOME, but APPETIZING.

Do you realize that a book, "THE STORY OF CALIFORNIA FRUIT FOODS," placed in the hands of every housewife can be made the connecting link that would eventually make the 120 million people in the United States and Canada daily consumers of the products of your orchard?

THIS BOOK, EDITED BY THE BEST EDITORIAL WRITERS, HANDSOMELY ILLUSTRATED, AND CONTAINING INNUMERABLE RECIPES COMPILED BY THE BEST CHEFS WOULD NOT ALONE BE INTENSELY INTERESTING AND INSTRUCTIVE, BUT WOULD BE AN INDISPENSABLE NECESSITY TO EVERY HOUSEWIFE.

This book should be printed in several foreign languages for the purpose of developing the consumption of your fruit products among the foreign born people of our own land who are economically prosperous, and to be used also in exploiting the consumption of your fruit products in the markets reached by the export trade.

Every kind of fruit and nuts grown in your orchards should be given space in this book, according to the volume of the individual branch of the industry.

The initiative should be taken by, and this proposed plan be put under way by your various co-operative fruit marketing and fruit manufacturing organizations.

The organization to put this over should be comprised of representatives from the organized branches of the industry.

Inasmuch as every man, woman and child in California will be directly benefited from the assured prosperity of your orchards, a drive should be made to enlist the financial support of every commercial body in every city, town and county in the State.

SOME OF THE MARKETING ORGANIZATIONS ARE PUTTING FORTH COMMENDABLE INDIVIDUAL EFFORTS IN ADVERTISING YOUR PRODUCTS. THESE SHOULD BE CONTINUED. THIS, HOWEVER, IS NOT SUFFICIENT.

DO YOU REALIZE, MR. FRUIT GROWER, THAT THE AMERICAN HOUSEWIFE IS RIGHT AT YOUR DOOR, READY AND WAITING TO CONSUME YOUR PRODUCT IF YOU WILL BUT SHOW HER HOW TO DO IT? "THE STORY OF CALIFORNIA FRUIT FOODS" IS THE CONNECTING LINK. DO THIS AND WITHIN TEN YEARS YOU WILL HAVE CREATED A DEMAND THAT EVERY ACRE ADAPTED TO FRUIT GROWING IN CALIFORNIA, PLANTED TO FRUIT, CANNOT SUPPLY.

Done collectively by all branches of the industry, the burden of cost will be infinitesimal.

The increased proceeds each year from the sale of your products will amount to more, by several times, than the expense of the undertaking.

The value of your orchard properties and every acre of fruit land in the State will, in ten years, be enhanced many, many times the expense of the undertaking.

Every factor engaged in the distribution of your products would be an agency to co-operate in placing a copy of this book in the hands of every housewife.

The funds can be provided, the work under way and the distribution commenced within a year, so that you can begin to realize from the benefits of the first distribution of this book on your crop of 1922, and within a period of four years, at most, a copy of this book can be placed in the hands of every housewife.

MY MESSAGE TO YOU IS THIS: IF YOU WILL EXERCISE THE INITIATIVE AND THE COURAGE TO CARRY THIS PLAN OUT AND PUT IT OVER RIGHT, A DEMAND FOR YOUR PRODUCTS WILL BE CREATED THAT WILL ABSOLUTELY AND PERMANENTLY INSURE THE PROSPERITY OF THE FRUIT INDUSTRY.

There never was, nor is there now, an over-production of fruit; and there never will be if you employ THIS MEASURE OF CONSTRUCTIVE COMMON SENSE in instructing the people of America in the merits and use of the products of your orchards.

When the writer made his first venture in fruit growing on an investment of seventeen summers, a roll of blankets and a husky desire for a job, the old pioneer who then employed him punching mules advised him to keep out of the fruit business; that there was an over-production. I have heard this reiterated many times since. During these years, the production of California fruit has increased tenfold.

My friends called me optimistic in the recommendation that I have made for their planting and in the advice that I have given. An optimism, however, that has led to the planting of several thousand profitable orchards throughout California, IS BASED ON SOUND LOGIC.

I am not writing this to sell trees. Every word of this message COSTS US GOOD MONEY. The success of the California fruit industry has been and IS MY ONE WORK, and because we, ourselves, aside from our nursery business and fruit shipping, have over 1,300 acres in orchard.

It is up to you, together with ourselves, to put this over.

Take this up for action at your Farm Bureau. Write the editors of your horticultural publications. Write the management of the marketing organizations with which you are connected. Urge them to co-operate with you and with every factor in the fruit growing business to put this over. Put your shoulder to the wheel, and keep it there -- don't let go -- hang on -- pull hard with me until we get an organization to work that will put this over.

For many months I have discussed this project with my wife. She has named it the "Bergtholdt Plan." Talk it over with your wife.

I WANT 25,000 OF YOU FRUIT GROWERS TO WRITE ME WHAT YOU THINK OF MY PLAN. YOUR COMBINED 25,000 OPINIONS ON THIS VITAL ISSUE, COMPRISING THE BEST THOUGHT OF 25,000 INTELLIGENT FRUIT GROWERS, WILL, BOILED DOWN, FURNISH IDEAS AND SUGGESTIONS INVALUABLE TO THE ORGANIZATION THAT WILL BE CREATED TO PUT THIS OVER.

If you will do this, and by this means employ the connecting link -- "THE STORY OF CALIFORNIA FRUIT FOODS" -- between your orchard and ours and the American housewife -- your success in fruit growing, and ours, will be assured.

So GET BUSY.

J. E. Bergtholdt
Secy. and Mgr.

The Silva-Bergtholdt Company
Newcastle, Calif.

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — May 7, 1921 — No. 19

UNIVERSITY OF ... JUN ...

Just Out and Waiting for the Early Worm

See "Brooding by Thousands" by Mrs. Koethen on Page 609

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

Vol. LVI No. 19

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard	D. F. Reichard
J. W. Mills	J. B. Neff
Fred M. Reed	Louis B. Stanton
G. E. Gordon	M. E. Bemis
A. R. Gould	E. L. Koethen

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Copy for change of advertisement must be in the office on Saturday preceding date of issue. New advertising copy must be in the office Tuesday preceding date of issue to insure insertion.

Advertising rates furnished on application

The Sacramento office is Room 210 Ochsner Building. All mail pertaining to livestock should be addressed to our Sacramento office.

The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

Member

Eastern Offices:
R. E. Costello, Steger Building, Chicago, Ill.
S. E. Leith, Fifth Avenue Building, New York
C. A. Cour, Globe Bldg., St. Louis, Mo.

Member Audit Bureau of Circulations.

Entered as second-class matter February 12, 1900, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Saturday, May 7, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

The little fellows waiting for the early worm on the cover are representative of one of the biggest small businesses along productive lines in California. They mean something over $50,000,000 annually to the state. The war and reconstruction have combined to place the industry in a rather embarrassing position, but it is pulling out, and the story, "Brooding by Thousands," written by Mrs. Koethen, gives an idea of how some of the Cultivator's subscribers are staying by the producing game and another fall will see hundreds of carloads shipping to New York and other large centers.

* * *

Nearly 20 years ago farmers of Pomona Valley found themselves unable to make satisfactory arrangements with the telephone system and organized a mutual telephone company. A few items regarding that organization, reminiscences of those connected with it, will be given next week in an account of one of the first and most effective farmers clubs ever organized in Californa. But there happens to come to our desk from the California state railway commission a bit of information as to the present condition of this cooperative organization of a score of years. The commission reports: "The Pomona Valley Telephone and Telegraph Union operating in Pomona, Claremont, Chino and vicinity, reports to the railroad commission for the year 1920 that its operating revenue was $107,466.31; operating expenses $90,447.16, giving a net operating revenue of $17,019.15. Miscellaneous non-operating revenue amounted to $81.31. Interest, rent, taxes and other deductions totaled $12,764.32. The net corporate income for the year was $4,336.14. The surplus at the beginning of the year amounted to $3,000. Miscellaneous additions to surplus for 1920 amounted to $6,663.86. The company declared dividends of $14,000 during the year."

* * *

The quotation from the address of Prof. Jaffa may have a forbidding appearance to some readers. It is a bit long on "vitamines," "anti-scorbutics," "anti-neuritics," "trypsins" and a number of other extractions from the dictionary. But we Californians are in a campaign to inform the world how to eat—California foods. So we must post up.

* * *

An international fruit show is scheduled to come off in Chicago in October. It is reported that "more than 100,000 fruit men of the United States are back of this show." We should see such a gathering of fruits as has never been brought together. Dispatches say: "Orchardists throughout the entire North American continent are whole-heartedly supporting the exposition. Among the organizations that have approved the plan are: California Fruit Growers Exchange, Oregon Cooperative Fruit Association, both associations of the California raisin and prune growers, Virginia Fruit Growers, Inc., Florida Citrus Exchange, Ozark Fruit Growers Association, National Grape Growers, Peach and Fig Growers Association, Western New York Cooperative Association, Skookum Packers of Washington and Indiana Fruit Growers. Horticultural societies, manufacturers of orchard implements and other organizations allied to the fruit industry also indorse the plan. The National League of Commission Merchants and the Western Fruit Jobbers will help make the show a success." It is seen that California organizations loom large in the plan, though apparent effort is made to reduce "California" slightly by leaving off the names of some of the organizations

MUST HAVE LOWER RATE

California citrus growers will pay over eight and a half millions of dollars more for transportation on this year's citrus crop than on that of last year. That is, they will providing the fruit will sell for enough so that it may be shipped at all. The recent 33 per cent advance in freight rates means that California citrus fruits will pay out in transportation charges approximately 40 millions of dollars and it has proven a serious blow to the industry. It will prove its death, at least the ending of the lemon industry, unless relief may be had.

Relief was asked of the railway officials. It was refused. The interstate commerce commission was appealed to by the California state legislature through a resolution introduced by Senator King. A hearing has been granted and Special Representative Henry J. Ford is in the state. The hearings began last Tuesday with the citrus interests presenting their case. The initiative has been largely with the citrus interests, yet as present rates on practically all Coast fruit and vegetable products are proving serious handicaps, the effort will be a united one to secure more just treatment.

Under the old time "All-the-traffic will-bear" regime a very high freight tariff was placed on all perishable high priced products. This original high price has now been pyramided by two percentage increases in a way to increase the injustice. President Teague brought this out most forcefully in his testimony before the commission's representative. Mr. Teague demonstrated with tables as to producing costs and, with other tables as to shipping costs furnished by Mr. Dezell, that the net loss to lemon producers has been $1.26 for every box shipped—this loss not including interest on investment, neither depreciation on trees.

It is to be hoped that the commission may assemble the facts presented and act quickly, for the lemon producer has clung to false hopes so long, meanwhile bearing up under continued loss, that his strength is exhausted and already the ax has been laid at the root of many an orchard which has taken years to produce.

STATE OF CALIFORNIA

Executive Department
Sacramento
Forest Protection and Fire Prevention Week

Proclamation

Whereas, The forests of California, with proper care and protection from fire, will supply by their recurring growth for generation after generation the needs for timber of all of our citizens; and

Whereas, During the summer of 1920, forest, brush, grass, hay, and grain fires devastated 415,275 acres in California, causing a direct monetary loss estimated at $983,562; killing young trees the value of which 50 years hence, can not be estimated; destroying pasture that should have fed hundreds of cattle, sheep and horses; denuding watershed areas of growth needed to conserve water from winter storms for summer irrigation and electric power purposes; leaving barren waste in place of sylvan beauty; and

Whereas, With our growing population our forests are becoming more valuable, both for timber and for the enjoyment and recreation of our populace and tourists from other states; and

Whereas, By reasonable care and protection this great loss can be greatly reduced, our forests preserved, our hay, grain, and pasture conserved,

Therefore, I, William D. Stephens, Governor of the State of California, do proclaim the week, **May 22 to 28, 1921, Forest Protection and Fire Prevention Week,** and call upon all of the citizens of California to pledge themselves to exercise watchful care against the starting of fires, either in forest, pasture, or grain areas and to extinguish them promptly when by mischance they do occur, knowing that so to do is to perform one of the most important services that can be rendered to the present and future welfare of our State.

Let teachers observe the week by impressing upon our boys and girls this duty.

Let ministers instruct their congregations.

Let associations such as the Boy Scouts, Farm Bureaus, patriotic and benevolent societies, Chambers of Commerce, Women's Clubs, and the like join in this crusade to protect ourselves and our posterity.

Let the railroads take all steps needful to prevent or extinguish fires along their rights of way.

Let lumbermen leave no fire traps after logging.

Let fishermen and all who use the forests or countryside for health or recreation see to it that their fires are kept safe and that carelessness does not endanger that which they enjoy.

Let all citizens adopt as their slogan for this and succeeding years, **"Help Prevent Fire,"** and thus preserve the beauty and wealth of our beloved State.

(SEAL) WM. D. STEPHENS, Governor.

ADVERTISE OUR FRUITS

J. E. Bergtholdt suggested in the last issue of the California Cultivator that he would like to hear from 25,000 fruit growers as to what they think of his plan of telling all the world "The Story of California Fruit Foods." He wants this book to contain a world of information about the products of the world's most famous fruit producing state. His ambition is so great that he wants these 25,000 letters which he thinks will contain boiled down ideas and suggestions invaluable to the fruit interests. Not only does he want the letters but he is suggesting that farm bureaus and other farm organizations discuss, suggest and help put over the greatest campaign yet contemplated for making known the real value of California fruit foods. Mr. Bergtholdt has the idea that the demand can be created which will not only wipe out any surplus now in canntries and storehouses but will increase until other acres must be brought under most intensive culture to produce the world's finest. The Cultivator takes pleasure in adding to the information regarding the healthfulness and even necessity of using fruit foods more liberally in our diet by quoting from an address made at Claremont by Prof. M. E. Jaffa. This address appears on third page of this issue. It contains data which will, we believe, be surprising even to enthusiastic California fruit growers and we believe that address should be largely drawn upon in conveying to the 15,000,000 housewives of the country the information which Mr. Bergtholdt wants packed into "The Story of California Fruits."

WELL ADVERTISED

Mr. Bergtholdt's idea is to present a scheme which will aid all campaigns now being conducted in advertising California products. California farmers are spending far more than a million a year in advertising California products in Eastern magazines. The citrus growers started the campaign nearly a decade ago and they have thrown millions into it. The raisin growers, the walnut growers, prune, apricot, peach, almond and olive growers have each shown the helpfulness, attractiveness and even necessity of their own products in every well regulated diet. Especially to be admired is the Sun-maid raisin campaign. It has supplemented its magazine full page advertising in natural colors with fine hangers, window cards, circular material and, perhaps most effective of all, illustrated booklets and recipe booklets. Here is a fund of information taken from its most recent publication:

"The raisin is one of the most important of the energy producing foods of man because of its high percentage of carbohydrate. This carbohydrate, which forms 75 per cent of the edible portion of the raisin, is in the form of grape sugar or fructose, and levulose, both of which are practically predigested in nature's laboratory and therefore ready for assimilation. One pound of raisins has an energy producing food value of from 1,550 to 1,605 calories, or approximately 100 calories to each ounce of the edible portion. Its protein value, according to analyses of the most noted dietitians, is 2.6 per cent, and the percentage of its acids, which are important in the process of digestion and assimilation, 2.7 per cent.

"The value of the raisin as a food is by no means confined to its percentage of carbohydrate, for analysis of the ash shows that it is rich in many of the elements essential to health. The raisin contains calcium, magnesium, potassium, sodium, phosphorus, chlorine, sulphur and iron in form ready for prompt assimilation. Raisins form an important part of the dietary in some of the leading health institutions of the country and in several noted sanitariums are prescribed specifically in certain cases. The raisin is the richest of dried fruits in the mineral elements of iron and phosphorus and but very few of the fruits and vegetables contain a larger portion of organic iron, lacking to greater or less extent in many American dietaries."

Such material as this will help us to greater appreciation of the value of the raisin and, we believe, induce us to say: "It tastes like more."

California Cultivator

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Fruits and Nuts: Then and Now

An Address by Prof. M. E. Jaffa Before Claremont Pomological Club

The Claremont Pomological Club held its 25th anniversary celebration and memorial to its founder, Dr. A. J. Cook, last Saturday. Review of the club and of the life of Dr. Cook will be given in next week's Cultivator.

One of the addresses given, not connected with the history, was made by Prof. M. E. Jaffa. Much interest has been created by investigations during the past few years as to certain principles in nutrition which are in effect that chemical analysis may not show real value of all foods, for there is a mysterious something in milk, eggs and other foods requisite to highest physical development. Professor Jaffa has been making investigations and reports as to the advantages of fruits and nuts in this particular.

We quote so freely from the address that it will be given in part this week and the remainder next week.

THE nutritional knowledge of fruits 25 years ago might well be summarized by quotations from the introduction and conclusion, respectively, of Bulletin 107, Office of Experiment Station, U. S. D. A., published in 1901 on Nutrition Investigations Among Fruitarians, at the University of California.

Introduction. "Fruit is considered by the majority of persons as an accessory or supplementary food, eaten for its agreeable flavor or supposed hygienic or medicinal virtues, rather than as a staple article of diet. Perhaps for this reason very little scientific study has been given to fruit as compared with the investigations which have been carried on in connection with other more common food materials. Chemical analysis has shown the comparative composition of fruits, but our knowledge of their dietetic value, digestibility, and comparative cost as sources of nutrients is far from being complete. In view of these facts it has been thought best that California should undertake, as her share of the nutrition investigations made under the auspices of the United States department of agriculture, studies of the nutritive value and digestibility of fruit. Perhaps no state in the Union is in better condition to exploit such problems. No month in the year finds the California market without fresh fruit of local production, and many people are to be found in the state who make this article an important part of their dietary."

Conclusion. "No extended comments can be made on these results, because, as before stated, there are few, if any, similar investigations at hand for comparisons. Further investigations along this line are needed."

The further investigations suggested were carried on in 1902-3 at the University of California with most satisfactory results, and two paragraphs from the summary would seem quite pertinent:

"Although it is undoubtedly advisable to wait until more data have been gathered before making definite statements regarding the digestibility of different fruits and nuts, enough work has been done to show that they are quite thoroughly digested and have a much higher nutritive value than is popularly attributed to them. In view of this it is certainly an error to consider nuts merely as an accessory to an already heavy meal and to regard fruit merely as something of value for its pleasant flavor or for its hygienic or medicinal virtues.

"As shown by the composition and digestiiblity, both fruit and nuts can be favorably compared with other and more common foods. As sources of carbohydrates, fruits at ordinary prices are not expensive; and as sources of protein and fat, nuts at usual prices are reasonable."

It will be noticed that only the carbohydrates of fruits are emphasized, no mention being made of any other nutritional value. In order to thoroughly understand how much more complete is our knowledge of fruit and nuts today than it was in 1902 it will be necessary to briefly review the progress nutrition has made since that year.

Fruits and nuts should be considered as dietary essentials, not as food accessories or luxuries. They therefore should be classed, nutritionally, as important as other staples ordinarily found in the menu.—Prof. M. E. Jaffa.

At the close of the 19th century our evaluation of a diet was based on content of protein, content of fat, content of carbohydrates.

If a diet contained sufficient protein, in addition to the necessary fat and carbohydrates, to meet the caloric requirement it was considered well balanced, without regard to the sources of the respective nutrients. Today we have a different yardstick and measure quite differently. We realize, as we did a quarter of a century back, that calories are vitally necessary, but we pay more attention to the sources of the required calories. This is particularly true in the case of the young and growing child and of the invalid convalescent.

Perhaps the only theory of nutrients which has not been affected by later ones is as to the starch or carbohydrates of our foods. The same opinions which were held years ago with reference to the role of starch in nutrition are valid today. Not so, however, with reference to any other nutrient. We know today that proteins from different sources have different biologic values. The proteins from cereals, fruits and vegetables alone are not adequate for optimum growth and development. These proteins lack sufficient amounts of certain building stones or units of structure, chemically called amino acids, which are well supplied by animal protein, such as that of meat, milk and eggs. It is therefore absolutely necessary that there be a liberal amount of animal protein included in the diet of the young, growing animal.

The newer knowledge of the proteins has only been obtained during the past, say, 15 years. The initial step in the great progress that has been made in the realization of the biologic values of the different proteins was taken in 1901 when Cohnhein discovered the ferment erepsin in the small intestine. Previous to that date it was considered that the last ferment to act on the proteins in the digestive tract was trypsin. It is of interest to note that physiologists were unable to bring about artificially complete digestion of the proteins with trypsin alone. It was a simple matter to conduct artificial digestion experiments with pepsin, which more or less corresponded to what went on in the stomach, but in the case of trypsin it was different. It was known that digestion in the small intestine was completed within a reasonable length of time, but in the case of artificial digestion experiments weeks were required to accomplish the same result with trypsin. This gave rise to the theory that the proteins were not hydrolyzed in the intestines into the simple cleavage products such as amino acids or units of structure, but were absorbed from the intestines as peptones and albumoses. These are protein compounds intermediate between the complete protein as ingested, and the cleavage products, the amino acids. The finding of the specific enzyme erepsin in the small intestine has greatly changed the views concerning intestinal digestion and protein absorption as well. Erepsin breaks down with great speed the partially converted proteins or peptones, the products of pepsin and trypsin digestion, into the units of structure, or amino acids. In other words, it is quite clear how different animals can build up their respective typical proteins as results of the cleavage or hydrolysis of the same identical protein.

Not only have great strides been made with reference to the fuller appreciation of the value of proteins but also in connection with the biologic values of different fats. A quarter of a century ago all fats were considered of equal nutritional value and their main function was to build fatty and nerve tissue or yield energy, and practically no other nutritional property was credited to them. Today the situation is entirely different and we now know that all fats have not the same biological value, that there are two food fats, that of milk and egg yolk, which stand out most prominently as far as nutrition is concerned, in that they both contain the so-called fat-soluble vitamine. This is a dietary essential at present not identified but absolutely necessary in any well balanced diet for old or young, and particularly the latter. There are many other edible fats which are the equal of butter fat and egg yolk fat as far as caloric value is concerned but they are not the rich source of this dietary essential as is noted for the other two fats.

One of the most important phases of the newer knowledge of nutrition gained during the last 20 years relates to the importance of mineral elements in nutrition.

For many years it was considered that as far as the mineral matter was concerned almost any diet was adequate and very little attention was, therefore, paid to the role of the mineral ingredients. Today, however, as a result of nutritional studies we note that our previous views and opinions were not sound and that more consideration should be given to the mineral matter of the diet than was previously supposed necessary. It is now known that cereals alone are deficient in certain minerals such as sodium, calcium and chlorine, required for growth and normal development in the young animal. Again we know that as a result of the work of recent years the mineral matter of our foods may be divided into two main groups, the "acid forming" and the "base forming." It is absolutely necessary, according to the best authorities, that there be a generous representation in the diet of both these groups in order that the mineral equilibrium of the body should not be altered and the alkalinity of the blood be not disturbed.

The chief foods which furnish the "acid forming" mineral elements are cereals, meat and eggs, while those supplying in the main the base forming minerals are the fruits and vegetables.

Mention has been made of milk fat and egg yolk fat containing vitamines. During the past ten years much work has been done by leading nutrition investigators in connection with studies of vitamines and their role in nutrition. The question the layman might naturally ask is, "What is a vitamine?" It has been known for many years that there exist in fresh food some substances which are essential for the prevention of scurvy. These are called by some "anti-scorbutic substances." Beriberi is another deficiency disease which can be prevented by a diet adequate in anti-neuritic substances, so that we have two substances, anti-scorbutic and anti-neuritic, present in foods which are evidently curative for these two diseases. Naturally there was a desire on the part of many investigators to quantitatively separate these materials from the foods. Funk and his collaborators, however, devoting much time and energy to the problem, succeeded in 1912 in devising a method which led to a product of high physiological activity and curative powers. To this preparation Funk gave the name "vitamine," from "vita," life, and "amine" meaning a substance essential to life.

(To be concluded next week.)

Agricultural News Notes of the Pacific Coast

Northern California

Sebastopol apple growers report very heavy bloom.

Nevada County reports less damage to pear crop from frost than was at first feared.

Experimental plantings of cotton will be made near Redding, Shasta County, this year.

Napa County boys and girls have organized a club for the commercial growing of popcorn.

The postoffice in Feather River Canyon, formerly known as Cedar Glenn, is now Tobin.

Santa Clara County Farmers Union will hold its annual picnic at Odd Fellows Home, Saratoga, June 11.

The poultry housing and feeding demonstration at Hayward, Alameda County, is ready for operation.

El Dorado County farm bureau has been operating a cooperative meat packing plant since February.

Three farm bureau centers in Napa County are now enrolled in a meat ring which kills and distributes meat to members.

The entire lot of 180 hogs offered at auction by the Durham farm center was secured by a local buyer at $9.25 and $9.40 per hundred.

The Solano County farm bureau has appointed a committee to look into the feasibility of building elevators for bulk handling of grain.

The county horticultural commission has distributed a large amount of gopher poison in Sonoma County in a concerted drive against the pests.

The California Farm Bureau Exchange has formed a permanent body with J. A. Teagarden, Auburn, president, and B. D. Irvine, Brawley, Secretary.

Chico, Butte County, reports more than 850,000 sacks of rice, unharvested because of fall and winter rains, has now been gathered into valley warehouses.

Farm bureau meetings in Glenn County: Codora, May 9; Orland, 11; Jacinto, 13; board of directors, Willows, 14; Capay, 18; Plaza, 20; Grapevine, 25; Larkin, 27.

The California Prune and Apricot Growers, Inc., is pushing its membership campaign. 23,700 acres under control of the association is the present aim of the management.

Rice millers of Butte County have filed joint complaint with the state railroad commission against the railroads to recover excess charges made since 1917, running into hundreds of thousands of dollars.

Quincy, Plumas County, reports organized movement to secure early building of a North Fork highway through Feather River Canyon. Promotion units are being formed in towns along the route.

County Horticultural Commissioner H. H. Sherrard reports: "The recent survey of Tuolumne County shows that there are at present 713 acres of apples, 124 acres of pears, 94 acres of peaches, 65 acres of walnuts and chestnuts, 257 acres of clover, 373 acres of alfalfa, 72 acres of potatoes and 36 acres of berries. This survey has been quite thorough and these figures are about as accurate as can be secured."

Central California

April 29 and 30, Raisin Festival at Fresno.

Stanislaus County has 413 acres planted to olives.

Sheep growers of Livermore Valley report good demand for lambs.

Pajaro Valley Poultry Show was held last week at Watsonville.

Livermore Valley stockmen are beginning to send grass cattle to market.

The entire bond issue of the Modesto irrigation district has been sold at $98.10.

A branch office of the Fresno County farm adviser has been opened in Selma.

The reorganized California Milk Producers Association has over 1,800 dairymen stockholders.

Farmers at Patterson, Stanislaus County, report that they are unable to get help for haying.

The state senate has passed a bill authorizing establishment of a state normal school at Stockton.

The Stockmen's Protective Association held its annual meeting at Livermore, Alameda County, May 1.

The Tulare cannery of the California Cooperative Canneries will not operate this year if rumor is correct.

County Agent Jungerman of Stanislaus County is urging all growers of peas to keep close watch for aphis.

Kern County has planted nearly 5,000 acres to vineyards this season; 3,276 acres are planted to Thompson Seedless.

Announcement is made that the California Peach Growers is to make a first payment of $50 per ton on the 1920 fig crop.

Manager Young of the Grand View packing house in Tulare County estimates that his house will send out 60 carloads of Valencias.

J. McPhaill of Visalia has been appointed cattle brand inspector for Tulare County, representing the state office for cattle protection.

The farm bureau of Monterey County has arranged a schedule of wages for farm laborers. General farm labor is $2.50 per day of ten hours.

Tulare County members of the Poland China Breeders Association held a meeting and banquet at Tulare recently and arranged for exhibits at the fall livestock show.

Farm bureau meetings in Kern County: Delano, May 9; Wasco, 11; Rio Bravo, 12; Edison-Fairfax, 13; Mountain View, 16; Pond, 18; Inyo-Kern, 19; Rosedale, 20.

The Stanislaus County members of The California State Irrigation Association held a special meeting at Mcdesto, April 30, to discuss both irrigation and power situations.

Horticultural Commissioner Beers of Merced says that it will be necessary to replant most of the cantaloupe crop in that county because of the frost damage to the young plants.

Local meetings of the San Joaquin County farm bureau will be held at Nile Garden, May 6; directors meetings, Stockton, 7; Lockeford, 9; Tracy, 10; Linden, 11; Douglas, 12; Escalon, 16; Ripon and Live Oak, 17; Bruella, 18; Summer Home, 19; traveling conference, 23-28; Calla, 27.

Southern California

Valencia Orange Show, Anaheim, May 17-22.

Palo Verde has been given a 25 per cent freight reduction, effective May 12.

Carpinteria, Santa Barbara County, held its eighth annual flower show, May 3.

Squirrel poison campaign has been very successful in San Luis Obispo County.

Dates of the San Fernando Valley Fair and Market, Owensmouth, September 14-17.

Santa Barbara County farm bureau held its annual farm picnic at Santa Ynez, April 30.

Colton, San Bernardino County, will hold its first annual Community Festival, May 23-28.

Ventura County beekeepers report prospects for very light crop because of deficient rainfall.

Orange County farm bureau will hold its annual picnic at Orange County Park, May 14.

The Riverside County farm bureau has approved a schedule of wages for orator demonstrations.

The San Fernando Valley Fair and Market committee is working on its premium list for the fall fair.

San Bernardino and Imperial Counties have been making concerted fight against squirrels and gophers.

Burning of a large woollen mill at Long Beach caused property loss of hundreds of thousands of dollars.

One cheerful aspect of the April frost is the killing back to the roots of Johnson grass in several localities.

Imperial Valley feeders are bringing in large numbers of cattle from dry sections of Arizona and New Mexico.

Apricot growers of Orange County are generally signing up with the California Prune and Apricot Growers, Inc.

The San Fernando Valley Walnut Growers Association held its annual meeting at its warehouse, Monday, May 2.

The Inman bill prohibiting Japanese from fishing in "deep waters" off the coast of California has been passed by the legislature.

The Riverside County farm bureau has approved a schedule for wages for farm labor. Unskilled labor will receive 35 cents an hour.

Beekeepers of Orange County held a field demonstration Saturday, April 30, under direction of Prof. Ralph Benton of the state college of agriculture.

Choice recleaned Limas are selling at $5.50 to $5.60; choice recleaned Baby Limas, $4.75 to $5.00, with growers hoping that the bottom has been reached.

Imperial County farm bureau meetings: Seeley, May 9; New River, 10; Lantana, 11; Westmoreland, 11; Mesquite Lake, 12; Jasper, 13; McCabe, 18; Mount Signal, 19; East Side-Sunset, 20; Alamitos, 23; Alamo-Verde, 25; Central-Highline, 26.

Philo Jones estimates 24,000 acres of grain in the Brawley district in a strip running from three miles south of Brawley to seven miles north and extending across the valley. Light yield is expected on land planted last year to milo and cotton.

The Coast and General

Verde Valley cattle owners are planning a big round-up to move the bulk of their cattle to the Mogollon rim. The drive will start about May 15.

An effort is being made to have the miners in the Globe district of Arizona employed on the new Superior-Miami road which is to be built under the direction of the state highway department.

Dwight B. Heard, publisher of the Arizona Republican, and prominent in agricultural and civic matters, is representing the Arizona Cotton Growers Association in Washington in an endeavor to have a tariff placed on Egyptian Long Staple.

Experiments are being continued at the experiment farm at Mesa, Arizona, to determine the feed value and use of whole cotton seed as feed for fattening steers. Alfalfa hay and silage are used for roughage.

W. S. Stevens, president of the Arizona American Egyptian Cotton Growers Association, and Charles M. Morgan, secretary of the Pima Cotton Growers organization committee, were appointed delegates to the cotton conference at Oklahoma City.

B. A. Fowler, organizer of the Salt River Valley Water Association and considered to be more largely responsible for the building of the Roosevelt Dam than any other man, died recently at Long Beach, California. He was president of the Water Users Association for a number of years and was very active in the development of agricultural interests in the Salt River Valley.

Range conditions throughout northern Arizona are showing some slight improvement, due to recent rains and snowfall. A recent rain has also helped range conditions in the lower valleys to some extent. In Santa Cruz County range conditions are reported as being poor and some loss of cattle. Fewer cattle on the ranges throughout some of the dryer districts is favorable.

State Game Garden Prochaska of Arizona is making an effort to keep the White Mountain reservation open for fishing and camping in spite of the recent ruling of the Indian department. The White Mountain section has become one of the best known of the Arizona summer resorts and many will feel a distinct deprivation if they are barred from spending a few weeks in this country.

Some rain and snow has fallen in the northern part of Arizona but not sufficient to be of very much benefit to ranges. However, conditions on the whole are more favorable. The water supply in all parts of the state is inadequate, particularly in the southern half. Some cattle are being moved across the Mexican border where better pasture is available. The ranges in Coconino County are said to be improving.

A preliminary report has been submitted by the U. S. reclamation service on the feasibility of the San Carlos Dam on the Gila River. The estimated cost is something under ten million dollars. Electric power to the extent of 6,500 horse power will be developed. This dam will form a reservoir sufficient for water to irrigate 148,000 acres. It is hoped that congress will see fit to appropriate money for the building of this dam.

Brooding by Thousands

By Jean A. Koethen

NOT every one would undertake to brood 2,000 chicks at once around one brooder stove. There are those, indeed, who say it cannot be done without great loss, but it takes a woman to attempt the impossible, and Mrs. M. L. Sutherland of Buena Park has not only succeeded in it once but is doing it again.

Before she and her husband and her daughter and son in law, Mr. and Mrs. Harry Hughes, moved to their ten acres on Anaheim Road, Mrs. Sutherland, with the help of her family, had kept chickens in a small way—say six or seven hundred hens in a flock—in the city of Los Angeles for 20 years. One learns a good deal if one keeps chickens intelligently for 20 years, and Mrs. Sutherland felt at the end of that time that she was ready to work on a bigger scale. When the family moved to the ranch in 1917 they brought along 480 hens. In a year the profit on eggs laid by these hens was $1050, besides $225 from the sale of culls.

A Profitable Year

On April 8, 1920, 2100 chicks were put in the brooder house. From this lot of chicks an even thousand pullets went into the laying house. When they were five months and ten days old the first eggs were found in the nests. The laying mash was immediately taken away and the pullets kept on a maintenance ration till the end of the sixth month, when they could no longer be kept from laying. From this time on they were fed heavily and the eggs produced in November paid their feed bill and a little more. In December the profit from the eggs of 985 pullets was $400, a labor income of $200 apiece for Mrs. Sutherland and her daughter, who had done practically all the work. In January the pullets went into a six weeks' molt and receipts fell off, the egg yield dropping to 100 eggs a day, but the average production for February was 525 eggs per day, yielding a net income of about $150.

The careful record kept by Mr. Hughes, who is a silent partner in the enterprise, shows that last year, in spite of the high price of feed, it cost exactly $1.17 to bring each pullet through the first six months to laying maturity. This includes the cost of the chicks.

In the Brooder

This year Mrs. Sutherland got her 2100 chicks into the brooder house on the 15th of February and on the first of March when I saw them, they were a wonderfully husky looking bunch,—not a sick or droopy one to be seen except half a dozen which had had their toes picked and were confined to the hospital. The "hospital," by the way, is just a wire cage or basket with its sides covered with white muslin, and stands in the sunniest, most comfortable place in the brooder house. The chicks in it are not worried by being confined in strange quarters. They hear the voices of their brothers and sisters outside and have their accustomed food. They are simply protected from attack.

"Last year," said Mrs. Sutherland, "we had a terrible time with tail picking when the chicks were a month old. I finally hit on the expedient of painting the picked places with a paste made of lamp black and kerosene. The chicks would not pick a blackened place, and in this way we controlled them. To prevent toe picking I keep the brooder house as dark as possible the first week, except at meal time, but sometimes they will pick in spite of everything."

The first week the chicks were in the brooder Mrs. Sutherland slept on a cot in the playroom so that she could watch the stove and keep the heat right all night. At the end of two weeks she was still making a midnight visit to the house to make sure all was well. Perhaps it is because of this watchful care that in two weeks she has lost only 85 chicks, just four per cent of the hatch. "We figure on losing 100 chicks out of the 2,100 the first three weeks," she says. That is less than five per cent, a much smaller proportion than is usually allowed even in far smaller flocks.

The brooder house is a building 20 by 30, divided into two rooms, the brooder room, 20 by 20, and the playroom or cooling room, 10 by 20. The chicks are confined at first to the brooder room and the heat is started at 95 degrees. By the end of two weeks it is down to 80 degrees at night, with practically no fire in the middle of the day. The chicks are kept in the house entirely for three weeks, then are allowed in the outside run which connects with the house by a low door. "Last year we kept them in the house two weeks," said Mrs. Sutherland, "but I am satisfied three is better, and this year they will not set foot on the ground till they are three weeks old."

The large chick yard, which is 50 by 100, is planted to barley, but inside this large yard is a smaller one about 15 by 40, into which the chicks are turned at first. It is a difficult matter to teach 2,000 chicks to go back into the brooder house if they are allowed to spread themselves over a yard the size of a city lot, but the small enclosure with its low wire simplifiies matters, and the chicks soon learn their way home.

Feeding

This year Mrs. Sutherland is following the feeding method outlined by the poultry division. The chicks came from the incubator Wednesday at 3:30 and were not fed till Friday about 10 o'clock. They picked at the sand and alfalfa leaves on the floor and drank fresh water from the big drinking fountains, but got nothing more till Friday morning. Then cracked corn and cracked wheat, equal parts, were sprinkled on the sand, and this was their only grain feed till the sixth day. The second day clabbered milk was put before them in fountains and this is kept before them till they are several weeks old.

Beginning the sixth day a mash consisting of 2 pounds bran, 2 pounds shorts, 1 part corn meal or barley meal, 2 parts beef scrap, 1 part bone meal and .3 pounds powdered charcoal is placed before them for an hour or two in the middle of the day. Gradually it is left longer, till by the end of two weeks they have it before them all the time. Very little green feed is fed the first three weeks, and Mrs. Sutherland is not sure it should be fed at all during this critical time. Lettuce she condemns because the opium it contains makes the chicks dopy if it is fed heavily. Alfalfa is the only green she feeds to either hens or chicks, and a patch of less than an acre has supplied both cow and chickens.

When I remarked that she was brooding but one lot of chicks in a season instead of two or three, as is customary, Mrs. Sutherland replied: "I would have liked to raise two hatches, but I have only one brooder house, and it doesn't do to raise two successive hatches in a house without allowing quite a little time for sweetening the house and yard. Chicks won't do well if they have not a clean house to sleep in and clean ground to run on."

Cleanliness is the keynote of the management of this profitable little ranch. The droppings boards in the laying house are cleaned hastily every other day and thoroughly once a week. Once a month the house is sprayed with kerosene and crude carbolic acid, a quart of acid to five gallons of kerosene. This exacting cleanliness makes it possible to keep 1,000 hens healthy in a house 16 by 80, a thing that would hardly be possible otherwise.

The Vegetable Garden in November

Northern California

By A. R. Gould

THIS is the growing month when we get more warmth to help things along. At the same time, however, we must keep a close watch on the moisture conditions and irrigate where the soil appears dry for several inches. Surface cultivation will also be on this month's program, and lots of it. This stirring of the soil between the rows helps quite a lot and conserves moisture, which is an important point in successful gardening.

Follow up all your work in the garden with a systematic scheme of moisture conservation for the coming months and also apply system to limit the bugs and fungous pests. Aphis you may find on the peas, beans, tomatoes and many other crops. These you may destroy by spraying with Black Leaf 40. Slugs and snails you may find in hiding under the pea vines and other such places, and these you should destroy by hand picking or lime will help some. Fungus diseases may be reduced by burning infected parts and preventive measures such as spraying.

Lettuce

Thin out and transplant extra rows of the variety Los Angeles sown last month and irrigate between the rows.

Corn

Continue to sow both field and table varieties; Golden Bantam, Country Gentleman, Yellow Flint or Golden Dent. Sow three seeds to a group three feet apart. This crop requires a rich soil and before sowing it is advisable to apply a dressing of dried blood or bone meal.

Beans

Sow Kentucky Wonder and Horticultural, two very excellent pole varieties, also the following dwarf: Stringless Green Pod, Refugee and Golden Wax, in rows two feet apart.

Squash, Musk and Watermelons

There is still time to plant these and the varieties advised last month should be planted in mounds four feet apart each way. Hubbard is a good squash, Rocky Ford and Bay View fine muskmelons and Kleckley's a sweet watermelon.

Turnips

Continue to sow Early Snowball in rich soil for a successional supply in rows 18 to 20 inches apart.

Carrots

Those sown last month should be carefully thinned out to six inches apart. Nothing is gained by leaving them close together in the rows. A few good sized carrots are more to be preferred than lots of small ones. Irrigate these every two weeks at least.

Onions

If thinning of this crop was not completed last month this work should be done at once, and more rows may be planted with the seedlings thinned out. See that the soil is well prepared with manure as they require considerable feeding if large bulbs are required.

Potatoes

These should now be making considerable growth and it will be necessary to irrigate very thoroughly this month and keep the cultivator busy between the rows.

Tomatoes

Plants that were planted out last month should be hoed around after being first well watered. There is yet time to plant, the best varieties being San Jose Canner, Earliana and Early Jewel. Place these three feet apart.

Cucumbers

You may still sow seeds of these, three or four seeds to a mound in rich soil, and any sown last month will need thinning out, leaving the healthiest to produce. Best varieties, White Spine and Long Green, and be sure to grow the Lemon variety.

Leeks and Celery

If seeds of these were sown as advised last month the young seedlings will be ready soon for transplanting to boxes and placed three inches apart. Keep well shaded from the sun. Prepare trenches for planting out later by manuring heavily as these are both gross feeders.

Strawberries

These will require irrigating and cultivating between the rows. It will prolong their period of bearing.

Southern California

By D. F. Reichard

THE work in your garden during May means much for the success of your products. The energy expended in cultivating, weeding and pulverizing the soil will mean you will

(Continued on Page 614.)

CASE

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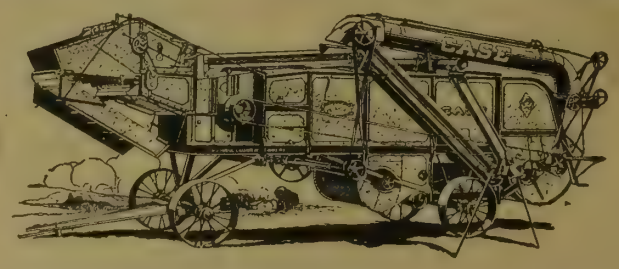

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Saccharine Sorghums

By Geo. W. Hendry

SACCHARINE sorghums were originally introduced into the United States with a view of utililzng them for sugar production, but it was found that although they compare favorably with sugar cane and sugar beets in sugar content they also possess a gummy material in the sap which interferes with crystallization. They are still grown, however, for syrup production and have come to occupy a very prominent place as a forage and silage crop. They yield the highest tonnage of silage of any of the sorghum group and in forage quality they are superior to either the Durras or the Kafirs. As a group they are late in maturing, and must be planted early in the season in order to insure their ripening before the fall rains set in. They stool more abundantly than the grain sorghums and are slightly more tolerant of cold coast conditions than the grain sorghums, but cannot compete with Indian corn for silage production in the immediate vicinity of the ocean. In seed yield they are far below the grain sorghums and have yielded only from 500 to 800 pounds of seed per acre. The seed of the saccharine sorghums is smaller than that of the grain sorghums and is usually covered with a hard fibrous seed coat making them less valuable for feeding purposes.

Honey Sorghum

Honey Sorghum California No. 23 is a selection from one of the earlier introduced saccharine sorghums, and has been grown extensively in the southern states for syrup making purposes. It produces slender stalks, varying in height from eight to twelve feet. It is medium late maturing and has very tender succulent stalks.

As a producer of forage and ensilage, it has exceeded all other sorghum varieties in tests at the university farm. It has produced an average of 27.43 tons of green forage per acre without irrigation. In these tests the seed was drilled in rows three and one-half feet apart, using three and one-half pounds of seed per acre. The crop was harvested as soon as the seed was hard and before the leaves had started to wither. This is regarded as the most desirable stage to harvest silage. At the university farm in 1917 Honey Sorghum produced a yield of 31.46 tons of silage per acre; at Kearney Park, Fresno County, on sub-irrigated land in 1917 it produced two cuttings totalling 50.68 tons per acre, exceeding all other saccharine sorghums in point of yield.

Under average conditions it requires 153 days to ripen at Davis and 138 days at Fresno. Experiments in California have shown it to be one of the best of its class for syrup production.

Orange Sorghum

Orange Sorghum California No. 25, like Honey sorguhm, is medium late maturing but has rather stout stalks, with longer internodes and broad, though less abundant leaves. The plant varies in height from eight to twelve feet and its stalks are much less tender than those of Honey variety. The heads are heavy and quite compact, somewhat resembling Kafir. The glumes or chaff are red at maturity, while the seeds are reddish yellow and protruding.

In three years' trials at the university farm, it has averaged 18.11 tons of ensilage per acre without irrigation, exceeding the early amber but not equalling the Honey variety.

It is slightly later maturing than Honey sorghum, requiring at Davis 160 days to ripen or about one week longer than Honey sorghum. Under irrigation in 1917 it produced 25.6 tons per acre at the university farm. On sub-irriagted land at Kearney Park in 1917 it produced 27.12 tons of silage per acre, being exceeded by all saccharine varieties except Early Amber in point of yield.

Red Amber

Red Amber California No. 29 is similar to Early Amber except that it makes a larger growth, is later maturing, and has red glumes or chaff in place of black ones. The original seed is said to have been imported into the United States from Australia. In three years' trials at the university farm, without irrigation, it has produced 18.73 tons of ensilage per acre, exceeding in yield the Orange and Early Amber varieties, but not equaling the Honey variety. Under irrigation in 1917 at the university farm it produced 22.6 tons of ensilage per acre, but did not equal Honey sorghum which produced under similar conditions 31.4 tons per acre. At Kearney Park on sub-irrigated land in 1917 it yielded two crops in one season, totaling 45.18 tons per acre. It did not equal the Honey variety in productiveness at this station. It makes the largest second growth, however, of any variety tested, and is a promising crop on sub-irrigated land where two crops may be obtained. It required, under average conditions, 139 days to ripen at the university farm, compared with 124 days for Early Amber, 153 days for Honey, 160 days for Orange and 180 days for Sumac.

Early Amber

Early Amber California No. 31 is one of the oldest and best known saccharine sorghum varieties and was developed from a Chinese importation in the fifties. It is one of the earliest of the sweet sorghums and has become popular in the northern part of the United States because of its early maturity, which enables it to ripen in comparatively short growing seasons. It is characterized by slender stalks and narrow leaves. It produces a succulent fodder, readily eaten by livestock, but the sugar content is not so high as that of the Honey sorghum. In the interior valleys it ripens in 124 days. The average yield of silage per acre at Davis for a period of three years and without irrigation has been 12.41 tons, or less than half the amount yielded by Honey sorghum under similar conditions. It is a prolific seed producer, however, generally outyielding the Honey variety. At Kearney Park in 1917 it produced 19.55 tons of forage per acre on sub-irrigated land, yielding two cuttings, and was the lowest producer of the saccharine sorghums in tests at this place. Two varieties, Dakota and Minnesota Amber, have been developed from it by selection. Because of its early maturity it is regarded as the best of the saccharine sorghum varieties for silage production for plantings made after June 1. The later maturing varieties such as Honey planted at that date would not mature sufficient to be harvested for silage.

Sumac

This is a very tall growing, late maturing variety poorly adapted to California conditions. In tests at the university farm it has yielded 16 tons of green forage per acre, but has been killed by frost 180 days from planting without having matured sufficiently to make a good quality of silage. It has made a much more favorable impression in tests at Kearney Park, Fresno County, where the climatic conditions are more favorable for its development, and it is thought that it may be found to be a useful variety in the warmer southern districts of the state. At Kearney Park it yielded at the astounding rate of 45 tons of green forage per acre in two cuttings on sub-irrigated land.

Shallu

Egyptian Wheat California No. 26—This non-saccharine sorghum is commonly grown in parts of India, East Africa and Madagascar, and is entirely distinct from any other sorghum grown in the United States. Shallu was imported from Indiana under the name of Egyptian wheat by the Louisiana experiment station in about 1890. In 1905 Shallu was grown in Texas under the name of California wheat. Many names have been applied to this variety and used in its exploitation; among them are: California Rice corn, California Golden sorghum, Egyptian wheat, Mexican Desert Wheat corn, and Rice corn. Experience has shown that Shallu is not so dependable as a grain crop as Milo, Egyptian corn, or Feterita. Its principal defects are its tendency to sucker and lodge, and the

non-exsertion of the head from the boot. Its average yield of grain per acre at Davis without irrigation has been for three years 3,542 pounds. However, the grain is inferior to Milo as a stock feed and as a fodder crop it does not compare in quality with the sweet saccharine sorghums. The seed has a high vitality and has been found to germinate more satisfactorily in cold unfavorable soils than many of the other varieties. For this reason it is thought to be especially useful for planting on soils of heavy texture, which remain cold until late in the season.

Sudan Grass

Sudan Grass California No. 1 is the most important forage crop introduced into the United States in the last twenty years. It came directly from Khartoum, Egypt, in 1909 and has been successfully grown and distributed by the university farm at Davis since that date. At the university farm it has yielded from five to eight tons of cured hay per acre in three cuttings without irrigation. It will grow on a wide range of soils from sand to clay, but prefers a warm, dry climate, and does not succeed in the cool, humid coast districts of central and northern California. After seeding it takes from 75 to 80 days to secure the first cutting, about 45 days more for the second and 58 for the third. The hay is palatable to all classes of stock. It is as nutritious as grain or cereal hay, but cannot compete with alfalfa in this respect. A seed crop can be produced in from 95 to 100 days with an average yield of from 600 to 800 pounds per acre. It should be drilled at the rate of from 12 to 15 pounds per acre on a well prepared moist soil from April 15 to June 1. The earlier planting is preferred where irrigation is not available. In the southern part of the state it may be safely planted as early as April 1.

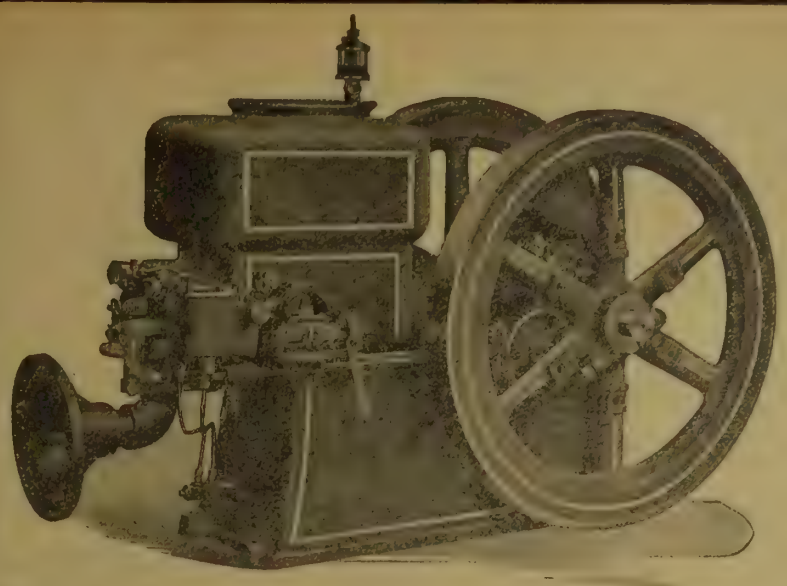
Kaoliang

Brown Kaoliang California No. 36 is the leading variety of the Kaoliang group and was introduced into the United States by the United States department of agriculture in 1898. In its native habitat in China it is found growing in a more northern latitude than any of the other sorghum varieties and is especially adapted to locations having a short growing season. It has been tested by the experiment stations in the northern great plains area of the United States and has been found to possess advantages over other types of sorghums in such regions. As a grain producer in tests at the university farm it has been found to be inferior to the better varieties of grain sorghums and has yielded under average conditions about 2,900 pounds of seed per acre. It is early maturing, however, making it suitable for late plantings; as a forage crop it is of poor quality and resembles the Brown and White Egyptian corn in this respect. Large quantities of Kaoliang seed are imported into California annually from the Orient for chicken feed and it is a standard and well known article of commerce in this state. It is not recommended for cultivation in any part of California, but may possibly find a usefulness in our northern latitudes or at mountain elevations where the growing season is short.

Broom Corn

Broom corn is a variety of sorghum and is thought to have been developed from one of the large open headed types of saccharine sorghums such as Honey by the process of selection. It has been grown in the United States for about 125 years. In the colonial days the industry centered in the New England states, but with the tide of immigration it moved westward into Ohio, thence into Illinois. About twenty years ago dwarf drouth resistant strains were developed by selection and thereupon the center of broom corn industry again moved further westward into the drier regions of Kansas, Oklahoma and Texas. At present about 75 per cent of the entire broom corn production in the United States is made up of the dwarf varieties. The dwarf varieties differ from the standard varieties in that under average conditions they attain a height of from four to five feet, whereas the standard varieties

(Continued on Page 631.)



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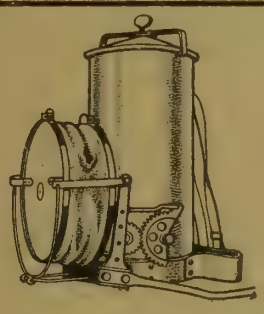

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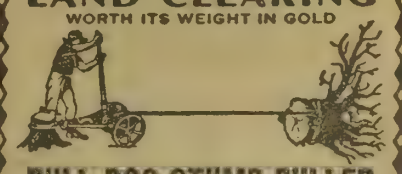

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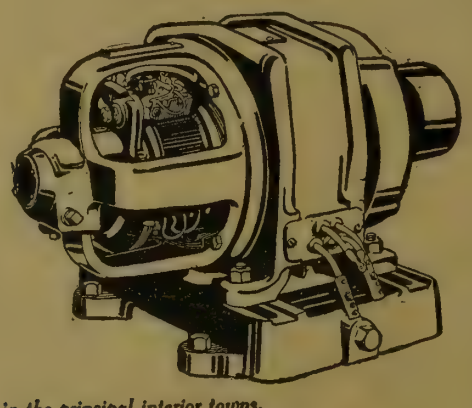

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A Mammoth Horticultural Exhibition

THE California Association of Nurserymen has never made a special effort to have a horticultural exhibit in connection with its annual conventions, though at every one of the ten held there has been a very creditable display of orchard and vineyard products. But at the last big meet, at Fresno, in October, 1920, it was decided to set a record in this respect by holding an exhibition of the earth's products that would surpass anything of the kind ever held on the Pacific Coast.

It was decided to hold the eleventh yearly meeting in Pasadena at the same time that the Pasadena Horticultural Society would hold its autumn flower show, so that the association might cooperate in an endeavor to hold a great plant and fruit exhibition covering the entire horticultural products of the state. The final arrangements were left in the hands of the executive committee of the Nurserymen's Association for action. In going over the matter recently the committee was convinced that Pasadena offered no adequate accommodations in the way of an exhibition hall, and it was doubtful if hotel accommodations would be ample at that time of year.

In view of these facts it was decided to hold the convention in Los Angeles, October 20 to 23 and arrange for a big flower and horticultural exhibition in Exposition Park, state wide in character and embracing the entire range of economic and ornamental horticultural products. This exhibition will include a gorgeous display of flowering and ornamental foliage plants to be featured in the seven acre sunken garden, all of which will be planted during the summer, and present a larger blaze of color and greenery than ever before witnessed in the West. Space in the sunken garden will be free to exhibitors, and plantsmen should arrange for space at an early date. The general exhibition will be given under cover, in the court of the state armory, 240 by 400 feet.

Roy F. Wilcox is chairman of the directorate and H. W. Kruckeberg, 236 Court Street, Los Angeles, is secretary. The other members and their fields are: Fred H. Howard, finance; Los Angeles Chamber of Commerce, publicity; Walter Armacost, cut flowers; Charles F. Gutting, dahlias; Albert Goldenson, florists' displays; W. H. Rapp, Pasadena Horticultural Society's exhibit; Wm. Hertrich, ornamental plants; O. W. Howard, outdoor gardens; R. M. Teague, citrus and tropical fruits; J. S. Armstrong, deciduous, orchard and vineyard products; D. F. Reichard, seeds and appliances; T. H. Wright, premiums; Paul J. Howard, entertainment; John C. Bodger, concessions and admissions; John J. Reeves, housing and decorations; Henry W. Kruckeberg, printing.

The California Association of Nurserymen represents in its personnel fully 75 per cent of the output in nursery products and cut flowers in this state, and when to its resources is added those of the seed industry and the fruit products, it is obvious that the possibilities of the undertaking are vast but its consummation in a large way and on broad educational lines entirely feasible. Not only will the entire state of California be represented, but several Eastern firms have assured the committee that they will send exhibits. This exhibition is expected to be of such magnitude that it will attract visitors from all California and adjacent territory in bordering states, for every commercial horticultural organization of this state is rallying to its support.

Where Avocado is Queen

By Ernest Braunton

"THERE is no better avocado than the Queen," said W. H. Spinks as he pointed to a heavy laden tree of this variety in his orchard near Duarte, Los Angeles County. "The tree is vigorous, of fine form and foliage, and the fruit is ideal in size, flavor, and all that goes to make a high class avocado."

Mr. Spinks has 400 of the Queen, 700 Spinks, 200 Knight, 200 Linda and one or more of every named variety known, and then some. Several years ago he made a practice of planting the seeds from every large fruit purchased for eating. From these he has a motley collection, many inferior to the parent, but a few of equal value, and one, which he has named Alexandria, of great promise. This mixed lot is of a great variety in all principal points. These, with the government collection, make a total of 1,738 trees on the ranch, one-third of them in bearing.

About 20 varieties from government buds, sent in by Wilson Popenoe from Guatemala, are doing well and some are very promising. One in which all avocado sharps are interested is the gigantic Nimlioh, the largest one sent in by Popenoe. He describes it as "One of the largest varieties, and very productive; rough, green, about three pounds in weight." There they are, lots of them, and "three pounds in weight," growing right in the Spinks orchard. Several others of this Guatemalan lot are attractive, but not all equal the description and some do not agree in any characteristic. One, the Pankay, came from 8,500 feet elevation and may prove the hardiest avocado yet grown in California. It is a green pear-shaped fruit weighing about 12 ounces, of good flavor and general appearance.

Mr. Spinks has more avocado trees in the orchard than anyone in California, and more in bearing; also the greatest variety. Added to this is a fine collection of other sub-tropical fruits: cherimoyas, mangoes, sapotes, litchis, longans, Kei apples, carissas, and a score of others. While much money is taken from the crops, much is returned, indirectly, to the soil, for Mr. Spinks believes in heavy feeding and the best of care, not a weed to be seen, and all trees in vigorous health. Though a man of considerable means and broad business experience, Mr. Spinks said to the writer: "I wish to be known above all things as just a good farmer," and the appearance of his ranch justifies the opinion that his wish has been fulfilled.

BETTER LEMON OUTLOOK

For four years scientific experts have been working on a process for the dehydration of citrus juices and have just received patents on their product, known as powdered lemon juice. The product has the consistency of sugar or corn meal and retains all the natural flavor of the fresh fruit without the oils from the peel and can be used for making lemonade, sodas, pies or anything that fresh lemons can be used for.

A factory, now erected in Los Angeles, has a capacity for handling 65 tons of fresh fruit a day and turns out 5,000 pounds of the finished product—all of which is contracted for by the parent company in New York for use in light beverages which they manufacture. Plans are under way for the construction of another large plant in Pomona, where equipment will be installed to care for the crops of many groves, and powdered lemon juice will be made in sufficient quantity to care for commercial demands.

The western division of the Granite Springs Estate, which controls the new process, is under the management of Seth A. Burrows, who during the period of the war was engaged in dehydration work for commercial purposes in a large way, and has invented, manufactured and installed a number of successful plants.

This company announces that, regardless of the present depressed condition of the lemon market, it is ready to make five year contracts with growers for run of the orchard fruit, and

will pay $30 a ton for lemons and $40 for oranges, f. o. b. factory in Los Angeles, including this year's crop. First grade fruit may be retained for market by the grower.

SPECIAL STUDY OF DUST INSECTICIDES BY THE DIVISION OF CHEMISTRY

Responding to the demands of growers for more information on the quality of the various dusting materials on the market, the division of chemistry of the state department of agriculture is now engaged in a special study of the matter. Manufacturers have been warned to exercise more care in labeling and to correct certain misleading statements which have been made in some instances.

Representative samples have been collected and are now being examined under the supervision of Geo. E. Colby, the division's chemist, both in regard to composition and labeling. A report of this investigation covering nicotine-lime, nicotine-sulphur, and nicotine-sulphur-lead arsenate mixtures, with lime or other carriers, and a few tobacco dusts, will be available in the near future.

In this connection the following letter has been sent by Geo. P. Gray, chief of the division, to the more important manufacturers of dusting materials which have come to the attention of the department:

"The attention of the department of agriculture has been called to certain irregularities in the labeling of dusting materials, particularly those containing nicotine as one of the active ingredients. Some lots of material have been observed which contained no labels of any description. Others apparently had been labeled but practically all of the labels had fallen off.

"Some complaints have been made which would lead us to think that on account of material not having been labeled lower grade material had been accidentally delivered for higher grade; that is, in one case material said to be six per cent nicotine was found to contain less nicotine than that sold as three per cent. Unless these practices are corrected immediately the division of chemistry will have to take energetic action.

"If a statement of active ingredients is made the percentage of 'Black Leaf 40' cannot be considered as a definite statement of active ingredients. This percentage should be stated in terms of nicotine."

AGRICULTURE AIDE RESIGNS

R. H. Taylor, assistant to Director Hecke since the formation of the state department of agriculture, resigned effective April 15.

For many years engaged in the study of almond culture at the University of California, he finds an opportunity to extend his work along practical lines now made possible in his new capacity as field agent for the California Almond Growers Exchange, with headquarters at San Francisco.

Mr. Taylor will still be affiliated with the state department of agriculture as collaborator, and his new field of work should emphasize the value of his services in this respect.

WHERE CALIFORNIA DOES NOT LEAD

By Hartley E. Truax

California prides herself, and rightly, on her progressive spirit and the lead she takes along many lines. Her cooperative associations to market farm crops are a model in all sections of the United States. Her standards in packing fruit are so high that there is never any trouble about rejections in the market. But the growers and shippers of potatoes in California have not earned an enviable reputation on the quality of their grade and pack. In fact, California lags far behind most of the other potato states in this respect. Practically all of the other potato producing regions of the United States either voluntarily or under a state law grade and market their crop on the basis of the U. S. grades. These standards have been in use so long that every member of the potato trade understands what is meant by a U. S. No. 1 potato.

Marketing potatoes is not a problem which can be confined within state lines. In Chicago one may find potatoes from Minnesota, Wisconsin, Idaho, Washington, Colorado and California. If all of the other states are grading their potatoes and California is not, the dealers cannot be expected to buy the California product. And that is just the kind of competition that California growers and dealers have to meet at the present time. Right now the graded potatoes from Idaho are selling at a large premium on the Los Angeles market over poorly graded stock from California. If this is true in our home cities, what is to be expected in the markets in other states? Isn't it time for the growers and shippers of potatoes in California to wake up, grade and sell their product on the basis of the U. S. grades and help sustain the reputation the state has gained through the grading and marketing of fruit and nut crops?

There seems to be a widespread interest among the growers of potatoes in Southern California in the question of grading potatoes, and it is believed that many of the producers will make a start along this line during the coming season.

FREEZING FRUIT TO PREVENT SPOILING

Preserving fresh fruit by freezing has passed the experimental stage. The office of preservation of fruits and vegetables, bureau of markets, has been investigating the new method for several years and the investigators report that such fruits as strawberries, raspberries, loganberries, blue berries, currants and cherries are now being frozen and held in commercial lots.

So far as the process is concerned this method of preservation has all the merits of simplicity. The fruit is frozen in the same crates in which it is marketed. The temperature required is about 10 degrees Fahrenheit, though soft fruit is usually subjected to a lower temperature than that of better quality. So long as the temperature is maintained the fruit can be kept in storage. The frozen product must be used as soon as it is thawed, however, as thawing breaks down the tissues and allows the fruit to decay rapidly.

In ice cream, or when made into pies and preserves, the frozen fruit is in every way comparable to the fresh product. In preparing their report the representatives of the United States department of agriculture state that the practice is to be recommended in sections where there is a surplus of production and sufficient cold storage space available to accommodate the fruit. Only fresh, sound fruit should be frozen. Freezing does not do away with mold, though mold will not develop as long as the fruit remains at the temperatures employed.

GRAIN GROWERS CONFERENCE

This conference at the university farm, Davis, May 17-19, is designed primarily for farmers engaged in grain farming. Its purpose is to familiarize them with the more recent results of experimental work on grain production. The week will be devoted to lectures and demonstrations on the value and adaptation of the new and promising varieties, the effect of various cultural processes, and the use of cropping systems and rotation in grain farming. The control of diseases by the development of disease resistant strains and by seed treatment, as well as the handling and grading of grain, will be featured.

In order to acquaint the farmer with the work the division of agronomy is doing, a large part of the time will be utilized in the field in viewing and discussing the work that is being carried on.

The Program

Tuesday, May 17, 9 a. m.—Address of Welcome, Dean Van Norman; Grain Growers Conference, B. A. Madson; Cereal Varieties and Their Adaptation, G. W. Hendry.

1:30—Quality as a Factor in the Value of Wheat, Geo. R. McLeod, Agriculturist, Sperry Flour Co.; Field Trip.

Wednesday, 9 a. m.—Market Grades of Grain and the Application of the Federal Standards, B. A. Madson; How grain is graded and the factors which

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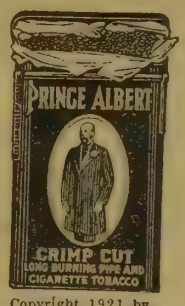

Prince Albert is sold in toppy red bags, tidy red tins, handsome pound and half pound tin humidors and in the pound crystal glass humidor with sponge moistener top.

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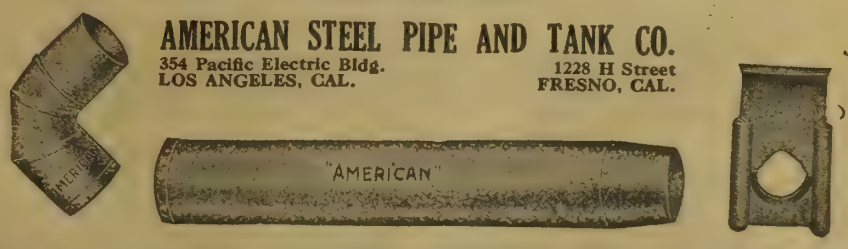

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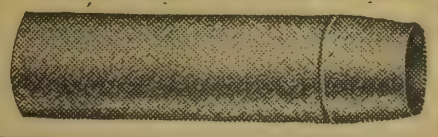

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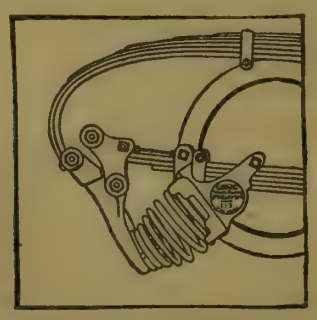

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are important in determining the grade.

1:30—Lecture and Field Trip: Cereal Diseases and Their Control, W. W. Mackie.

Thursday, 9 a. m.—The Bulk Handling of Grain, W. H. Heilman, Secretary, California Farm Bureau Federation; Cultural Operations in Cereal Production and Their Effect on Yield and Quality, B. A. Madson.

1:30—Lecture and Field Trip: Cropping System with Grain, B. A. Madson.

VEGETABLE GARDEN FOR MAY IN SOUTHERN CALIFORNIA

(Continued from Page 609.)

harvest a crop of well grown, well matured, fully flavored vegetables that are always the hope of every one when starting his garden in early spring. Much of the stuff planted is up and needs cultivation and hoeing—some of it will need irrigation.

In cultivating do not work the ground too deep immediately around the plants as it disturbs the young tender roots and checks them in their hunt for nourishment. In the centers of the row cultivate deeper so as to always keep a good mulch. The hoe will have to be used between the individual plants in the rows to kill weeds and to keep a good mulch around the plants. It is always well to draw the dirt up around the plants as they grow. Hill them up slightly. This keeps the roots well covered and in cool damp soil. No doubt moisture will be needed for some of the stuff. Furrow between the rows and turn the water down these furrows so that it runs slowly, soaking in well as it goes. After a couple of days, when the soil will work up nicely and not stick to the tools, cultivate all the irrigated portions to keep the ground from baking and drying out. In very small gardens where it is not practical to use a wheel cultivator good results are secured by sprinkling. If sprinkling is resorted to be sure to let the water run long enough to thoroughly soak the ground, then as soon as the soil is workable go over it with a hand cultivator or rake to pulverize the surface.

It takes moisture to make good succulent vegetables, and it takes frequent irrigations and cultivating to keep the moisture where the plants can get it. Unless one's soil is naturally moist it will be necessary to supply the needed water from time to time during our dry season. During this month and on through the summer we must keep on the lookout for insects and diseases attacking the plants, shrubs and trees about the place. Especially be diligent about keeping the aphis or little green flies subdued. Thorough spraying with Black Leaf 40, a tobacco extract, is the best control.

Plantings of seeds of many vegetables are in order for May for continuation of supply of fresh garden truck. Make sowings of sweet corn and string beans every three or four weeks. Put in squash, melons and cucumbers to come in after your first plantings have cropped. Roselle may be planted with assurance of a crop if gotten in the first part of the month. Some of the hardier vegetables such as beets, carrots, radish and lettuce should be put in. It will be most too hot to produce turnips and peas if planted now—wait till August.

Southern Arizona

By M. E. Bemis

GARDENERS in southern Arizona during the months of May and June may confine their activities largely to a preparation for the future and retrospect of what might have been in the past. In other words, the gardener who was active in January and February now has a succession of almost all kinds of vegetables coming on and will have for some time.

The plantings which may be made now are rather limited, but nevertheless there are many things which may be done to employ any spare time and which will admirably prepare for future gardening operations. There is still time for planting pumpkins and squash. Peanuts may also be planted. Without much doubt there is a big future for peanut growers. Some big crops have been raised and the nuts bring good prices, prices that will almost always compare favorably with the prices of other farm and garden products. The one big difficulty and the principal obstacle to be overcome is to secure a stand. Germination seems to be poor. The subject of seed germination under irrigated conditions is still more or less in an experimental stage and there is a field here for some research work that will mean many thousands of dollars to gardeners. Peanuts are only one of several plants the seeds of which germinate poorly under irrigation. With this difficulty overcome peanut growing will be an important industry in southwestern irrigated valleys. Even with this handicap quite frequently some good stands are obtained and the resulting crop of peanuts is more than satisfactory. With light soil, well fertilized, it is worth while to plant a few peanuts for home use. The Virginia bunch is the variety best adapted.

Casaba melons are considered by many a delicacy that makes them a favorite on the markets in the fall and early winter season. Planted at this season of the year they will mature at a time just following the watermelons and cantaloupes and just long enough after so that they sell readily at a fair price. For the home garden they help to keep something coming along all the time, and they have the advantage of the watermelons and cantaloupes in that they will keep longer and also that a succession may be planted, insuring a continuous supply from August to Christmas. There are a number of varieties.

The ground, cleared of peas, beets, turnips, etc., need not necessarily grow up to weeds, as there are a number of things which may be planted that will be useful and less unsightly than weeds, besides not spreading seeds that will be a future menace.

Cow peas grow readily and with little trouble. The cow peas, while the pods are still green, may be shelled and make a dish that is relished by some as well as shelled beans. A few rows of cow peas to add variety would be worth while if they had no other value. As a soil renovator cow peas cannot be beaten, especially for quick growth. They will smother out weed growth, add humus and nitrogen to the soil, and the dried peas make good stock feed, or the vines may be cut for hay.

The grain sorghums grow quickly and produce a considerable amount of grain that can be fed to poultry. Otherwise idle ground might much better be producing a crop of milo or hegari than growing weeds.

Sudan grass also grows rapidly and will smother weeds and furnish a considerable amount of hay or pasture. Where there is little green feed available for chickens a patch of Sudan grass will furnish an abundant supply of green feed that is much relished by both old and young chicks.

DECIDUOUS FRUIT MEETINGS IN LOS ANGELES COUNTY

During May the agricultural extension service, in cooperation with the various farm bureau centers in deciduous fruit districts, is to hold a series of seven summer pruning demonstrations. The proper method for summer pruning treatment will be demonstrated and general problems of summer care of deciduous fruit orchards discussed. It was hoped that Dr. J. C. Whitten would be able to be present at these meetings, but recent information is to the effect that it is doubtful whether he can attend. The meetings will be conducted by Farm Adviser Hodgson and Assistant Farm Adviser Blanchard. The schedule for the series is as follows: May 10, 2 p. m., Downey, meet at Gallatin school, later going to nearby orchard. May 11, 10 a. m., Owensmouth, place of J. C. Craig, two miles east of Owensmouth on Sherman Way. 1:30 p. m., Zelzah, place of G. A. Allard, one-quarter mile off Reseda Ave. on Regan St. May 12, 10 a. m., Lankershim, place of F. L. Williamson, 12309 El Nido St., west of Pacoima and east of Whitsett. 2 p. m., Van Nuys, place of W. F. Clarke, Van Owen and Woodman. May 16, 9:30 a. m., La Canada, place of B. J. Kirst, north of east end of Michigan Ave. 2 p. m., Pomona, place of H. W. Hall, Reservoir and Philadelphia.

Walnut meetings: Tuesday, May 10, 10 a. m., El Monte; 2 p. m., West Covina. Wednesday, May 11, 10 a. m., Whittier. Thursday, May 12, 10 a. m., Chino; 2 p. m., Pomona. Friday, May 20, 10 a. m., Los Nietos. A large attendance at these demonstrations is expected.

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Quick Gopher Eradication

On April 2, 1921, our illustrated "Su cessful Gopher Trapping" article appea ed in the Pacific Rural Press. April Mr. J. Aschwanden of Santa Cruz, Cali who read the article, sent us 75c for o of the **Chubbuck Double Catch Goph Traps,** which trap went forward April the day we received the order. Below one of the four illustrations used in t Press article:

Catches Gopher Any Size or Age

Today, April 12, we are in receipt of following letter from Mr. Aschwanden:

Santa Cruz, 4-9-2

E. J. Chubbuck Co.,
San Francisco, Calif.

Dear Sirs: Received trap and your letter on 7th, and on the 8th I set the trap seven times caught seven gophers all in one day, and some those I could never get before with several diffe kinds of traps, nor with gas. I assure you that I highly pleased with your trap, and you can look more business in the near future from my neigh as I am telling every one of them about it, and them the good results. Thanking you very muc remain. J. ASCHWANDEN.

Reports like the one made by the Sa Cruz customer have been coming in fr all sections. Four days ago we shippe full gross **Double Catch Traps** to one C fornia Ranch. The attention of the perintendent of the ranch had been ca to our trap by an advertisement in California Cultivator.

If you cannot secure these traps f your local Seed stores or Hardware d ers, send direct to us. **Price, postpaid,**

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731 Market Street, San Francisco,

Coast Fruit Industry Endangered by Present Freight Tariffs

AS A result of the investigation made by a representative committee of the principal food producing and shipping interests of the state, the very startling statement is made that owing to the increased freight rates brought about by the enforcement of the federal transportation act of 1920 the grower finds each acre of land he controls saddled with a tax which to all intents and purposes is as binding as if he voluntarily had placed a mortgage on his acreage, provided he ships his product out of California.

This committee which was named by State Market Director Daniels, following a state wide conference of producers' associations and shippers called at the suggestion of Governor William D. Stephens, is composed of: G. Harold Powell, California Fruit Growers Exchange; J. F. Niswander, California Peach and Fig Growers Association; C. C. Teague, California Walnut Growers Association; J. M. Henderson, Jr., Associated Dairymen of California, Inc.; Roger Edwards, California Lima Bean Growers Association; Herbert Hazeltine, American Fruit Growers, Inc.; F. B. McKevitt, California Fruit Distributors; J. H. Barber, Poultry Producers of Central California, Inc.; J. L. Nagle, California Fruit Exchange.

Governor Stephens in his communication to the state market director stated that he was of the opinion that the time had been reached when very diligent inquiry should be made into the rates allowed the transcontinental railroads by the interstate commerce commission and suggested that a course of action be developed which would assure that the industrial life of the state be effectively safeguarded. He also stated that the burden imposed upon the people of the state was so great that he felt it the duty of the state government to look into the matter and ascertain if California was being fairly and justly subjected to this great tax on everything that is shipped by railroad in or out of the state. A quotation from a recent communication of the governor to this committee of growers reads: "We must be ready to assume our just burden. We cannot and will not ask for special favor. We must insist, however, that there shall be sympathetic understanding at Washington of our agricultural and industrial situation and of the handicaps we suffer because this state is at a maximum distance from the great markets."

This committee in submitting its report to Governor Stephens states that the burden caused by the increase in freight rates, which mean mortgages on practically every acre of the land of many growers, in some instances takes from the industries more than the average return of profit, and as proof thereof, cites the added tax per acre on 12 different food products, which are the principal edible commodities produced in California:

	Added tax per acre	As if capitalized at 7%
Lemons	$187.67	$2,681.00
Oranges	192.38	2,748.28
Rice	19.49	278.43
Beans	10.65	152.14
Raisins	17.87	255.29
Grapes, shipping	162.51	2,321.57
Olives	28.60	408.57
Walnuts and almonds	15.08	215.43
Prunes, dried	35.75	510.71
Apricots, dried	17.88	255.43
Peaches, dried	21.44	306.29
Apples, fresh	160.87	2,298.14

This question, which so seriously affects the production and distribution of food in California, has also received a great deal of attention in the other western and coast states, and any action taken here as a means of relief will, in the opinion of the committee and State Market Director Daniels, be followed by the growers and shippers in other sections of the West.

The committee is of the opinion that while the present federal transportation act stands there is no opportunity for a real reduction in rates, and that an appeal must be made to congress for the repeal of the objectionable features of this act, as it affects the production and distribution of food products of California.

It was deemed advisable by this committee to petition congress for a repeal of that portion of the transportation act which guarantees an aggregate annual net railway operating income of six per cent upon the aggregate value of railway property held for their use in the service of transportation, regardless of whether or not the individual road has ever earned, or will ever be able to earn a profit, and without consideration of the amount of tonnage which it might reasonably expect to transport.

The repeal of this section of the transportation act will place the matter squarely before the interstate commerce commission.

CROP REPORTS

George Marchbank, Horticultural Commissioner, Madera County

Deciduous fruits have been practically free from frost damage. Estimated crop:

Plums, 100 per cent.
Peaches, 95 per cent.
Prunes, 50 per cent.
Almonds, 50 per cent
Apricots, 35 per cent.

Estimated damage to grapes as follows: Wine grapes, 60 per cent; raisin grapes, 35 per cent.

The two chief factors lessening the frost damage have been water and windbreaks. Of these two, water has been the greater. It has been generally thought in the past that weeds protected the vineyards, but this year in this community it has proved to be the opposite.

I have not had any report from the mountain district about the apples, and the pears and cherries are not grown in this county excepting a few trees in family orchards.

D. D. Sharp, Horticultural Commissioner, Riverside County

The delay in answering your letter was occasioned by the difficulty in estimating the extent of the frost damage at first; we may be low at the present time but we feel in giving the estimates below we can raise later if necessary which is better than having to come down.

Almonds: 106 per cent.
Apples: 90 per cent.
Apricots: 50 per cent.
Cherries: 65 per cent.
Peaches: 40 per cent.
Pears: 85 per cent.
Prunes: 80 per cent.
Grapes: 75 per cent.

Oregon Growers Cooperative Association

Reporting conditions in Eastern fruit growing sections—

Apples: Arkansas and Missouri, almost total loss, with all fruits damaged. New Jersey, severe damage. New York and New England states, fully 50 per cent loss. Michigan, heavy loss.

Pears: Missouri, heavy damage. New Jersey, 80 per cent loss. Michigan, 25 per cent loss. General damage to commercial crop.

Cherries: New Jersey, 95 per cent loss. Michigan, 25 per cent loss. New York, 75 per cent loss. New England states, 75 per cent loss. General loss of commercial crop throughout middle western states.

Peaches: Missouri, crop gone. New Jersey, New York and Atlantic seaboard, heavy loss to commercial crop. Michigan, loss 85 per cent. General loss in Middle West.

A. Hancock, Bakersfield, Kern County

Almonds: 80 per cent.
Apples: 90 per cent.
Apricots: 95 per cent.
Peaches: 90 per cent.
Pears: Kern Valley, 90 per cent.
Prunes: 90 per cent.
Grapes: 100 per cent.

I have waited till the weather settled so as to give a more definite idea of the prospective fruit crops in Kern county. The prospects are now good in all except the Tehachapi country where reports say pears are gone and apples hurt, but have nothing more definite. In the valley district here we had no frosts to hurt, and the prospects are now excellent.

Ohio College of Agriculture

From observations reported to the Ohio College of Agriculture it appears that the recent injury from frosts on apple trees were more particularly marked on certain varieties than on others. The fruit on trees that were in blossom or past blossoming was entirely destroyed. The trees that were not so badly injured were the Rome Beauty, York Imperial, Grimes Golden, and to some extent the Yellow Transparent, Stayman Winesap and the Spy. The varieties that showed marked injury were the Baldwin, Ben Davis, Delicious, Greening and practically all of the summer and early fall apples.

PORTO RICO MANGOES

In the last annual report of the chief horticulturist of Porto Rico, the varieties of imported mangoes fruiting during the year are briefly discussed. The seedling trees of Cambodiana which have fruit show that, while no assurance can be had of securing fruit true to type, the chances are good for securing either such fruit, or, if different, fruit with a pleasing flavor.

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They are the best that can be produced.

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Avocados, Feijoas and other Tropical fruit trees in all of the recommended varieties.

Send for our new descriptive price list and tell us what you intend to plant.

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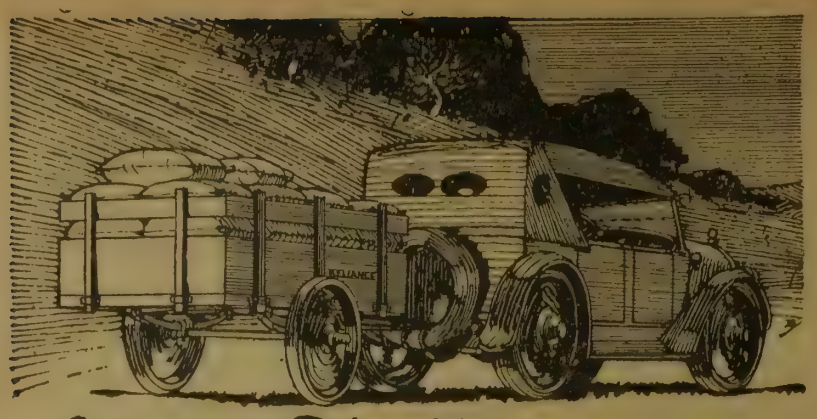

Use a Trailer—

Statistics show that the farmer uses his automobile for transporting goods more than for "pleasure." Making your auto a business aid is wise. But the same utility can be gained and all possible damage to your car avoided by the use of a light, durable, easy-pulling, properly-balanced, 2-wheel Reliance Trailer.

Your hauling capacity is greatly increased with no additional investment in motive power. Your car is saved from wear and tear. The small-haulage problem is solved.

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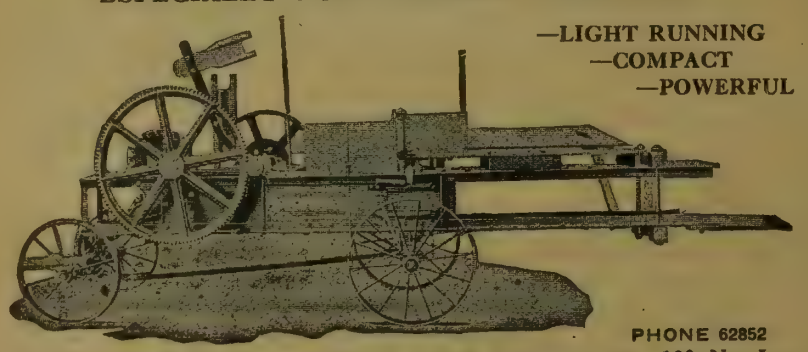

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Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Interest on Deferred Payments

I made a contract for the purchase of land upon installment payments. The contract provided for six per cent upon deferred payments and contained the clause that if I should be unable to make any of the payments strictly on time that I could have from one to six months extension of time. Can the vendor charge me ten per cent interest on this extension?—Subscriber, Hanford.

Apparently the only provision is for six per cent upon deferred payments. That would be the measure of the interest in any event. There is no possible ground for requiring ten per cent as even if no interest is prescribed the legal rate is seven per cent.

Wages Docked

A ranch laborer hired by the month, who lays off a day, is docked at the rate of 26 days. Is this legal? If not, what can be done?—Subscriber, Perris.

It would seem that the proper measure would be to divide the monthly wage by the number of working days and then multiply this by the number of days laid off. That would be the extreme to which an employer should go. The usual method would be to divide the wage by the number of days in the month and multiply this by the number of days laid off.

Homestead—Mineral Claim

I have filed on a section of land under the homestead act. If an oil company starts to drill on the property and gets oil am I entitled to any of the output?—Subscriber, Exeter.

The claim under the homestead act is for agricultural land and that of the oil company would be on the ground that the land is mineral. If oil is discovered the company could probably contest the homestead claim and claim that it is mineral land. If this was decided in favor of the oil company the homestead claim would probably be refused to patent.

Bought Liberty Bond

I agreed to purchase a Liberty Bond through a bank and made all payments. Before delivery of the bond the bank failed. I have been unable to obtain either the bond or any satisfaction. Am I obliged to take the percentage that depositors take or am I entitled to my bond?—Subscriber, Newman.

Unquestionably this was a trust transaction. The bank simply acted as agent of the government and took your moneys in trust for payment to the government for this bond. Such being the case, you would be entitled to receive the bond which you purchased without deduction.

Pasture Bill Not Paid

Horses were placed in my pasture and left there for some three months. The owner's agent, who came to get the horses, not having money to pay the pasture bill, arranged with the owner to leave two saddles as security. The owner now claims that I should turn over the saddles as the horses were only rented. What should I do?—Subscriber, Castaic.

You had a lien on the horses for the value of their pasturage, but this lien is dependent upon possession. As you gave the lien up on the horses and took in lieu thereof the saddles, your lien rests on the saddles. If they did not pay the pasture bill, your action would be to foreclose the lien.

Age of Majority

Real estate in Kansas has been given to a girl who is now 18. Can she legally deed this property? If not, what is required of her legal guardian in the selling thereof?—Subscriber, Hemet.

Under the law of California a girl obtains her majority at the age of 18. In many of the Eastern states she does not become of age until 21. If, in the particular state in which this land is located, she does not attain her majority until 21, it would be necessary for the guardian to present a petition to the court wherein she was appointed guardian and procure an order permitting the guardian to sell property. Then, as such guardian, she can make the deed and forward it with the order of court.

Exempt from Execution

A head of a family places a homestead on his ranch and claims exemption on his farm implements and stock in accordance with the law of Californit, exempting property from execution. Can this homestead and exempt property be claimed by his creditors?—Subscriber, Yuma.

A homstead up to the value of $5000, together with such property as is exempt from execution by law, is in a bankruptcy court set aside to the bankrupt and none of it is applied to the payment of creditors.

Resurveyed Line

A buys land, improves it with a pumping plant, reservoir and ditch along the east side. He then sells the land to B, who sells to C, stating that the property line is five feet east of the reservoir and ditch. C makes further improvements. Thereafter, D, who all of the time has owned adjoining property on the east side has a new survey made and claims that the line is to the west of the ditch and reservoir. D thereupon demands the removal of C's improvements. Can C demand that A or B pay him for the loss or damage?—Subscriber, Earlimart.

It is quite probable that D having stood by all this time and seen these improvements made would be estopped by law from making claim to the property which he now claims by reason of this survey, which he claims to be correct. Merely because one surveyor makes a survey is no reason that the land should be turned over to the adjoining owner. The last survey may be as incorrect as the other. Then again, when the original line was located, there was undoubtedly some reason for locating it there. If it was so located by mutual consent or agreement, D could not go contrary to that agreement, so that the best thing for C to do would be to notify the former owners of the claim of D and in the meantime refuse to permit D to enter the land he claims and require him to bring suitable action by way of ejectment proceedings wherein the matter may be tried out and the evidence of B and A taken as to the original situation.

Wife's Property

A woman marries a widower with three children. Each has real estate which they later sell and invest in a ranch, which is taken in the name of the husband. There is a joint checking account. If the husband dies intestate what share of the property could the wife claim?—Subscriber, Burbank.

The best method to arrange this would be for a joint homestead to be declared and recorded upon the property. In that event the property would go to the survivor in case of the death

of either. These cases where the parties mingle their separate property and the joint earnings of each constitute some of the knottiest problems in the settlement of an estate. It really would be rather difficult to state just what proportion of the property any one of the parties concerned would have upon the death of the other. It is not necessarily the case where property stands in the name of the husband that it is his separate property. In a case such as this where he had separate property it might be that the claim would be made that the majority of it was his separate property. It certainly would be highly desirable for the wife to obtain some written statement by him of the exact standing of the parties, that is to say, to have some accounting made of her interest in the property even though such document may not be recorded but may be between them signed and witnessed. Unless there is such clear evidence of the interest of the parties there would very probably be litigation after death.

Land Bought on Contract

I purchased 40 acres of land on contract, under which I agreed to care for the orchard of the purchaser, one-half of my labor to apply on my land contract and one half payment in cash. I now understand that the entire tract is encumbered with a mortgage although my contract calls for a clear title. If the owner cannot convey to me by clear title, how am I to receive pay for my work? The land is laid off in subdivision map and sold as such, but I understand this map has never been recorded.—Subscriber, Arbuckle.

A party may in this state sell land which he does not even own on the theory that before the time for conveyance of title he will purchase or acquire title thereto, and convey such title. The only recourse of the buyer is an action against the seller for the money which he has paid together with interest. The case mentioned in question, however, is not as bad as that. The mere fact that a person has the whole of the tract mortgaged by no means is any indication of bad faith, as frequently mortgages for large tracts contain provisions that partial releases thereof may be made upon the payment of certain amounts. If the land was sold under a subdivision map which has not been recorded the parties so selling the property may be held guilty of a misdemeanor under an act for recording of maps of subdivision, of date March 15, 1907.

Wife and Son Share Equally

A man who has one son by former wife desires his second wife, who has no children, to share equally in his estate with his son. The property was inherited recently. Does the second wife receive one-half or one-third?—Subscriber, Petaluma.

The property is undoubtedly the separate property of the husband and if he dies leaving the wife and one child, such property would go in equal shares to the wife and child, or issue of such child, the half-blood inheriting equally with the whole blood. By making a will, the expense of probate would be materially reduced, however.

Estate in Three States

A husband, who owns property in three different states, dies without making a will. He leaves a wife and one son. Would his wife and son share equally in distribution of the property or will other relatives get any part of the property?—Subscriber.

As to any property located in California, the wife and son would inherit equally and no part thereof go to the relatives. As the laws of succession vary considerably in different states, no statement could be made as to what would hold in the case of other states.

Legal Will

Is a will wholly written in the handwriting of the testator and dated, legal without the signature of any other party?—Subscriber, Puente.

In this state such a will is legal and will convey both real and personal property. There are states that require witnesses and require that the will be executed with the formalities of publication and declaration which are essential to a will which is not in the handwriting of the testator.

Minor's Marriage

A girl 15 years of age, but giving her age as 18, secured a license and was married. She left her husband ten months before she reached the age of 18. Could the marriage be annulled?—Subscriber, Chowchilla.

The age of consent to marriage in this state for a girl is 15 years or over. There is a provision requiring the county clerk to procure a consent in writing of the parents or guardian of a girl under the age of 18, but it has been held in a number of cases that this latter provision is merely directory and that if by any reason the license is issued and the marriage solemnized, it is in all cases of minors of the age of consent or over an absolutely valid marriage which is not subject to annulment either at the instance of the minor or parents or guardian of the minor.

TENANT GROWERS' DIFFICULTIES

The newly organized growers co. operative marketing associations in the Imperial and Coachella Valleys are experiencing the usual difficulties encountered by such organizations in districts where the farmers have become accustomed to the practice of being financed by the shippers. Local banks are always loath to extend accommodation to renters and the proportion of farmers who own and farm their own lands is rather small. There are many problems encountered by co-operative associations made up of members growing an annual crop, who have in the past relied upon advances made by the shippers to defray the cost of planting and cultivating their crops. It is not so smooth sailing as where the members own orchard properties and are more independent financially.—H. H. W.

TAMARIX AND ELEAGNUS

In 1910 the United States bureau of plant industry imported cuttings of a plant known as Eleagnus, said to be wonderfully drouth resistant and well suited to desert regions and sections of extreme heat. The Cultivator recently wrote to Washington to ascertain if this tree had been introduced to the Imperial and Coachella Valleys. Peter Bisset, plant introducer in charge of foreign plant introduction, answers as follows:

"The Eleagnus angustifolia is a very hardy plant and therefore we confined our distributions of this plant to the colder northern regions, where it is used as a windbreak and for hedge purposes. There are no plants that I know of anywhere in the Coachella Valley, nor do we at the present time have any young plants available. It roots very readily from cuttings, however, and we can have a number of cuttings sent you if you would care to have them. The Tamarix aphylla (also known as T. articulata.—Ed), which is doing so well in the Coachella Valley, especially around Indio, deserves all that you have said about it. It is a magnificent plant and being evergreen is well worthy of further propagation and dissemination."

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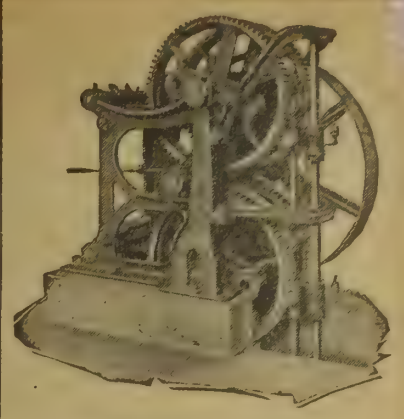

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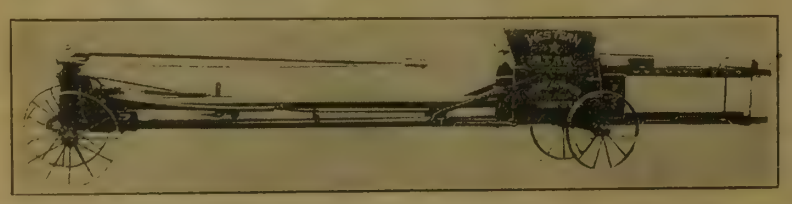

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Winter Potatoes

Please tell me what is the best potato to plant for winter use.—Subscriber, San Luis Obispo.

Fall planting is merely a question of time necessary to mature; the shorter season potato is the best, therefore White Rose is recommended for its average time from planting to harvest is about 60 days.

Ropy Milk

I have a cow that seems all right but when her milk gets sour it gets ropy and slick. Would you use it?—Subscriber.

See that all utensils, strainer, cloths or any appliances that come in contact with the milk are thoroughly washed in strong warm suds, after which the cloths and, if possible, the utensils, should be thoroughly boiled. The trouble often comes from scalding milk utensils with only lukewarm water. If it is actually boiling the ordinary rinsing may answer, but the safest way is to submerge the utensils and continue the boiling for a few minutes. Likewise, if water has been used for cooling, empty the tank from which it is drawn and thoroughly scald it with boiling water. If this does not prevent the trouble set the milk as soon as strained on stove and raise to a temperature of 150 degrees. Keep standing for 20 minutes at this temperature, after which cool as quickly as possible. Stringy milk is usually not caused by condition of cow or feed but by the bacteria which enter the milk after it is drawn. We think the milk if handled in this way will be entirely satisfactory for table use.

Barley for Cow

Is rolled barley good feed for a cow? Will it hurt her any? Is burr clover good cow feed? Will it make the milk taste? I have a cow that doesn't like ground feed but likes rolled barley. She will eat it some, but not very much.—Subscriber, Puente.

Yes, barley is a good feed for cow providing alfalfa or other feed rich in protein is fed with it. If, on the other hand, silage, beets, corn stover or milo stalks are fed one should have more protein supplied and instead of rolled barley, bran or oil cake should be used. Alfalfa is especially rich in protein and barley added to it would aid in balancing the ration.

Measuring Hay in Stack

Will you please give method of computing the tonnage of a stack of hay?—Subscriber, Nevada.

We reprint answer to a similar question given in a former Cultivator:

From the "over" subtract the width and divide the remainder by two, which will give the height that the stack would be were it flattened down so as to be shaped like a brick. This is always true, no matter how tall the stack nor how wide. Having ascertained the height, width and length of the stack, it only remains to multiply together the three dimensions and divide by the number of cubic feet in a ton. For example: Suppose you have a stack 20 feet wide, 60 feet over and 50 feet long. 60—20 equals 40 divided by 2 equals 20. You have now a stack shaped like a brick. Multiplying its dimensions, we have 20x20x50 equals 20,000 cubic feet; 20,000 divided by 512 equals 39.14 tons.—Henry Nelson.

Federal Farm Loan

Can you give me any information in regard to the federal farm loan; whether loans are made in this county and the time it takes to get loan. Also how do they get to appraised value of property? — Subscriber, Los Angeles County.

The federal land bank has been doing business during the past year but in a most restricted way because of lack of funds due to the tie-up of the mortgage companies suit. As announced some weeks ago in the Cultivator the supreme court has held "that these banks were legally created as part of the banking system of the United States, and that the bonds issued by the banks are instrumentalities of the United States government and are exempt from federal, state, municipal and local taxation." Since that time the efforts of the bank officials have been toward issuing and disposing of $40,000,000 in bonds. These bonds bear five per cent interest and are absolutely tax exempt. Applications are now being received for loans under the amortization plan. These applications are being forwarded to Berkeley, though it is announced that the first loans to be issued will be those for which applications were made before the tie-up. Yes, there is an association in Los Angeles County, and in any case the federal farm loan enters every county of the United States. The appraisal is by your own local association first and then by expert sent from the bank at Berkeley. The appraisal may be anywhere from nothing to $750, or possibly $800 for highest quality of land with thoroughly established water right. This high valuation, however, is only in case of valuable producing orchard property; $300 or $400 is usually about the limit for strictly agricultural land.

Fruit Trees Near Line

We bought our ranch a year ago and afterwards found that our neighbor has trees planted two feet from line. We cannot irrigate at same time, so had trouble working up our ground, all last summer, as we couldn't turn on account of his irrigation water. He has owned his place four years and always irrigated his last row of trees and also turned on our line, though the previous owner of our place had asked him repeatedly to stay off. The trees are eight year old orange trees and most of the branches hang over from two to three feet on our line. Would we be allowed to pick the fruit hanging over on our place? Could we put up a fence on the line to keep him off? Could we keep him from running water on our place?—Subscriber, Tustin.

You are entitled to the fruit which grows over your line and you may gather and market or you may trench and cut roots or you may remove as much of the top of the tree as projects over the line providing it interferes in any way with your own operations. Of course it goes without saying that you may construct fence up to the boundary line. On the other hand, if the trees were directly on the line then you could not cut or injure without the consent of the neighbor as he would be a half owner. Neither could he interfere with the trees without your consent.

Twelve Spotted Pest

Can you give some spray, of either liquid or dust, that will control the 12 spotted squash bug in an orchard? Have hand picked until the last few days when they appeared in such large numbers that it is impossible to continue fighting them in this way. They have attacked the peaches, plums, prunes, nectarine, figs, pears, apples and the foliage on almonds. So far the quinces and apricots are not bothered. They are not only eating the foliage but the small green fruit is being destroyed. There will not be any fruit in our orchard if some method of control is not found. A neighbor says that they are as thick as a swarm of bees on his orange trees.—Subscriber, Oceanside.

The only spray which is of value with this pest is one containing Paris green or other arsenical poison. Perhaps the cheapest and most effective way would be to use neutral lead arsenate, six or eight pounds of the paste or moist form to each 100 gallons of water. If dry or powdered neutral lead arsenate is used it should be taken in only about half the weight as it is practically twice as strong.

This Month in the Ornamental Garden

Southern California

By Ernest Braunton

MAY is a month of care in the garden, rather than of planting, for if you have no established garden by now you are not a gardener in any sense of the word. It may be hot throughout May or it may be cool, but it always is a growing month and at no season is the demand for soil moisture greater or more constant. All vegetable life is "full of juice" and the supply must be sustained.

If possible water or irrigate in the evening during hot weather for the plants have then all night in which to drink and recuperate. If watering cannot be done at night it should be as early in the morning as possible. If very hot, water at night and give a very light but forceful spraying before sunrise. This proves a good "constitutional" to invigorate the plant for the desiccative pull on plant vitality the livelong day. For it often happens that at the precise period when plants are growing fastest and need most water hot weather is also in fierce competition for that water.

It should hardly be necessary to say that this is also the season when plants need the greatest amount of food. Therefore give them food in available form if convenient. A little nitrate of soda is a good start for it is immediately available. This should be supplemented, in special cases where plants are to be hurried, by liquid manure. This soluble form of food is quickly available, quickly absorbed by feeding roots and can be more equably distributed than dry manures. Fill a sack with rich stable manure, put it in a tub, barrel or other receptacle filled with water, and after a few hours the water in the vessel will become well colored and ready to apply to the soil. As the solution becomes weaker from use of much water, punch the sack with the end of a blunt stick. This will cause an exchange of water within the sack with that without. Use water, through constant refilling, until it no longer is well colored. Then empty contents of sack in garden and refill with fresh manure. This plan will allow you to feed heavily tender plants that would be injured through contact with manure fresh from the stable.

There still is time for the sowing of many seeds, and plants of still more kinds may be put out. Sow candytuft, centaurea, coreopsis, cosmos, daisies, forget-me-not, gaillardia, marigold, nasturtium, petunia, phlox, pinks, poppies, salpiglossis and scabiosa. Chinese and other primroses for shaded places will do well if seeds are sown in boxes and young plants afterward put where they are to grow. Bulbs of many sorts, if they are fairly well preserved, will give excellent results. They should be planted deeper and supplied with more water than would be advisable in early spring. Some of this class are: amaryllis, allium, canna, cyclamen, dahlia, Gladiolus, iris (Spanish and English), scilla, tigridia, tuberose and tuberous begonia. Plant the last named in the shade in rich, well drained soil, and the result will be the most delicate of flowers during the hottest weather.

Northern California

By A. R. Gould

THIS is the month when the roses bloom and many other flowers are in their full glory. Flowering shrubs have been making a wonderful show. If you failed to apply the commercial fertilizer to the lawns last month do it now if you wish to have them looking green for the summer, and the sprinkler should be applied immediately after the grass has been cut. Continue to plant lippia or wild strawberry. As a ground cover or for banks they are the most satisfactory.

Planting Schemes

Some people like blue effects in their garden, other pink, and others like a color combination. There are all kinds of tastes and we are also glad to say that there are all shades and types of flowers. To attempt to lay out a plan to please everybody would be impossible.

Dahlias

Secure the best varieties and plant out three feet apart. See that the eyes are well sprouted. Plant in deeply manured soil and water moderately at first.

Roses

Keep them well mulched with manure to secure fine blooms and remove side buds leaving the terminal. Spray with Black Leaf 40 for aphis and dust with dry sulphur for mildew, which is usually very troublesome.

Carnations

Tie up these plants and disbud to secure good blooms. Feed with liquid manure.

Chrysanthemums

Secure plants of all types of these, especially single and pompoms, and plant out this month in groups for the perennial border or in rows for cut flowers in the fall. Prepare the soil carefully for best results.

Begonias

No garden should be without a few of these as they are the most satisfactory for shady places, and associated with ferns they look charming. There are both fibrous and tuberous, the latter having a wide range of color and types, being frilled, crested single and double in orange, scarlet, pink, yellow, white and dark red. The fibrous are usually in pink and red, and some of the species are rather tall growing. They delight in leaf soil and peat. Plant these now and fill up that bare spot under the trees.

Southern Arizona

By M. E. Bemis

It is not too late to plant seeds of many of the wonderfully quick growing vines that produce shade so badly needed. The Balsam apple and morning glory are among those that may be planted in early May and will make shade for porches and windows or hide unsightly fences or buildings.

The old fashioned zinnias grow readily from successive plantings and make odd corners, borders of walks or any otherwise vacant nooks attractive.

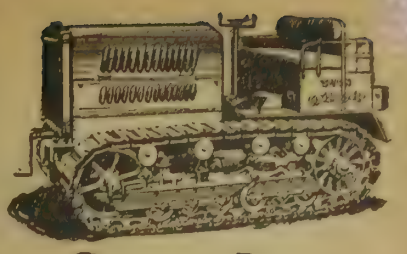
Cosmos may also be planted this month, and this is another flower that might well be cultivated more and adds to the attractiveness of home surroundings.

CITRUS INSTITUTE IN JUNE

The summer meeting of the Citrus Institute will be held at Whittier. The date for the meeting has not been set as yet but will be some time in the latter part of June. Citrus growers would do well to bear this in mind.

FARM BUREAU CONFERENCE

The annual farm bureau conference excursion will be held the last week in May, 23-28 inclusive, leaving Berkeley at 8 o'clock Monday morning, the 23rd, and ending at Bakersfield Saturday evening, the 28th.



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Household Department

A HILL SONG

Oh, towns were made for listless folk,
who tread an ordered round,
Who fence their petty lives about with
mark and mete and bound.
But hills were made for virile folk, who
dare to walk alone,
With all the world beneath their feet,
and all the sky their own.

Oh, streets were made for feeble feet that
keep a mincing pace,
That beat a treadmill path across the
city's hampered space.
But trails were made for sturdy feet, that
love to do and dare,
And ask no pleasure but a road that leads
them anywhere.

Oh, roofs were made for timid heads,
that guard their eyes from fright,
With lofty beams and rafters strong
above them day and night.
But hills enfold a sounder sleep, warm
in a blanket bed,
With aspens laughing in the wind, and
star-fire overhead.

And city folk may have their town, and
walk their ordered way;
And live their close and sheltered lives,
day by eventless day.
But we who are the hill folk will ask
God this grace—
A winding trail beneath our feet, the
hill wind in our face.

—Ted Olson in Sunset.

WITH PUP'S ASSISTANCE

"MARTHA, do you think it would be possible for us to buy the Peters grove?"

"No, Phil, no; I do not. What made you think of such a thing?"

"Well, they are wanting to sell, and he has offered it to me at a bargain."

"Oh, dear. It's dreadful to be hard up," from Martha. "It seems a good chance to make some money, but I don't see how we could possibly handle it. We can think it over, but it looks impossible. But, my goodness!" looking at the clock, "where's Billy? We'll surely be late for the parade. Billy!" she called, "nearly ready?"

"Yes, Aunt Martha," from somewhere out of doors, accompanied by vigorous whistling. Then "Aunt Martha, I can't find Pup."

"Does Pup have to go, Billy?"

"Oh, Aunt Martha," eloquently from Billy. "Well, I don't think grandpa'd enjoy it much without him."

Aunt Martha laughed.

"What about Billy boy?" she asked.

"Well, I know I wouldn't enjoy it without him." More vigorous whistling. Then from Aunt Martha:

"Billy, we can't wait any longer. I'm afraid we'll be late anyway; and grandpa simply must not miss the parade. You know this is his special day. We'll just have to leave Pup at home."

"But maybe he's lost."

"No such good luck, Billy. He's after a gopher somewhere in the grove, and he'll probably work at it all day. Come, we must be going or we'll surely be late for the parade."

"Maybe Mr. Peters' folks will come by for us if we wait."

"No, they're going to stay at home today. They don't celebrate Memorial Day. And Baxters have gone to the beach. I guess we'll have to walk, and I'm afraid grandpa'll be tired."

"Now, Martha. Do I look as if I were likely to faint by the wayside? All I'm worrying about is, I wish Phil could go too."

"Yes, so do I. I wanted to stay at home and attend to the irrigation, but he wouldn't hear to it. But of course I'm glad we are to get the water today, for the grove certainly needs it."

The three of them were on the way by this time, grandpa and Aunt Martha still discussing the little grove which contained practically all their worldly possessions. Grandpa Brown's widowed daughter, Martha Gray, was his housekeeper and general business adviser. Phil, her youngest brother, had lost his health several years ago following the death of his wife, and they had all sold their modest possessions and come to California, hoping he would be benefited by the change. They had sufficient funds to buy this little five-acre orange grove, but with no surplus to speak of. They had succeeded in keeping the grove in good condition, and had managed to live, with most of the necessities of life but none of its luxuries, until this winter when their entire crop had frozen and been carted off to the dump. It had left rather a discouraging outlook for the little family of four. Phil's health, though improved, was not yet sufficiently rugged that he could do hard work of any kind. And they were working on the principle that it pays to keep up an orange grove. They had put back into the grove practically everything they had taken off in the way of crops, and just how they were to tide over until another crop would be ready for the market was their problem.

Grandpa and Martha were discussing these things on the way to the Memorial Day celebration. Grandpa, at 75, was still hale and hearty and often walked the two miles to the little town.

As they left the grove, Billy kept his eyes open for Pup. Usually nothing pleased Pup more than a trip to town with Billy and grandpa, but today he was engaged in the fascinating pursuit of digging out a gopher, the dirt flying out in showers from under his frantically digging feet, while little short, low barks proclaimed his excitement. To be sure, he never had dug out a gopher, and he had worked at it many a time long and faithfully, with enthusiasm worthy of a better cause; but he was still hopeful.

Billy whistled, and whistled, and whistled. Farther and farther away it sounded to Pup, who gave a final longing look at the hole he was digging—such a nice, deep, cool hole—and decided it could wait, while evidently Billy and Grandpa couldn't, and went tearing after them, flinging himself at them with every indication of frantic joy at the prospect of accompanying them; then making wide detours to be sure he didn't miss anything interesting by the way.

Suddenly the warning toot of an automobile horn close behind them sent them all scrambling for safety to the side of the road, as a comfortable looking automobile glided slowly past and came to a stop a few feet ahead of them, while the pleasant-faced, middle-aged man in the driver's seat called back, "Can I give you a lift?"

"We are just going into town to the celebration," explained grandpa. "But we'd be glad of a ride. We were a little late getting started. Pup, here, had a previous engagement with a gopher, and delayed our start."

The interested glances of the two occupants of the car proclaimed them dog lovers, and the pretty lady on the back seat said, "We've a place here that will just fit Pup," as she opened a gate on the car step that spoke of previous dog occupancy. Grandpa was getting into the front seat, while the lady on the back seat made room for Aunt Martha and Billy beside her, and Pup sprang into his place, entirely at home apparently, and enormously pleased with the arrangement, barking his delight as the car started up.

And then grandpa was telling the man about the celebration; how the "boys of '61" were to head the parade, and there were to be a number of bands from near-by towns, all of whom were celebrating together, with an orator from Los Angeles. Afterward they were to separate and decorate the graves of their dead comrades in all the different cemeteries. And as the man listened to grandpa's enthusiastic recital of the plans for the day's celebration, he turned to the young woman on the back seat:

"How would you like to spend the day here, Frances, and take our friends home afterward?"

"Fine, Father. I would like to see the celebration," and so it was arranged, the man explaining that they were tousists, sight-seeing in a leisurely way, with nothing to hurry them back to Los Angeles. Then he produced a business card which read: "George E. Burnham, Denver. Securities." Grandpa passed the card back to Martha, who having read it said "So you still live in Denver, do you?" Mr. Burnham turned a startled face toward her. "Yes, I have lived there practically all my life. And of course I should remember you. There has seemed something familiar about you ever since I first saw you, but you see, there in the back seat you have the advantage of me. I've not had a good look at you." He turned and scrutinized her closely and a smile proclaimed his recognition. "U-huh, Martha Brown, of course. And you haven't changed much. How are you?" shaking hands warmly. After general in-

troductions were acknowledged he continued: "It's a long time since I heard of you. Then it was in Texas, wasn't it, or Arizona?"

"Yes, we've drifted around quite a lot. First my husband's ill health, then my brother Phil's, Billy's father. And what about you?"

"Oh, I've stayed right on the job in Denver. My wife died ten years ago. Since then Frances and I have traveled a good deal, but we always return to Denver. This year we thought maybe we might find some place we would like better. We happen to be almost entirely foot-loose, so we thought it a good time to make a change. We came to California with no very definite idea in mind, but sort of hoping we might find an orange grove that would suit us.

(To be continued.)

HINTS FROM HOUSEKEEPERS

To Remove Calla Lily Stain

Obtain a bottle of Clorox from any grocer. Pour a little in a saucer. Rub stain in cold water, then wet it thoroughly in Clorox, rub between fingers and rinse in cold water before boiling. This applies only to white clothes. Clorox will also remove all fruit stains. (In reply to query in Cultivator of April 16.)—Mrs. N. J. Mitchell, King City.

Nuttose

Here is a splendid spread for sandwiches, or may be cut like cheese and eaten: 1 cup nut butter (peanut), 1 cup water, 1 cup tomato juice, 1 teaspoon salt and sage, 1/3 cup flour. Mix and steam for two hours.—Mrs. R. E. Tong, Modesto.

Calla Lily Stain

Calla lily stain can be removed by using Sanford's Ink Eraser. Comes in liquid form. May have to use it more than once, but it will remove calla lily stain. (For Riverside Subscriber.)—Mrs. F. Stites, Escondido.

Here Is Poem Requested

Am enclosing the poem, "There's but One Pair of Stockings to Mend Tonight," that some subscriber asked for. Am glad that I had it to send. Surely do enjoy the Cultivator, especially the "Household Department."—Cora L. Ferrell, Banning.

THERE'S BUT ONE PAIR OF STOCKINGS TO MEND TONIGHT

An old wife sat by her bright fireside,
Swaying thoughtfully to and fro
In an easy chair, whose creaky craw
Told a tale of long ago;
While down by her side, on the kitchen floor,
Stood a basket of worsted balls—a score.

The good man dozed o'er the latest news
Till the light in his pipe went out;
And, unheeded, the kitten with cunning paws
Rolled and tangled the balls about;
Yet still sat the wife in the ancient chair,
Swaying to and fro in the firelight glare.

But anon, a misty tear drop came
In her eyes of faded blue,
Then trickled down in a furrow deep
Like a single drop of dew;
So deep was the channel—so silent the stream—
That the good man saw naught but the dimmed eye beam.

Yet marveled he much that the cheerful light
Of her eye had heavy grown,
And marveled he more at the tangled balls,
So he said in a gentle tone:
"I have shared thy joys since our marriage vow,
Conceal not from me thy sorrows now."

Then she spoke of the time when the basket there
Was filled to the very brim;
And now, there remained of the goodly pile
But a single pair—for him;
Then wonder not at the dimmed eyelight,
There's but one pair of stockings to mend tonight.

I cannot but think of the busy feet,
Whose wrappings were wont to lay
In the basket, awaiting the needle's time—
Now wandering so far away;
Now the sprightly steps to a mother dear,
Unheeded fell on the careless ear.

For each empty nook in the basket old
By the hearth there's a vacant seat;
And I miss the shadows from off the wall,
And the patter of many feet;
'Tis for this that a tear gathered over my sight,
At the one pair of stockings to mend tonight.

'Twas said that far through the forest wild,
And over the mountains bold,
Was a land whose rivers and darkening caves
Were gemmed with the rarest gold;
Then my first born turned from the oaken door—
And I knew the shadows were only four.

"Another went forth on the foaming wave,
And diminished the basket's store;
But his feet grew cold—so weary and cold,
They'll never be warm any more.
And this nook, in its emptiness, seemeth to me
To give forth no voice but the moan of the sea.

"Two others have gone toward the setting sun,
And made them a home in its light,
And fairy fingers have taken their share
To mend by the fireside bright;
Some other basket their garments will fill—
But mine, ah, mine is emptier still.

"Another—the dearest, the fairest, the best—
Was taken by angels away,
And clad in a garment that waxeth not old,
In a land of continual day;
Oh! wonder no more at the dimmed eyelight,
When I mend the one pair of stockings tonight."

Mrs. Howles—I've decided that Edith shall have her voice trained in Europe.

Howles—Certainly; but isn't there some place in Asia?—Boston Transcript.

TIMELY MEMORY JOGS

With the coming of warm days the popularity of the bathroom increases. If you haven't yet installed the new tub or tank you promised yourself last summer, now is the time.

A very satisfactory shower bath may be enjoyed in the ordinary bathtub by purchasing short length of hose with spray nozzle for attaching to the bathtub faucet. These shower sprays are a quickly acquired habit, especially by the boys and men of the family. They are very inexpensive.

After a hot, dusty drive or a hot, dirty day in the field or garden, the one most refreshing and restful thing is the hot bath or the cold shower—or both. Appliances from the simplest to the most luxurious are available for supplying this comfort to every home in the land. The Cultivator will be glad to furnish suggestions for installing water system or appliances to fit your individual needs. What are they?

Hot water tanks can be supplied with heat from kitchen range, from separate gas, gasoline or oil stove or from the sun's heat—no reason why anybody should go without.

Canning time is almost upon us. Are you supplied with all things needful? Look over your shelves—cans, tops, rubbers, funnel filler, preserving kettle, pressure canner—whatever you intend to use.

Manufacturers have been busy perfecting small canners for home or small business use. There has been a great demand for the small canners from all parts of the country.

Also there are a number of small household or commercial fruit evaporators now in the market. The use of these has increased so rapidly that the manufacturers are just beginning to catch up with the demand.

Last—and least in size—have you fruit knives that will cut? A few cents will secure a knife of good steel that can be kept sharp. It is small economy that makes much labor to have in the family one (maybe) good sharp fruit knife and an odd one or two that is kept because "it's too good to throw away"—but no good to cut with.

The *No. 2C Autographic*
KODAK, Junior

equipped with
Kodak Anastigmat
f.7.7 lens and Kodak
Ball Bearing shutter

$25.00

This Camera fits into a niche, all its own. The size of the picture it makes, 2⅞ x 4⅞ inches, is particularly pleasing; is almost up to the full post card size—and yet the camera itself is small, light, convenient.

The Kodak Anastigmat lenses are made to exactly fit Kodak requirements. They are not merely an adaptation of a lens to the Kodak. They are a Kodak product designed to fit Kodaks, and in each case designed with particular reference to the size and type of Kodak and Kodak shutter that they are to be used with. The *f*.7.7 lens used on the *2C* Kodak has more speed than the best of the rectilinear lenses and is at least equal to the best anastigmats in depth, sharpness and flatness of field.

The Kodak Ball Bearing shutter has speeds of 1/25, 1/50 and 1/100 of a second for "snapshots", has the usual time and "bulb" actions for prolonged exposures. It is an unusually reliable shutter, works smoothly and is quiet in its action.

The No. 2C Junior is covered with genuine grain leather, is finely finished in every detail, is extremely simple in operation, is "autographic", of course and, with the Kodak Anastigmat lens, produces negatives having that crispness and sharpness that are characteristic of the true anastigmat.

The price, $25.00, includes the excise war tax.

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Every morning

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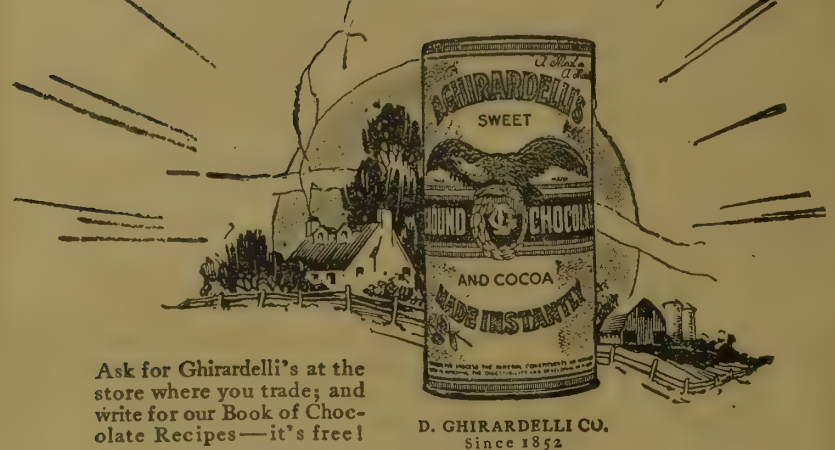

Ask for Ghirardelli's at the store where you trade; and write for our Book of Chocolate Recipes—it's free!

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Since 1852
San Francisco

GHIRARDELLI'S
Ground Chocolate

SETTLING CHILDREN'S DISPUTES

It happened one day between the little folk in the kindergarten room, but it set the older folk to thinking.

Kindergarten had not yet started, and Tim, a little fellow of three and a half, walked over and took the oak chair that Clifton, aged five and a half, had placed beside the table for work. When Clifton realized what had happened, a tug of war began, and the two children were soon joined by others, most of them to aid little Tim.

The kindergarten teacher stopped what she was doing and gave her attention to the group and, although she might have stepped over and put an end to the struggle, she only stood by and watched.

It looked as though the trouble would never end, and as though some one might be hurt, but still she did not interfere; she only looked on, ready, however, to take a hand if it became necessary.

At last one of the older boys was called to help. He studied the situation, observed that the fuss was over an oak chair, and that there was one more oak chair in the room; he solved the problem by offering the vacant chair to little Tim, and all was settled to everyone's satisfaction. The teacher heaved a sigh of relief, and gave a smile of approval; it was a step in the children's development, one well worth while.

Why can't children settle more of their own disputes? Isn't it because we interfere too often instead of giving them a chance to work out their problems for themselves?

IT PAYS TO TEST RUBBER RINGS

The United States department of agriculture gives a number of tests which may be used to determine whether a rubber ring has the requirements that it should have or not. One is the stretching test.

A six inch piece is cut out of a ring; take hold of the end so there are four inches between the fingers. Stretch the piece along a ruler until the fingers are ten inches apart. The sample should not break and should return to its original length. The tensile strength test is as follows: Fill a light weight pail with one gallon and seven pints of water (total weight approximately 17 pounds). Place the jar ring around an empty spool; pass a wire through the center of the spool and fasten to handle of the pail; then pass the round handle of a wooden spoon or broom through the ring and lift. The ring should not break. If rings will stand these two tests, they are not likely to give trouble in canning.

CLEANING CLOTHING

People were just beginning to learn that ether was very useful in removing grease spots from clothing and other textiles when the war created a shortage of it and gasoline again had to be resorted to, notwithstanding it had doubled in price and left a residual odor on the goods that wasn't pleasant.

For a long time ether has been used in cotton and woolen mills for removing spots from new cloth. It can be purchased in drug stores in half pound cans. It is not expensive, but is very volatile. After taking the required amount from the can, the container must be tightly closed as soon as possible, otherwise our cleaner dissolves into thin air.

Ether is inflammable and should not be used anywhere near open flame or open fire, nor in a closed room where the ventilation is not good. The same care should be exercised in its use as in the use of gasoline, benzine and like products.

Dont Send a Penny

Rubber Boots For Ranchers and Irrigation Work

$3.98

A wonderful value in Hip or Knee Length Rubber Boots made of REAL gum Rubber with heavily reinforced seams. Made to order of the English Government for the British Army at actual COST OF MORE THAN WE ARE SELLING THEM FOR. Will stand all extremes of heat and cold and made to give extra long wear. Finest quality pure gum rubber with extra heavy soles. This is one of the very finest BARGAINS we have ever been able to offer our customers and the stock is limited so get your order in very early. Nothing better can be worn by ranchers or men who work in irrigated districts, rice fields, etc. This quality of Hip rubber boot would usually cost you $7.50 to $8.00. Remember you can get the full HIP boots for $3.98 or the shorter knee length boots for $3.29. Be sure to mark which kind you want on the coupon below. WE DO NOT WANT YOUR MONEY IN ADVANCE. We take all risk because these boots are such wonderful values. Fill out coupon NOW and mail at once if you want some of these boots before they are sold out.

Send for free catalogue of shoes for men, women, boys, girls and children.

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Send me.....pairs of Rubber Boots as marked below, postpaid, at once. I will pay postman for them on arrival. If I am not entirely satisfied I will return boots and you will refund my money immediately.

Size..... Hip or Knee Boot?.....

Name..... (Print Plainly)

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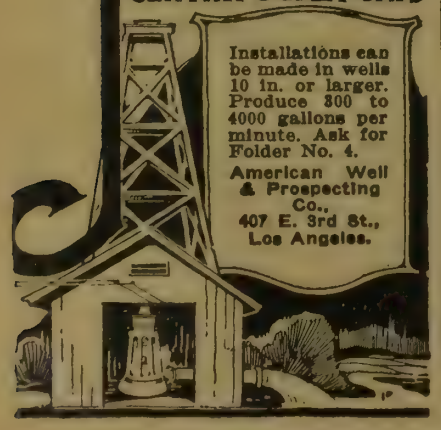

Installations can be made in wells 10 in. or larger. Produce 300 to 4000 gallons per minute. Ask for Folder No. 4.

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"THE BOSS" TREE PROTECTOR

Made of Yucca Palm

Is cheap, durable and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frosts, sunburn, grasshoppers or dry winds. Can be easily removed. Send for samples.

Prices

	Per 1000
10 in. long, 7 in. wide	$10.00
12 in. long, 7 in. wide	11.00
14 in. long, 7 in. wide	12.00
16 in. long, 7 in. wide	13.50
18 in. long, 7 in. wide	15.00
24 in. long, 7 in wide	18.00
30 in. long, 7 in. wide	21.00

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BEEMAN Multi-Service Tractor

Cheapest to buy
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You can not only buy a BEEMAN Tractor for less money, but it costs less to operate this powerful small tractor. It is compact and easy to control. Runs exactly where you want it and travels at the proper speed, cultivates narrow rows and is always "on the job."

It is a 4 h. p. stationary power plant besides. Operates for 8 cents per hour in field and 4 cents per hour belt work.

The new improved BEEMAN is the best tractor buy on the market.

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Los Angeles

PETALUMA COW TESTING PROGRESS

C. B. Wiborg, tester, makes the following interesting report of the Petaluma unit of the Sonoma County Cow Testing Association:

During the month of March there were 1,365 cows tested, 426 making 40 pounds fat or more.

The average for the entire 1,365 cows was 874 pounds milk and 35.9 pounds fat.

Five herds in which the entire herd averaged over 40 pounds of fat are given in the table below, also the record of the best cow, as follows:

A. Purvine—Jersey 37	49.6	83.4
M. Mordecai—Jersey 40	44.0	77.5
D. McClure—Jersey 35	42.2	64.2
U. Martinelli—Holstein 62	40.9	58.6
A. Volkers—Holstein 42	40.3	82.8

Note.—The first column of figures indicates the number of cows in the herd, second column the herd average, and third the high cow of the herd.

A cow is simply a machine for converting feed into milk, and it is just as expensive and wasteful to keep two cows where one could produce as much, as it would be to keep four horses where only two were needed, or two trucks where one could do the work. The cow testing association is the easy way for dairymen to select the best machines for producing milk.

There is a big improvement noticeable in most of the herds in the cow testing association compared to three and four years ago. Unfortunately, some dairymen do not use the information obtained and are making no progress.

The cow tester simply furnishes the information. It is up to the owner of the herd to use it.

E. E. Greenough of Merced sends records of some of the Jerseys of his Sunshine Farm: Patsy of Sunshine Farm 438169, age 21 months; lost one quarter of udder soon after start of test; milk 5,072.5 pounds, fat 252.46 pounds; days in milk 362. Beauty of Sunshine Farm, 409731, age one year 11 months; milk 7,934.2 pounds, fat 430.33 pounds; carried calf 247 days. Goldie of Sunshine Farm, age senior two year old; milk 6,825.1, fat 323.27; carried calf 240 days; days in milk 363. Edna of Venadera's Birdie, 373694, age four years nine months; milk 8,701.5, fat 510.66; carried calf 285 days; days in milk 338. Lorna of Venadera's Brownie, 373693; age four years nine months; milk 8,079.5, fat 485.53; days in milk 305; carried calf 235 days.

Tehama County farm bureau center meetings: Dairyville, 11; Antelope, 12; Oak Park, 13; Corning, 19; Bend, 20; directors' meeting, Red Bluff, 21; Los Molinos, 23; Liberal, 26; Bowman, 28.

COMING EVENTS

Orange County Farm Bureau Annual Picnic, Orange County Park, May 14.
Butte County Farm Bureau Annual Picnic, Paradise, May 14.
Fig School (traveling), May 16-21.
Grain Growers Conference, Davis, May 17-19.
California Valencia Orange Show, Anaheim, May 17-22.
State Farm Bureau Traveling Conference, (Touring San Joaquin Valley), May 23-28.
Community Festival, Colton, May 23-28.
Rose Carnival, Portland, Oregon, June 8-10.
Santa Clara County Farmers Union Annual Picnic, Saratoga, June 11.
Citrus Institute, Whittier, between June 20 and 30.
Frontier Days Celebration, Prescott, Arizona, July 2-5.
North of Bay Counties Fair, Santa Rosa, August 24-28.
Yuba County Agricultural Fair, Browns Valley, Aug. 29-31.
California State Fair, Sacramento, Sept. 3-11.
Tulare County Livestock and Agricultural Show, Tulare, Sept. 13-17.
Humboldt County Fair, Ferndale, Sept. 13-17.
San Fernando Valley Fair and Market, Owensmouth, Sept. 14-17.
Glenn County Fair, Orland, Sept. 19-24.
Kings County Fair, Hanford, Sept. 19-24.
Fresno District Fair, Fresno, Sept. 26-Oct. 1.
Southern California Fair, Riverside, Oct. 11-16.
California Association of Nurserymen Annual Convention, Exposition Park, Los Angeles, Oct. 20-22.
Date Festival, Coachella Valley, Oct. 21-23.
California Horse Breeders Association, Los Angeles, Oct. 30-Nov. 5.
Stanislaus County Poultrymen's Association Show, Winter Garden, Dec. 4-7.

Grow Shorthorn Cattle

With all grain and hay markets demoralized and an acknowledged shortage of beef cattle in this state and throughout the West, your best chance for profit is to grow good livestock. The better the livestock the greater the profit. Shorthorn cattle acknowledge no superior. The business is sound and the men engaged in it are prosperous. There is a wide market in this state for Shorthorn breeding stock.

Here Is Your Profit

A Shorthorn steer will have much greater weight and much better quality than a common steer and sell for more dollars per hundred. Is it not good business to raise the sort that weigh 1500 pounds at three years old instead of 1000 or 1200—and do it on the same feed and care?

Why Not Purebreds?

A registered Shorthorn cow will return from two to four times as much as a grade. Raising Shorthorns does not require heavy investment in equipment or labor and is not confining. There never was a better time to enter the business than right now and the opportunity is provided in the

Third Public Sale
Caledonia Farms Shorthorns
West Sacramento, Cal.
Wednesday, May 25
50 Bulls and Females

40 Cows The female end of the offering contains many individuals that we would like to keep in the herd. About half are Scotch including Acanthus, Orange Blossom, Roan Lady, Mina, Rosa Hope, Ury and other good tribes. The balance are strong American sorts. All are either bred to or sell with calves by:

Imp. Caledonia
Gainford Matchless
Pine Grove King

10 Bulls Among the bulls, six are Scotch. All are well grown and excellent type. Several are herd bull prospects. Here is a rare chance for the small breeder or the range man.

All are guaranteed breeders. Each lot sells tuberculin tested.

The catalog is ready.

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California Breeders Sales and Pedigree Company
C. L. Hughes, Mgr., Sacramento
Col. Ben A. Rhoades, Auctioneer

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ON HORSES

For sore shoulders, sore necks, cuts, etc., rub into the skin about the sore. Use sparingly. Only what the skin absorbs does good. A smooth paddle makes application easy. Write for circular.

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COMPLETE DISPERSAL

Finnell Stock Farm Co. Herefords

Friday, May 27, 1921, Galt, Cal.

98—Registered Herefords—98

36 Bulls. 62 Cows---29 with Calves at Foot

Right now is a good time to go into the breeding of Registered Herefords. An excellent opportunity is offered to get foundation herds or improvement blood in this sale. A herd rich in the blood lines that have popularized the breed in the West. Among our offerings are 19 sons and 18 daughters of Beau Blanchard 37th 604903, 14 sons and 11 daughters of Sir Thomas 530518. If you are looking for Herefords raised strictly under range conditions, big boned rugged individuals with plenty of quality, attend this sale.

Liberal credit will be extended responsible parties provided arrangements are made prior to sale with Finnell Stock Farm Co., owners, Galt, California.

Col. Ben A. Rhoades, Auctioneer, Los Angeles

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

Herd Bulls
Harris Standard 2d
Beau Blanchard 76

Nevada Hereford Ranch
J. H. Cazier & Sons
Wells, Nevada

A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

SIERRA VISTA HEREFORDS

One of the largest herds in the West. Built on a Repeater and Fairfax foundation. At present we have to offer 24 choice young bulls ready for service.

Sierra Vista Vineyard Co. Minturn On-Highway 2 Madera County Miles North of Chowchilla Cal.

For the Prevention of

ANTHRAX

Of all livestock diseases, anthrax is one of the most fatal.

For the preventive and curative treatment of anthrax we offer

ANTHRAXOIDS

(Spore Vaccine)

For immunizing cattle, horses, sheep and mules.

Anthraxoids are Anthrax Spore Vaccine in pill form. Each Anthraxoid is a dose ready to be injected under the skin of the animal.

Antianthrax Serum

A serum to be used when animals show symptoms of anthrax.

Anthraxoids-Antianthrax Serum

(Simultaneous Treatment)

Double vaccination with serum and vaccine. Used when anthrax is established or suspected to be in a herd.

Write for free booklet on the Prevention of Anthrax.

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Ultimately
Why Not Now?

We want everyone to see this wonderful herd

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DIAMOND G HEREFORDS

A few choice young bulls, big, heavy-boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.

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DON'T CUT OUT A Shoe Boil, Capped Hock or Bursitis

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will reduce them and leave no blemishes. Stops lameness promptly. **Does not blister** or remove the hair, and horse can be worked. $2.50 a bottle delivered. Book 6 R free.

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The Cultivator costs only one dollar yearly

If You Want
Good Holsteins

Be Sure and Attend the Dispersal of

THE VICTORY HERD

Owned by H. E. Spires and J. M. Crawford

70—Registered Holsteins—70

Hillcrest Ranch, Carruthers, Cal.
Wednesday, May 11, 1921

This is one of the most desirable offerings of the season, containing animals of most substantial breeding, good health, ranging young in age, and including some splendid A. R. O. cows and heifers bred to one or the other of the splendid herd bulls.

NORMA KORNDYKE CORNUCOPIA, 38.41 lbs. butter from 673.1 lbs. milk in 7 days, the highest 7 day record cow ever sold at public auction in the west.

27 AND-26 POUND HEIFERS and many others with records up to and over 22 pounds butter in 7 days.

24 DAUGHTERS OF SIR PIEBE DE KOL SEGIS PONTIAC, son of the famous sire King Segis Pontiac Count.

THE TWO RICHLY BRED HERD BULLS, Sir Piebe De Kol Segis Pontiac and King Pontiac Alcartra Prilly, two of the best bred bulls in the season's sales.

YOUNG BULLS, sired by one or the other of the two herd bulls, some out of high record dams, including a number sure to go at dairymen's prices.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer.

HILLCREST RANCH is two miles south of Carruthers on Riverdale Road; 16 miles due west of Kingsburg; 18 miles southwest of Fresno. Headquarters of sale Sequoia Hotel, Fresno.

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. Geo. W. Bell, Tulare

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Calif.

ONLY A FEW LEFT
Registered Holstein Heifers

Sired by a 37 pound grandson of King Segis.

These will make you money the way I have priced them.

All tuberculin tested and guaranteed right in every way. Come and see them.

SYCAMORE ACRE
ROBERT N. CLAPP
PROPRIETOR
HOLSTEIN-FRIESIAN — CATTLE
Nuevo, Riverside County, Cal.

King Segis Pontiac Jannek

A proven sire of show winners and high producers is available for service to high class Holstein cows.

SANTA MONICA DAIRY CO.
Farm is on Washington Blvd. 2 miles east of Venice. Santa Monica

HOLSTEIN Fred Hartsook RANCH CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

McNeil's Big Type Poland Chinas

Herd headed by Giant Prospect and Mc's Challenger. My sow herd is composed of a great lot of choice matrons including Polandale Betty, first prize junior yearling at Sacramento. Correspondence solicited.

CHAS. McNEIL, Route H, Box 166, Fresno, Cal.

Johnson's Defender Jr.

Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

H. C. WITHEROW Live Oak, Cal.

When Writing Advertisers Mention California Cultivator.

State Dairy Cow Competition

By F. W. Woll

List of cows producing 50 pounds of butter fat or over during March, 1921.

Adohr Stock Farms, Guernsey and grades: C-338, 1241 pounds milk, 67.01 pounds butterfat; C-319, 1171, 65.58; C-9, 1422, 65.41; C-170, 1565, 64.17; C-22, 1478, 63.55; C-210, 1348, 63.36; C-269, 1655, 62.89; C-263, 1633, 60.42; C-26, 1041, 56.21; Leota, 961, 53.82; C-88, 1223, 53.81; C-392, 1193, 53.69; C-93, 967, 51.25; C-248, 1178, 50.65; C-461, 815, 50.53; Yeksa Martin, 985, 50.24.

Arden Dairy, grade Holsteins: 203, 1212 pounds milk, 75.14 pounds butterfat; 65, 1742, 67.94; 249, 1288, 66.98; 35, 1643, 64.08; 968, 1380, 63.48; 880, 1491, 62.62; 164, 1367, 62.52; 970, 1448, 59.40; 58, 1767, 58.41; 976, 1311, 57.68; 134, 1221, 57.39; 942, 1432 57.28; 188, 1621, 56.74; 236, 884, 55.69; 910, 1562, 54.67; 173, 1466, 52.78; 79, 1376, 52.29; 202, 868, 52.08; 981, 1528, 50.42; 82, 1048, 50.30.

Anita M. Baldwin, Holsteins: Anokia Gelsche P., 2176 pounds milk, 81.83 pounds butterfat; Marken Louise, 2022, 63.30.

Dean Beeman, Holsteins: Capunista, 3184 pounds milk, 99.34 pounds butterfat; Jacobina, 2909, 96.57; Daisy Na Dean De K., 2260, 73.23; Betty NaD. De K., 1686, 58; Jean NaD. DeK., 1665, 55.28; Johanna Heng. Cap., 1754, 52.10; Naomah NaD. DeK., 1564, 51.62; Queen NaD. DeK., 2048, 50.58.

B. Biondini, grade Jerseys: Browny, 1110 pounds milk, 57.72 pounds butterfat; Shorties Best, 982, 52.05.

Bonnickson Bros., Jerseys: Financial C's Lor. D.,1079 pounds milk, 68.42 pounds butterfat.

Nelson L. Browning, Holsteins: Segis DeK. Bess, 2178 pounds milk, 89.22 pounds butterfat.

Burr Farm, Holsteins: Faribo Pont. O., 2699 pounds milk, 81.69 pounds butterfat; Goshen Snowb. Pont., 2156, 77.41; Zampa Annie L. 2d, 2102, 72.52; Heilo Bess Kornd. S., 2097, 71.72; Amelia Bona DeK., 2143, 69.87; Durasia Canary, 1914, 64.87; Dorothy Kornd. B., 1927, 62.30; Canary Fanny S. V., 1788, 54.35; Helm Segis Mead K., 1527, 53.75.

J. M. Christen, grade Holsteins: Aralia Pietertje, 1661 pounds milk, 68.93 pounds butterfat; Sheep Walker, 1022, 50.70.

Leo Christen, grade: Buttercup, 1373 pounds milk, 61.79 pounds butterfat.

D. F. Conant, Jerseys: Lady Kate's Rosette, 1694 pounds milk, 78.93 pounds butterfat; Lambert Glory's P., 1136, 59.05.

J. W. Coppini, Jerseys: Olga Fern's Olga, 1289 pounds milk, 78.10 pounds butterfat; Noble's Sayda Polo, 814, 61.89; St. Helier's Mabel D., 1055, 55.93.

W. F. Early, Jerseys and grades: Little Darling, 1522 pounds milk, 71.53 pounds butterfat; Goldie, 1460, 65.70; Jack Rabbit, 995, 55.72; Lineback, 1207, 55.52; Bertha, 1417, 55.26; Little Rose, 1589, 54.03; Granny, 1578, 52.07; Creamcup, 1177, 51.79; Roan Cow, 1346, 51.15.

C. E. Fisher, grade Jerseys: Wisconsin, 1085 pounds milk, 55.34 pounds butterfat; Minnesota, 958, 53.65.

S. G. Gambonini, Holstein: General, 1203 pounds milk, 55.34 pounds butterfat.

Earl Graham, Holsteins and grades: Gamma Sarc. of L., 2356 pounds milk, 89.52 pounds butterfat; Princess Maida V., 3303. 82.90; Black Emma, 1953, 80.07; Cora Jarie P., 2123, 78.56; Brownie, 1817, 76.31; No. 5, 2006, 72.21; Montana, 1950, 72.15; May Walker Gelsche K., 2269, 70.34; Peg, 1752, 66.58; Tomie, 1597, 65.48; Niger Heifer, 1721, 61.96; Spot, 1826, 60.26; Jersey, 1299, 59.75; Alice, 1742, 59.23; Rose, grade Shorthorn, 1649, 57.72; White Emma, 1407, 57.69; Smithy, 1888, 56.64; Maud, 1764, 51.16.

H. G. Gross, Jerseys: No. 9, 1059 pounds milk, 62.92 pounds butterfat; Francesca of Eureka, 1308, 61.61; Raleigh's Ang. Girl, 1345, 54.21; Raleigh's Peggy M., 855, 54.04; Raleigh's Frankie T., 1000, 51.57.

Fred Hartsook, Holsteins: Segis Tubie Col., 2767 pounds milk, 87.71 pounds butterfat; Alexandria DeK. P., 1835, 80.92; Sarcastic Blanche C. DeK., 2153, 69.54; Queen Canary S., 1747, 65.15; Dora Netherl. S., 1171, 57.75.

Nate Hauk, grades: Slow, 1347 pounds milk, 68.70 pounds butterfat; Brownie, 1265, 64.52.

A. B. Humphrey, Guernseys; Calla Grove I. M., 1382 pounds milk, 69.08 pounds butterfat.

Peter Iversen, Jerseys and grades: Old Jersey, 1115 pounds milk, 55.75 pounds butterfat; Baby, 950, 53.22; Black Jersey, 959, 51.79.

L. A. County Farm, Holsteins and grades: Whittier Pont. N. 4th, 2202 pounds milk, 88.29 pounds butterfat; Amador, 2037, 81.46; Butte, 1570, 67.52; Blossom, 1818, 60; Princess, 1587, 58.71; Sunland Peerl. T. K., 1937, 58.12; Whittier Segis Pont. M., 1565, 55.24; Alameda, 1704, 54.54; Blue Bell, 1253, 53.88; Domino, 1391, 52.85; Mariposa, 1687, 52.29.

J. Henry Meyer Estate, Ayrshires: Finlayston's Annie L., 2054 pounds milk, 82.76 pounds butterfat; Bright Eyes of H., 1633, 60.88; Baron's Molly, 1146, 54.11.

Guy H. Miller, Jerseys: Signora of Venadera J., 1236 pounds milk, 67.86 pounds butterfat; Gladys of Venadera, 902, 57.26.

Napa State Hospital, grade Holsteins: 651, 2115 pounds milk, 74.85 pounds butterfat; 663, 1771, 71.01; 760, 2079, 64.02; 715, 1345, 57.85; 786, 1814, 53.87; 791, 1631, 50.41.

Palo Alto Stock Farm, Holsteins: Alta Pappoose, 2929 pounds milk, 118.93 pounds butterfat; Alta Joh Princess, 2523, 107.72; Thelma Hart Sunl. DeK. 4th, 3036, 97.83; Irene Segis Pont., 2795, 84.41.

F. F. Pellissier, Holsteins and grades: Princess Tolia W., 2365 pounds milk, 80.41 pounds butterfat; 2423, 2223, 77.81; 862, 1578, 77.32; 2416, 2189, 76.62; 2403, 2111, 73.89; Mamie Pont. 2083, 72.91; 1899, 1968, 72.85; 1917, 2158, 71.71; Brudorin, 2018, 68.61; 1943 1618, 59.87; 1681, 907, 59.12; 2373 1299, 57.16; 2065, 56.49; 1946, 1473 55.97; 2479, 2006, 54.16; 921, 1386 52.67; 1989, 1609, 51.49.

Olga Saxer, Holsteins: Moorland Col. Rose, 3301 pounds milk, 95.05 pounds butterfat.

University of California: Ramona grade Holstein, 1661 pounds milk 57.45 pounds butterfat; Cal. Questa Queen, Guernsey, 1079, 52.66.

J. E. Thorp, Jerseys: Silver Tips 1314 pounds milk, 55.84 pounds butterfat; Sonny's Benedita, 1089, 51.49.

H. L. Wakeham, grade Jerseys: Jap 1308 pounds milk, 61.49 pounds butterfat; Wild Cow, 921, 60.77.

R. H. Walrath, grades: Minnie 1448 pounds milk, 65.16 pounds butterfat; Pansy, 1603, 59.31.

G. W. Walters, grade: Gaylord 1110 pounds milk, 63.27 pounds butterfat.

Warne & Sons, Holsteins: Bessie Abbek. Col. 2d, 2039 pounds milk, 70.1 pounds butterfat; Bertha Pont. J. 3d 1994, 67.01; Miss Flora Jul., 2074, 62.42

The reports for March so far received show that 372 cows in milk during the full month produced an average of 1,233 pounds milk and 49.8 pounds butterfat during the month. (Average number of days in milk at beginning of month, 110.)

Two cows produced over 100 pounds of butterfat during the month, both Holsteins and owned by Palo Alto Stock Farm., viz., Alta Pappoose 118.93 pounds, and Alta Johanna Princess 107.72 pounds. The former yield is equivalent to nearly 4½ pounds of commercial butter for each day of the month, a very remarkable production. Four cows produced between 90 and 100 pounds butterfat during the month, 14 between 80 and 90 pounds and 23 between 70 and 80 pounds.

The California Cultivator prize for March was won by F. F. Pellissier of Whittier for an average production in five grades of 75.70 pounds fat (ranging 72.9 to 77.8 pounds). This is the sixth time since the competition commenced last September that this prize has been awarded to Los Angeles County dairy farmers. During the past month grades in 18 different herds in the state competed for the prize, ranging in average production from 75.7 to 26.7 pounds. These herds were located in nine different counties, Humboldt County being represented by seven herds and Los A

geles County by four herds, with single representatives in seven other counties.

Entries in the state dairy cow competition closed on March 31 with a total enrollment of 1,308 cows, of which 761 were entered in competition for monthly or ten month records, and 647 for yearly cow testing association records. Among the former, 261 were pure breds and 500 grades or common cows, while the latter included 24 pure breds and 523 grades. The different breeds were represented as follows, among the pure breds: Ayrshires 6, Guernseys 36, Holsteins 130, Jerseys 98 and Shorthorns 15; and among the grades, Ayrshires 6, Guernseys 62, Holsteins 224, Jerseys 536, Shorthorns 10, and common or scrub cows 186. The cows were owned by 64 dairy farmers located in 21 widely scattered counties, from Del Norte in the north to San Diego and Imperial Counties in the south. So far as distribution and scope are concerned, the competition is therefore all that could be desired and bids fair to become of the greatest value to the dairy industry of the state.

As previously announced, the competition will be continued until January 31, 1922; it is planned to make the announcement of records of production by cows in the competition and of the award of prizes at the Dairy Farmers Day during the Stockmen's Week at university farm in February next year.

THE SILO IS THE SOLUTION

By Ernest Braunton

The dairymen have accepted the silo.

It is essential to economical dairying.

It does away with the necessity of expensive root crops.

It makes it possible to have a uniformly balanced ration all the year 'round.

It renders the food succulent, palatable and digestible.

The silo properly located economizes labor.

It economizes forage by converting waste roughage into palatable and nutritious food.

It condenses great bulk into small space.

The silo simplifies the farm end of the dairy business to corn and sorghum and sunflower for the silo and alfalfa for the best and most palatable dry roughage.

Economical Crops for Silo

Our farm colleges have decreed that Indian corn is best, but something with more sugar content is desired, therefore saccharine sorghums may be used to blend with the corn. But these alone have too much sugar content which may cause acid fermentation. Non-saccharine or grain sorghums are used largely on ranches where the soil is not suitable for growing Indian corn.

A good sorghum to grow for the silo is the recently introduced Wonder Forage Plant; there are many attributes in its favor. It is believed to be a hybrid between Sudan grass and amber cane. It is semi-saccharine; grows tall, having seed and heads like amber cane, but stools and grows as rapidly as Sudan. More than 150 seed heads were counted on one plant from one seed which would indicate how enormously it stools and branches.

Tonnage per Acre

Paul Greening of Norwalk stated that a field average of 20 tons per acre was going some, yet it is obtainable. One grower reports a yield of 105 tons off three acres of Orange County Prolific corn. Eureka Ensilage, Mexican June or Branching corn will do as well. Many growers report 15 to 20 tons from Red Top, Honey and Silver Tip Sorghum. No one has yet reported actual tonnage from the Wonder Forage plant but Mr. McClellan of Lankershim says that from his ten acre field he cut two full grown crops the first season and that it grew all winter from the stubble. When the frost destroyed the young growth it required only a few warm days to recover and he pastured it all winter. Mr. McClellan cut it with an alfalfa mower.

With the conservative estimate of 20 tons per acre each cutting it would be easy to believe that this plant is destined to lead all others for the silo.

Sunflower

Owing to the large content of potash in sunflower and its adaptability to soil that will not grow corn or sorghum, and because it is a good blend to make up a balanced ration in the silo, it should be planted more extensively. It is recommended by the California department of agriculture and by Prof. P. B. Kennedy, grass and forage plant investigations, University of California.

Storing Up Wealth

Silo on the ranch of Paul Greening near Norwalk, Los Angeles County.

WINS CALIFORNIA CULTIVATOR PRIZE

Five grade cows owned by F. F. Pellissier of Whittier had the highest average production of butter fat for grades in the state dairy cow competition during the month of March and the California Cultivator prize for this month was therefore awarded to Mr. Pellissier.

The production of the individual grades for the month was as follows:

	Days in Milk	Milk Lbs.	Butter Fat Percent	Butter Fat Lbs.
	25	2,223	3.5	77.81
	12	1,578	4.9	77.32
	24	2,189	3.5	76.62
	45	2,111	3.5	73.89
	86	1,969	3.7	72.85
Average	38	2,014	3.76	75.70

Grade cows in seventeen other dairy herds were eligible to compete for this prize during the past month. The average production of butter fat for these herds was as follows: Arden Dairy, El Monte, 67.52 pounds; Adohr Stock Farms, Van Nuys, 65.14 pounds;

This photograph of Pabst Virginia Johanna was taken while she was dry.

PABST VIRGINIA JOHANNA

Pabst Virginia Johanna, Junior two year old daughter of King Pontiac Champion has just completed a 305 days' record of 15229.5 lbs. of milk and 770.0 lbs. of butter, a *world's record* in this class.

This promising heifer is one of over 117 daughters of the noted Century Sire in the splendid herd at Pabst Stock Farm. Mr. Fred Pabst's 1350 acre farm at Oconomowoc, Wisconsin is a model of dairy farms, both in buildings and equipment—and in the magnificent herd of high producing cows, developed under the personal management of owner, Mr. Fred Pabst.

A WORLD'S RECORD *this time*

A Junior 2 Year Old World's Record Made on Pabst Stock Farm With a Pine Tree Milker

ONE after another come reports of new records made by cows milked by the Pine Tree.

State records, county records, now a WORLD'S record, and a 10-month record at that. A long trying test which called for every ounce of skill in feeding and milking—the acid test of a milking machine!

Great breeders, who formerly entrusted their test milking only to the most skilled herdsman, now put implicit faith in Pine Tree.

Nearly 50 high producing Holsteins are milked 4 times daily by the Pine Tree in the great test barns at Pabst Stock Farm. For over two years, in 4-time-a-day service, Pine Tree has never failed. Read Mr. Pabst's letter at the right.

Think it over, Mr. Dairyman! What does the Pine Tree's success in test milking mean to you? Maybe you're not after records. But you *are* after more milk. Breeders like Mr. Pabst are taking no chances in milking for production records. Their is no guessing in their work. When they use Pine Tree in their test milking you can bet they are getting more milk or they wouldn't be doing so.

The fact that the cost of machine milking is only one-half of that of hand milking is recognized by every dairyman. These records are the final proof that Pine Tree also increases production.

Send today for our booklet on Pabst Stock Farm and their recent records. Learn how great breeders save money in test work and make greater records with Pine Tree. Your copy is Free—write for it TODAY!

Pine Tree Milking Machine Company

Dept. 3025, 2843 West 19th Street, Chicago, Ill.

346 Washington Street, San Francisco, Cal. | 110 Montgomery Street, Syracuse, N. Y. | 319 Second Ave. S., Minneapolis, Minn.

Read Mr. Pabst's Letter

Oconomowoc, Wis., Jan. 21, 1921.

Pine Tree Milking Machine Co.
2843 W. 19th St., Chicago, Ill.

Gentlemen:—

I take great pleasure in stating that the Pine Tree has been in use here for about two years. It has given us absolutely no trouble, and has helped to do work which we could not have done at the time labor was scarce.

We are using your machine on many of our test cows. Pabst Virginia Johanna, as a Junior 2-year old, made 15229.5 lbs. of milk and 770 lbs. of butter in 305 days, which so far is the world's record. Pabst Pontiac Aaggie made 25915.8 lbs. of milk and 1178 lbs. of butter in 365 days, being milked on your machine. Yours very truly,

PABST STOCK FARM
Fred Pabst

PINE TREE MILKER

Napa State Hospital, Imola, 64.32 pounds; W. F. Early, Grizzly Bluff, 60.75 pounds; R. H. Walrath, El Centro, 52.33 pounds; Peter Iversen, Grizzly Bluff, 50.38 pounds; J. M. Christen, Pacheco, 49.18 pounds; C. E. Fisher, Hughson, 48.75 pounds; S. G. Gambonini, Petaluma, 47.77 pounds; C. L. Mitchell, El Monte, 41.76 pounds; University Dairy, Berkeley, 40.21 pounds; C. F. Holman, Stockton, 27.66 pounds.

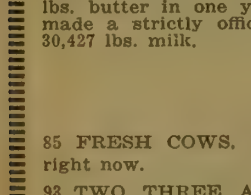
Five other herds had grades eligible to compete for this prize which were not however in milk during the entire month. These herds were: Peter Iversen, Grizzly Bluff, average production 50.38 pounds (24 days only); J. B. Harbers, Waddington, 42.41 pounds (27 days); Leo Christen, Waddington, 41.51 pounds (21 days); W. Terkelsen, Ferndale, 40.83 pounds (24 days); and Giacomini & Pedrotti, Waddington, 39.52 pounds (27 days).

Italian Vineyard Company
Big Type Berkshires

Some dandy young boars for herd headers. The choicest breeding and ready for service.

Every one tuberculin tested and cholera immune.

Alex. M. Wilson, Supt. **Guasti, Cal.**



This one and three other daughters of MYRA'S MISSIONARY are a part of 40 head of R. of M. Jerseys to be offered by Mr. Warren Gray of Jefferson, Oregon, at Public Sale at the farm in June. A splendid lot of high producing females. For catalogue and further information, address,

Chas. M. Talmadge, Sale Manager, Box M, Salem, Oregon

THE LARGEST COW TESTING ASSOCIATION IN THE WORLD

By C. V. Castle

The Ferndale cow testing association in Humboldt County is not only the largest but one of the oldest in the United States to continue in successful operation. J. W. Coppini, a successful Jersey breeder, is secretary-manager, and to his good management no little credit is due. The association has now started on its 13th year. Mr. Coppini states: "To the efficient work of the testers is due in a great measure the success of the association." The testers are C. A. Casanova, now on his eighth year with the association; Bruno Kaehler, now on his sixth year, and Carl Helgested, now on his fourth year.

This association tested as many as 4,546 cows last year, and 106 members, owning from two to 150 cows, finished the year's work. Twenty herds comprising 532 cows were either sold during the year or discontinued testing; 4,014 cows finished their year's work with an average lactation period of 9½ months and with an average butterfat production of 334.03 pounds per cow. There are but very few associations anywhere that can equal this average production, and none that can both approach it in number of cows and height of production.

The large majority of the cows considered in the association are grade cows and their high production is directly traceable to the high class pure bred sires that have been in use in Humboldt County for many years, and to the raising of heifers from the good cows found by the testing association work.

Of considerable interest is a comparison of the report of 1909 with that of 1920. In 1909, 581 cows finished their year in the association with an average production of 251 pounds of fat. This year the average of 4,014 cows was 334 pounds, a difference of 83 pounds of fat per cow. Based on the number of cows finishing this year that difference means a total of 333,162 pounds of fat, which, at the price of 70 cents per pound, the average price paid Humboldt County dairymen in 1920, amounts to $233,213. Even at present prices of 40 cents per pound for butterfat, this increase in average production means $133,264 per year to the 106 dairymen in the association, or an average of over $1,250 per year per man, as a direct result of cow testing association work.

Moneymakers For Dairymen

With an abundance of cheap feed on hand, the time is particularly favorable for the establishment of new herds of registered Holsteins. The great demand and consequent shortage of good grade Holstein cows has advanced the price to a point where many practical dairymen may well consider the purchase of registered purebreds, even though the initial investment may be larger per head.

In the public sale outlined below there will be a wonderful opportunity not only to secure splendidly bred registered Holstein cows, but to buy the sort that are just right to start paying for themselves right away, for the offering contains an unusual number of fresh cows and heavy springers. In addition to this especial attention is here directed to the fact that the owner is prepared to extend more liberal terms than found in the usual sale, and such arrangements should be made with him well in advance of sale day.

177--Registered Holsteins--177

167 Cows 10 Bulls

Willowmead Herd Owned by James McGillivray **Sacramento, Cal.**

Wednesday and Thursday, May 18-19, 1921

WILLOWMEAD HERD now contains over 500 registered Holsteins of which number approximately 475 are females. This sale will positively include every cow in the herd that is in salable condition, and every one of the 167 females to be sold is either milking or a heavy springer.

Consider also that in addition to the fact that the females in this herd represent some of the very greatest producing families of the breed, a very large percentage of them are bred to one or the other of the two Willowmead herd sires, both of which are backed by world's record production. These are the two bulls to which more than half of the females are bred:

COLONY ZARILDA NEWMAN, sired by Aaggie Cornucopia Newman, son of the former world's record milk producer, Margie Newman, and out of the famous Canadian cow Zarilda Clothilde 3d De Kol, 33,153.6 lbs. milk and 1,194.18 lbs. butter in one year, and at a previous freshening she made a strictly official record of 1,070.23 lbs. butter from 30,427 lbs. milk.

PRINCE ECHO SYLVIA SEGIS, sired by Champion Echo Sylvia Pontiac, son of May Echo Sylvia, the only cow that ever made over 1,000 lbs. milk in 7 days. His dam is a 29.89 lb. 4 year old daughter of King Pieter, second dam a 31.70 lb. daughter of King Segis. He is a beautiful individual, and his service adds value to every cow in calf to him.

Among the Females in the Offering Are:

85 FRESH COWS, splendidly bred and producing heavily right now.

93 TWO, THREE, AND FOUR YEAR OLD HEIFERS, out of the best foundation cows in the herd and sired by bulls of splendid breeding.

28 DAUGHTERS OF DUTCHLAND SIR KORNDYKE COLANTHA, a proven grandson of Colantha Johanna Lad.

18 DAUGHTERS OF KING PONTIAC RUBY BURKE, a proven son of King of the Pontiacs.

17 DAUGHTERS OF PRINCE BUTTER BOY WALKER, a proven yearly record son of Prince Gelsche Walker.

14 DAUGHTERS OF KORNDYKE COLANTHA PARTHENEA, son of Dutchland Sir Korndyke Colantha and the great foundation cow Minnewawa Louise.

10 DAUGHTERS OF KING MEAD OF RIVERSIDE, the famous sire of yearly record producers.

COWS AND HEIFERS with records up to over 32 lbs. butter in 7 days.

DAUGHTERS of cows with up to over 32 lbs. butter in 7 days and up to over 1,000 lbs. butter in one year.

THIS OFFERING CONTAINS THE LARGEST NUMBER OF REGISTERED HOLSTEIN FEMALES OF MILKING AGE THAT HAS EVER APPEARED IN A WESTERN SALE. IT IS A WONDERFUL OPPORTUNITY TO PURCHASE FEMALES THAT START TO PAY FOR THEMSELVES THE DAY YOU GET THEM HOME.

The owner is prepared to extend liberal terms to responsible parties. Applications for credit may now be made either in person or by letter to JAMES McGILLIVRAY, R. 1, Sacramento, California.

Every animal positively guaranteed to be a breeder. No tuberculin test certificates.

Catalog of Sale Free on Request

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

FEEDING GRAIN TO COWS ON PASTURE

Does it pay to feed grain to cows on pasture? The answer is that it depends largely upon how much milk the cow gives and how good the pasture is.

If a cow is producing less than a pound of butterfat each day the necessary food can be obtained from a good pasture. If she produces more than this some grain can be fed with profit. This means that a Holstein should be able to get food enough from grass alone to make 25 to 30 pounds of milk daily and a Guernsey or Jersey about 20 pounds. It will pay to feed grain to all giving above this amount as it is impossible for the animal to gather sufficient feed in the form of grass.

To produce a pound of butterfat daily requires at least 25 pounds of dry material. Fresh pasture grass contains only ten to 12 pounds of dry matter in a hundred pounds, making it necessary for a cow to gather and digest from 200 to 250 pounds of grass to produce from 20 to 30 pounds of milk. It is clear from this that it is impossible for a really high producing cow giving 40 to 50 pounds daily to do so long on grass alone.

A cow yielding a pound and a half of fat daily should receive about five pounds of grain, and about seven or eight pounds of grain for two pounds of fat. When not more than five pounds of grain is needed, it may be corn, barley, oats, or any combination of grain that is cheapest. The grass supplies a good amount of protein so the danger of a shortage of this necessary material is not serious. With a high producing cow requiring more than five pounds of grain daily, a small amount of bran, linseed meal, or other high protein feed should be added.

These recommendations hold good only when pastures are good. In midsummer it will often be necessary to feed more grain to high producing cows or to give some silage or green feeds to help out the pastures.—C. H. Eckles, University of Minnesota.

J. I. Thompson, manager of C. Harold Hopkins' Straloch Farm, Davis, attended the Braywood Shorthorn dispersal sale in Iowa and secured the imported bull calf, Braywood Collynie. This youngster, a roan, was sired by the Duthie bred bull, Collynie Violet Star, and his dam is Imp. Victoria Regina from the Gordon-Oswald herd

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
May 11, Victory Herd, Carruthers.
May 18-19, James McGillivray, Sacramento.
June 9, Burr Farm and Agee Bros., Burr Farm, Los Angeles.

Shorthorns
May 25, Caledonia Farms, West Sacramento.
May 26, Howard Vaughn, Dixon.

Herefords
May 27, Finnell Stock Farms, Galt.

Ormondale Ranch, Redwood City, was represented at several of the recent Eastern Shorthorn sales and as a result a number of high class females were added to that already good collection. At the Braywood dispersal Imp. Luxury 42d, sired by the Gordon bull, Count Crystal, and with a white heifer calf at side, was purchased for $1,300. Queen's Violet and Mildred's Beauty were selected at $500 each.

W. M. Caruthers of Live Oak is now able to answer the question "How long is a brood sow profitable?" Recently two of his Berkshire brood sows, each nine years old, farrowed and are raising litters of six pigs each. The two sows are daughters of the famous old boar, Rival's Champion, and the pigs are by a grandson of Rival's Champion. Mr. Carruthers is rapidly increasing the size of his Berkshire herd and plans to retain the sow pigs of these two litters as the blood lines are extremely popular.

Poppy's Dorothea, the world's record three year old Jersey, recently died at the home of her owner, Frank Lynn, Percyvale, Oregon. Dorothea's milk record was 17,800 pounds.

The 1921 Dairy Congress will be held at Waterloo, Iowa, September 26 to October 2.

Alec. D. McCarty, former president of the California Swine Breeders Association, has returned from an extended trip to the Hawaiian Islands, and his friends will be greatly pleased to learn that he has practically regained his health. Mr. McCarty has been an influential factor in the development of the swine industry in this state and it is hoped that he will again interest himself in the breeding of Poland Chinas.

The animal husbandry department of the college of agriculture has made arrangements with government officials to care for and stand at public service the Thoroughbred stallion, Gun Rock. Gun Rock is a son of the noted Rock Sand. The services of this horse are now available to those interested in the production of light horses.

Ferlotte of Paicines, a registered Percheron mare owned by the college of agriculture, died recently from blood poisoning that developed shortly after foaling.

Professor Gordon H. True, head of the animal husbandry division, University of California, who has been on a year's leave of absence, is expected to return July 1.

E. S. Reed, a former breeder of Hampshires and Durocs in the Eastern states, has just received at his Artois ranch two exceptionally fine Hampshire sows from the East by express. These sows are bred to High Victor, combining the blood of Blythedale Jim and DeKalb King 100th.

In alfalfa mowing time, during the past year, visitors to the Johnson Dairy Ranch near Hains Station have been surprised at the work of a Midwest Utilitor. Hooked to a 36-foot field mower, the little tractor was almost lost to sight in the heavy stand of alfalfa. But it easily pulled the mower, and cut more than an acre per hour; afterward it handled an 8-foot field rake to gather the crop. Special hitches permitted the driver to ride on this implement. A gallon of gas furnished power for eight hours work.

During the past year the Utilitor has been extensively introduced in California, and today happy owners may be seen using the machine for practically every kind of work formerly done with a horse. It is apparently as well at home on the big ranches as on the small farms of half an acre.

Bridgford Holstein Company's
Records 1920-21

	Butter 365 days	Milk 365 days
Adirondac Wietske Dairy Maid	1,295.11	31,900.0
Fairmont Pauline De Kol 2d, at 4 yr. 2 mo., 7 days Butter 39.15; Milk 711.9	1,108.69	26,117.9
Spring Farm Pauline Pontiac 2d	982.32	26,262.0
Miss Konigen Pontiac, at 3½ yr.	966.1	23,363.9
Spring Farm Pontiac Maid 2d, in 297 days 918.1 lbs. Butter; Milk 20,532.6	918.1	20,532.6
Average	1,045.44	25,635.3
Karlray Ormsby Alcartra, 2 yr.	915.77	22,950.1
Mercedes Hengerveld Abbekerk, 2 yr.	908.27	18.160.2
Miss Korndyke Mercedes Abbekerk, 2 yr.	758.27	18,900.8
Modesto Korndyke Abbekerk, 2 yr.	772.12	16,215.4
Susie Segis Alcartra Abbekerk, 2½ yr.	781.2	15,921.3
Average for year	827.13	18,415.6

All daughters of our herd sire, King Segis Alcartra Abbekerk.

Following are some of the daughters of King Segis Alcartra Prilly; his first to freshen, all first calf two-year-olds:

	Butter 7 days	Milk 7 days
Bessie Veeman Alcartra Prilly	24.27	460.5
Louise Alcartra Prilly	23.88	547.4
Jessie Fobes Segis Prilly	23.02	456.8

These heifers now on Semi-official test, have averaged for first four months 72.2 lbs. milk per day each.

The above are a portion of the records completed in our herd during the fiscal year ending April 30, 1921.

Our first year of yearly testing.

A majority of the yearly records were made under ordinary dairy conditions, on three time milking running out in corral.

BRIDGFORD HOLSTEIN CO.,
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From 10 to 22 tons per acre of sun flower silage were obtained by the Montana Experimental Farm. Nevada Experimental Farm got 23 tons of sun flower silage per acre and under the same conditions only 14 tons of corn silage per acre. The Mammoth Russian Sunflower has generally proved the best variety. We will gladly send you a list of the latest government and state bulletins telling of this cheap, nutritious, easily-handled, new stock food.

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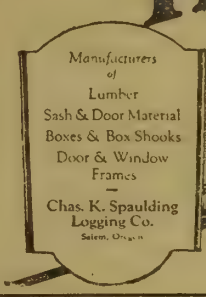

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The blood that carries a persistent production of milk and butter together with excellent conformation and hardy constitution. We have a number of coming herd sires by sons of Sir Pietertje Ormsby Mercedes out of daughters of Sir Ormsby Skylark with high yearly records. It will be to your advantage to investigate them. Drop us a line.

MAXWELL FARMS
HOLLYWOOD, CAL.

Carload Unregistered Shorthorn Heifers

I have a selected lot of pure bred but not registered Shorthorn heifers, well grown, of good colors and running from two to three years old that I can spare. The prices will average but slightly more than beef prices. If you have feed this is a great chance to get 30 or 35 young heifers that will make you money. All sell tuberculin tested.

T. S. Glide **Davis, Cal.**

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FARM SANITATION

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Livestock and Poultry

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No. 157—DOG BOOKLET. Tells how to rid the dog of fleas and to help prevent disease

No 160—HOG BOOKLET. Covers the gommon hog diseases.

No. 185—HOG WALLOWS. Gives complete directions for the construction of a concrete hog wallow.

No. 163—POULTRY. How to get rid of lice and mites, also to prevent disease.

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WRITE TONIGHT

THE STREBOR LABORATORIES
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The Highest Price Ever Paid in California

for ownership of a Holstein sire was for a son of Miss Valley Mead De Kol Walker, 36.80 lbs. butter in 7 days at 3 years of age, 1113.57 lbs. butter in 365 days. She held the world's records in three different classes for production and is without doubt one of the greatest individuals ever bred in the state.

The Highest Price Ever Paid for a Half Interest

in a Holstein sire in California was for another son of the same cow.

Of the six leading herds in Southern California headed by sons and grandsons of this great cow, only one has HER GRANDSON, HER BROTHER FROM THE SAME WORLD RECORD DAM, AND A BROTHER OF THAT DAM.

Los Angeles County Farm
Hondo, California

For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

D. G. Cummins & Son
Route 1 Visalia, Cal.

Live Oak Stock Farm

"Live Oak Stock Farm" is a comparatively new name among California Holstein breeders. but the farm is making rapid progress toward one of the best. Great care has been exercised in the selection of the foundation stock. The owners have been two years in getting together a herd which is a credit to the state and a recompense to the efforts and hard work on the part of A. B. Spooner and his right hand man, H. A. Smith.

On Live Oak Stock Farm

In the background is shown part of the milking herd in pasture. In foreground is shown the junior herd sire, Karlray Pontiac Tola Joe, owned by A. B. Spooner.

The pride of the farm is the junior herd sire, Karlray Pontiac Tola Joe. He was purchased when only six weeks old for $5,000, and is a double cross of the only double century sire, King of Pontiacs. His sire is the well known King Korndyke Pontiac 20th. The dam, K P Tola-Joe, was the state champion at two years with 27.148 pounds butter and 459.1 pounds milk in seven days. She is by King of the Pontiacs out of Tola Joe Gelsche.

All the young heifers were bred to Tola last year and the calves are beginning to arrive, showing exceptional quality and vitality.

There are some 50 head of young heifers, ranging from calves to coming two year olds. All are of uniform type and in excellent condition. Besides all the milk the calves can handle they get ground barley and oats and plenty of grass or hay. Most of these heifers are from the senior herd sire. Segis Skylark Karlray, the herd sire, is by King Segis Pontiac Jannek, formerly the Jeffries herd bull, famous through the show records of his daughters. The dam, Sir Skylark Ormsby Hengerveld Pet 2d, has twice made over 30 pounds butter in seven days and is now on yearly test with a good start. Though mostly black, the calves from this good bull are uniformly marked and exceptionally strong, vigorous calves.

The herd now consists of about 150 head. The foundation cows were carefully selected from some of Wisconsin's best herds. Fifty-four milking cows make up the present dairy herd.

The building and equipment are just reaching the stage where maximum results can be obtained and not long hence the Live Oak Stock Farm will be heard from. The farm proper consists of 750 acres located in San Luis Obispo County. All the labor is done by machinery, if possible, which helps to reduce running expenses and increases the efficiency. Practically all the feed is raised on the place.

The Live Oak Stock Farm is a pioneer in better dairy stock around San Luis Obispo, but through the efforts and backing of Messrs. A. B. and A. B. Spooner, Jr., with their assistant, Smith, success should be their reward.

The Stability of Pure Bred Livestock

By Frank D. Tomson

It is remarkable how many there are, lacking contact with the pure bred livestock business, who raise their voices when a decline in values is indicated as a charge against the industry. Strange as it may seem, there are countless numbers—but happily these numbers are being proportionately reduced—who should be producing pure breds of some breed, or at least using pure bred sires, who seem to take delight whenever a pure bred animal shows a shrinkage in value. I attribute this attitude chiefly to the inertia which has hold of such people and to the natural inclination which they evidently possess to desire to hold other people to their own level of activity and enterprise.

Then there come here and there publications setting forth a part of the truth, using for illustrations the practices of a few individuals and applying them to the fraternity as a whole, assuming that they are rendering a useful service.

Fortunately, in the main, people do their own thinking. A farmer ships a load of livestock to the market. He gets a low price. His commission man addresses him perhaps in this wise: "Jim, you think you got a low price for your cattle because this load across the alley sold for a higher price. But, look here, Jim; look at the kind of cattle this man has; look at their quality; see how uniform they run in type. Do you know, Jim, that if you brought the same kind of cattle here you would get the prices that this man does? The secret of the whole thing, Jim, is pure bred sires and good care."

So "Jim" gets a lot of education in that little talk. He observes that it is dollars and cents to him and he decides to make a change in his class of livestock. He gets a better bull and in looking around he becomes interested in good females also. He has taken an important step. Gradually he pays more attention to the individuality of his cattle. Perhaps he invests in some pure bred females for practical purposes. The next time he goes to market he has a different experience. He has found through actual experience that there is an actual advantage in the use of the better standards represented by the pure breds.

"Jim" is one of many thousands of farmers and all of the published propaganda and all of the adverse comment has no avail. It is a matter of profit or loss with "Jim" and his millions of contemporaries.

The way to produce extra pounds and improve the quality of those pounds is limited to the one channel of better standards of breeding animals. There is no other way. No amount of feed, no amount of care will avail more than a little if the first requisite—good breeding—is not provided. The livestock growers of this or any other country know now from observation and experience that the pure bred has a closer relation to farm profits than ever before. It has become practically indispensable. Values may rule high or low. There may be speculation or the lack of it, but the need for pure bred livestock on the millions of farms in the United States is as definite as the need of fertility in the soil.

There should be just as careful discrimination among pure breds as there is among animals of common breeding. It is the standard of individuality and responsiveness that is desired. Combine this with pure breeding and we have the best possible investment for any man engaged in

Enlarged view of Porcelain Lined—Easy to Clean—Bowl Chamber, open. Shows Self-Balancing Bowl hanging free from single bearing.

Self-Balancing Bowl

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The Belgium Melotte is the only single-bearing-bowl ever made. This patented bowl hangs from one frictionless ball bearing and spins like a top. It is self-balancing. It skims as perfectly after 15 years' use as when new. Positively cannot ever get out of balance and vibrate, thus causing cross currents which waste cream by remixing with the milk. Six hundred pound Melotte turns as easily as 300 pound Separator of other makes. Spins for 25 minutes unless brake is applied. No other Separator has or needs a brake.

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We don't want anyone to send us any money on the Melotte. We want to prove to you first that it is the best separator made. There are no papers to sign—no deposits or promises—no formalities. You are under no obligations. We take this liberal offer because we know a test of the Melotte will convince you.

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To convince you that the Belgium Imported Melotte is the best cream separator possible to buy anywhere in the world we will send one direct to your farm on a 30 day, absolutely unconditional free trial. Use it as if it were your own. Compare it with others—put it to every test. You alone are the judge. When the Melotte has sold itself on merit alone, send your $7.50 as first payment and make small monthly payments of $7.50 until the Separator is paid for.

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Don't buy any Separator until you have found out all about the Melotte, its 15 year guarantee and our 30 day free trial offer. Get our free book containing full description of this wonderful cream separator and the story of Jules Melotte, the inventor. Don't hesitate—don't do another thing until you write us.

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mixed husbandry. The exacting requirements on the farms and as related to markets render imperative the production of the best types of farm animals obtainable regardless of the breed. The pure bred offers very much the safest investment. It will come nearer assuring adequate and permanent profits than any other of lesser worth.

The day of the pure bred is here and the millions of farmers are aware of it. The argument is all on the one side. Nor is it necessary that pure breds should soar to high prices in order to draw attention to their actual worth nor in the hope of encouraging further patronage. The chief concern of the breeder of pure breds is in my judgment the production of types that will meet all of the practical requirements and make the largest possible return on that basis.

REDUCTION IN DAIRY PRODUCTS

S. H. Greene of the California Dairy Council has been making investigations as to dairy production exports of various countries, using, to make more forceful, charts supplied by the department of agriculture. We have asked Mr. Greene regarding the figures which he is using and he writes:

"The United States ranks sixth in the consumption of whole milk, fifth in the consumption of butter and ninth in the consumption of cheese. In 1913 the bulk of the butter that was exported was sent from the following countries, in the proportions indicated: Denmark, 27.9 per cent; Russia, 23.8 per cent; Netherlands, 11.3 per cent; Australia, 10.6 per cent; Sweden, 6.5 per cent; France, 6 per cent; New Zealand, 5.8 per cent; Finland 3.9 per cent; Argentina, 1.1 per cent; other countries, 3.10 per cent. This butter was purchased by the following countries, in the proportions: United Kingdom, 64.4 per cent; Germany, 17 per cent; Belgium, 2.1 per cent; Austria-Hungary, 2.1 per cent; France, 1.9 per cent; Switzerland, 1.6 per cent; Canada, 1.1 per cent; other countries, 9.8 per cent.

"The situation in 1919 was quite different. Denmark exported 11.2 per cent, New Zealand 6.7 per cent, Australia 5.7 per cent, Argentina 4.7 per cent, Netherlands 4.2 per cent, France 0.2 per cent; other countries 3.10 per cent. This butter was purchased by the following countries, in the proportions indicated: United Kingdom, 24.7 per cent; Germany, 7.8 per cent; France, 1.8 per cent; Belgium, 1.6 per cent; Canada, 0.2 per cent; Switzerland, .007 per cent; all other countries, 9.8 per cent.

"It will be noted that the United Kingdom (England) purchased only 24.7 per cent of the world's surplus butter in 1919, whereas she purchased 64.4 per cent of it in 1913. Germany bought only 7.8 per cent of the world's surplus in 1919 as against 17 per cent before the war. The purchases of other countries show practically no change, but the total decrease of purchases is 54 per cent in 1919 of the purchases in 1913.

"When comparing the exports very important changes are noticeable. Denmark fell from 27.9 to 11.2 per cent, Russia is wiped out entirely, while Australia exported about 50 per cent less, her percentage of the total world surplus having been 10.6 per cent in 1913 and only 5.7 in 1919. The exports of New Zealand increased a little, as also did those of Argentina. The Netherlands, however, had very little butter to export in 1919, her shipments amounting to only 4.2 per cent of the total, whereas it was 11.3 in 1913. The decrease in exportable surplus is 67.3 per cent.

"Many countries are ordinarily able to produce butter enough for their own consumption, and these charts and figures show in graphic style that there is really a shortage of butter in the world. If the purchasing ability of consumers can be maintained at the usual level it would seem that dairymen need have no fear for the future."

WATCH FOR STOMACH WORMS

With the approach of warm weather sheep raisers are warned by specialists of the United States department of agriculture to watch for stomach worms and put into practice every known preventive measure. The stomach worm is one of the most serious parasites of sheep, occurring over almost the entire world where there are sheep, cattle and other suitable host animals. In the United States it is most plentiful in the South where it is favored by abundance of warmth and moisture, but it is also quite common and serious in the Middle West and in low, wet areas throughout the entire country. It is present in smaller numbers and does less damage in the high, dry and cool areas of the Rocky Mountain States.

The first things noticed about sheep infested with stomach worms are dullness and lack of thrift. Later the skin becomes pale, as do the linings of the mouth and eyelids, which is due to impoverishment of the blood from the bloodsucking habit of the worms. Infested sheep also may have a swelling under the jaw, known as "bottle jaw."

Stomach worms are spread by the droppings of infested sheep. The eggs of the parasites in the droppings hatch out, and the young worms, which are microscopic in size, crawl up grass blades and are swallowed by sheep as they graze. In the stomach the worms become mature in about three weeks. If the fourth stomach, or rennet, of an infested sheep or lamb be examined soon after death, the stomach worms can be seen squirming about, slender, reddish in color, about an inch long.

Simple and Effective Remedy

A satisfactory remedy for this disease, if used in time, is a one per cent solution of copper sulphate in water. A dose which has been found satisfactory is 100 mils (about three ounces) for yearling and older sheep, and half as much for lambs three months old or older. To make this solution, dissolve one-fourth pound of copper sulphate in one pint of boiling water, then add cold water to make a total of three gallons of the solution. This amount is sufficient to treat 100 adult sheep. The use of this remedy once a month during the grazing season will prevent or greatly reduce losses from stomach worms.

Young animals and uninfested sheep should be separated from older or infested animals. Pastures which have been used by infested animals are dangerous to young animals and uninfested ones. The first essential in preventive measures is to protect young animals, for they are more susceptible to parasitic infestation than older ones. Consequently, the safest pasture should be furnished to the lambs, the older sheep taking the more dangerous land, where it is necessary for sheep to go back to old pasture within a year.

In a plan of rotating pastures to keep down stomach worms, the sheep may be moved over cornfields, hayfields and stubble of various sorts. When different kinds of stock are rotated on pastures, sheep may safely follow horses or swine, but not cattle or goats, as the latter may be infested with stomach worms and a number of other worms common to sheep, goats and cattle.

The state highway commission has advertised for bids on the paved road from Los Banos to the Madera County line, and it is announced that the Merced County supervisors have decided to continue the Merced County highway south three miles to connect with the state road.

TUBERCULOSIS IN GOATS

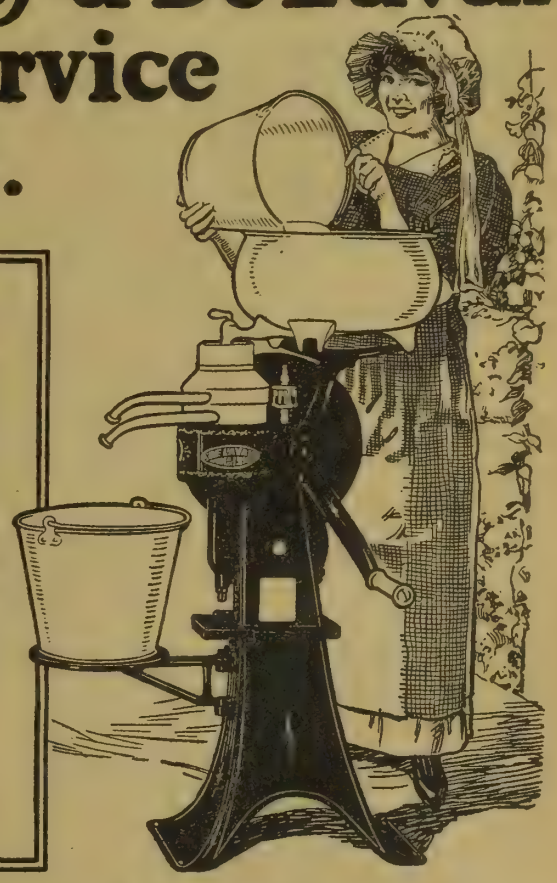
There is widespread opinion that the goat is absolutely immune to tuberculosis. The California department of agriculture calls attention to the following citation taken from an article prepared at the department of veterinary investigation of the Iowa state college at Ames:

"The goat has long been considered highly refractory to tuberculosis infection, a supposition based on limited observation and experimentation. On the basis of the assumption that the goat is rarely tuberculous the substitution of goat milk for cow milk has been extensively made as a prophylactic measure against human tuberculosis. The evidence at hand is that the disease is probably far less prevalent among goats than among cattle, nevertheless its occurrence must be recognized.

TELEGONY NOT PROVED

For a considerable period the opinion prevailed among many breeders of livestock that after a female has once borne young that the progeny by succeeding sires might present characteristics of the first one. This phase of livestock breeding and observation is known as telegony. Many who cling to the theory of telegony base their evidence on a case of the mating of a mare with a zebra producing a hybrid and later mating the mare with a horse, the offspring of which contained markings which resembled those of a zebra. The California department of agriculture notes that extensive experiments have been carried on for the purpose of ascribing certain unusual markings to telegony, but as yet sufficient evidence to prove the theory has not been obtained.

Divide the price of a De Laval by its years of service for its real cost.



THAT the best is the cheapest in the long run is doubly true of the De Laval Cream Separator.

Divide the price of a De Laval by the years of use you will receive — there are thousands in use from ten to twenty years, and even twenty to thirty years is not an unusual life for a De Laval — and you get a yearly cost that is much lower than that of any other separator you can buy.

Consider also that during all these years of use the De Laval will skim with the utmost efficiency; that it will save instead of waste cream; that it will pay for itself over and over and return you the greatest cash income; and you will readily see why it is the most economical separator to buy.

The De Laval serves the longest time and saves the most cream; that's why there are more than 2,500,000 in use the world over.

Furnished with hand, power or electric drives; sold only through agents; and if desired, on such terms that it will pay for itself.

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Sooner or later you will use a De Laval Cream Separator or Milker

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POULTRY

Baby Chicks—You are looking for the largest returns for your "Baby Chick Money." To get this you want chicks that will live, have vitality and will produce. Our Anconas are all from first class Hoganized stock. The White Leghorns are all mated to roosters from trapnested stock of 229 eggs or better. Now we also have especially good layers in the R. I. Reds, Fancy Dark Reds, Fancy Anconas and Barred Rocks. Our stock will produce the eggs. We have as well an equipped hatchery as there is, and know how to hatch strong sturdy chicks. May and June prices on White Leghorns are $16.00 hundred, $150.00 thousand. Anconas, R. I. Reds, Barred Rocks, $19.00 hundred, $180.00 thousand. Fancy Dark Reds and Fancy Anconas, $24.00 hundred. All chicks are sent Prepaid by Special Delivery Parcel Post. Can give immediate delivery or will return your money at once. ORANGE COUNTY HATCHERY, Santa Ana, California.

Petaluma Hatchery. Established 1902. Capacity 30,000 chicks a week. White Leghorn chicks from heavy laying free range stock after May 15th, 15c each, $13.00 per 100, $120.00 per 1,000. Brown Leghorns one cent more than White Leghorns. We positively guarantee safe arrival and full count of good strong chicks and no questions asked. L. W. Clark, Proprietor, 615 Main Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from heaviest laying (hoganized) stock. Safe delivery; live vigorous chicks guaranteed. No money in advance; pay on delivery. Price from May 15 to June 30 $3.50 per 25, $7.00 per 50, $12.50 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh St., Petaluma, California.

Hillview Buff Plymouth Rocks.— An American bird for Americans. Splendid layers, fine broilers and fryers, beautiful in color, the ideal for the farm, city lot or show room. Blue ribbon winners 1920 in Oakland, Riverside and San Diego shows. Eggs for hatching from our best matings $5.00 per setting of 15, commercial eggs $3.00 per setting. Hillview Poultry Ranch, Chatsworth, California.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

White Leghorn Baby Chix for May and June delivery from heavy laying, Hoganized stock. Safe arrival of full count, live, strong chix guaranteed. $12.50 per hundred; $120 per thousand. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks—"Only the best," May and June delivery. White and Brown Leghorn, R. I. Reds, Barred Rocks. Safe arrival guaranteed. All vigorous chicks from good layers. Send for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67-D, Palo Alto, California.

Baby Chicks from My Hoganized, heavy laying strain of pure bred S. C. White Leghorns. May and June delivery, at the very reasonable price of $13.00 per 100, $60.00 per 500. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. Eggs from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

Baby Chicks hatched to order from Black, White and Buff Minorcas. Eggs for sale. Also 4 White Minorca Cockerels $5.00 and $10.00 each. Black Cochin Bantam Eggs. Horace W. Crowell, 58 N. Craig Avenue, Pasadena, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Exhibition Quality Reds, Hatching Eggs, half price. Pen one, exceptional layers and plumage now $5; pen two, $2.50. Orders filled in rotation. T. S. Caldwell, 335-B West Broadway, Glendale, Calif.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

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Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

For Sale—White Wyandotte eggs, $2.50 per 15, $9.00 per 100. Mrs. Flora Cox, Anaheim, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jeach, Fallon, Nevada.

Purebred Chicks from our carefully selected Hoganized strains. Maxwell Hatchery, Madera, California.

POULTRY

Annual Sale — Chicks, Eggs, Pullets, Breeders. Most profitable season for buying, everything reduced. Chicks grow quickest into layers; eggs hatch best; time yet breeders clear their low cost. Get Best for Less! Our early maturing, heavy winter laying 180-290 egg Leghorns, Reds, Anconas, Rocks, Minorcas, Wyandottes, Andalusians, Ducks (turkeys) often clear customers $5. 140,000 electrically hatched. Write, Profitable Poultry, 19 North Fair Oaks, Pasadena.

Booking Orders For Eggs from our wonderful utility and prize stock of Bronze turkeys, geese, Pekin ducks, Muscovy ducks, White King pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, guineas. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Chicks — Eggs — Hoganized White Leghorns, Brown and Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, Calif.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

"Watch Us Grow" Baby chicks. We are now booking orders for May and June at reduced prices: White and Brown Leghorns, R. I. Reds, Barred Rocks, Anconas and White Wyandottes. E. W. Ohlen, Campbell, California.

For Sale—Baby chicks every week. Barred Rocks, R. I. Red, Black Minorcas, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose, California.

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For Sale—Used Fumigating Tents
13-62 and 64 ft.
15-54 ft.
18-46 ft.
We have contracted to have our fumigating done by another party, so have no further use for these tents. Prices very reasonamle. Charles C. Chapman Ranch Fullerton, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale—Orchard Heaters at a Bargain. 6,000 6-gallon Huntoon orchard heaters complete. 500 Hislop orchard heaters complete. These heaters are as good as new never having been lighted. Will sell all or any part of same at greatly reduced prices. Write or call. Charles C. Chapman Ranch, Fullerton, California.

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I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

Homespun Tobacco, 10 pounds $2.50; 20 pounds $4.00. Farmers Union, Mayfield, Kentucky.

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For Sale — 820 acres alfalfa, grain and dairy ranch, land level, fine irrigation water, situated 4 miles from railroad, 11 miles from Hanford, Kings County, California. Improvements, stock and tools worth over $20,000.00. Three sets of buildings, fine dairy herd. 160 acres good alfalfa. $70,000.00 cash or terms is my sacrifice price on this ranch complete. If you want a real bargain get full information. Address J. H. Shippee, 612 Marsh-Strong Bldg., Los Angeles, Calif.

CALIFORNIA IRRIGATED LANDS
Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

For Sale — 20 acre date garden, ¾ mile Indio. Best date growing section. Coachella Valley. E. A. Miller, Box 192 Indio, California.

For Sale — 60 acres, King County delta land. Good for alfalfa, corn or general farming. Fine for dairy and hogs. $110.00 per acre. H. M. Nelson, Armona, Calif.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

15 Acre improved irrigated ranch, alfalfa, oats, orchard and berries, R. D. 1 Box 14, Los Molinos, Calif.

WANTED

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Please write immediately to Simons Nursery, 1311 3rd Avenue, Los Angeles.

Agents Wanted—Benedict Nursery Company, 185 East 87th St., N. Portland, Oregon.

Wanted Poultry and Eggs. Shippers write for our cash prices. C. W. Bedford, Santa Barbara, California.

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For Sale — Pure-bred Jersey bull, 16 months old. Prize winner at two fairs this fall. $250.00 if taken now. W. H. ALFRED, Loleta, Humboldt County, California.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—50 head of Hereford steers, one year old, and 10 head of Hereford bulls coming 3 years old. H. F. Bergman, Aguanga, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

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For Sale—Celery, Golden Self Blanching from seed bed $1.00 per 100; Stone tomato, 80 cents per 100; Anaheim, Pimento and Bell Peppers $1.50 per 100; Egg Plants $2.00 per 100; Dry Weather Cauliflower $1.00 per 100; Winningstadt Cabbage 70 cents per 100. Reduced prices in larger quantities. Strong and healthy stock. J. M. Chacon, 4431 Hawthorne Street, Los Angeles.

Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch—767 S. Central Avenue, Los Angeles, Cal.

R*O*S*E*S—$1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catlogue. KAVAN NURSERIES, San Bernardino, California.

Free Sample (Hubam or) Annual Sweet Clover (scarified) Genuine Hughes strain. 2c postage. Jas. H. Kitchen, R. 5, Springfield, Ohio.

Napier Grass Rooted Plants postpaid. Second zone 35, third and fourth 30 $1.00. Tinel, Yucaipa, California.

Sweet Potato Plants—Yellow jersey $4.00 per thousand, f. o. b. W. E. Van Gorder, R. 5 Box 91, Santa Ana, California.

For Sale—Sweet potato plants, $4.00 a thousand f. o. b. Santa Ana. H. Beatty, Rd. 3, Santa Ana.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination. 25c per lb. Aurora Seed Mill, Stockton, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

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ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

Grape Wild Farm—Berkshires, Guernseys, Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

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Registered Poland Chinas. 40 tried brood sows; 40 gilts. Some choice young boars all at reduced prices to move at once. These Polands are as good as can be had anywhere at any price. W. D. Trewhitt, Route B Box 47, Hanford, Calif.

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times, Bassett Bros., Hanford, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price $75.00 and up. J. A. Crawshaw, Hanford, California.

Big Type Poland Chinas—Breeding stock of both sexes for sale at all times. Prices reasonable. J. N. Cook, Orland.

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Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

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For Sale—Beeman Garden Tractor rig $350. For full description write to Albert H. Leavitt, Cloverdale, California.

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Thorough, Complete and Practical courses in Civil, Electrical and Mechanical Engineering, Automobile Engineering and Machine Shop. One of the best equipped schools in the United States. No time wasted in non-essentials. Students do actual engineering work. Address Polytechnic College of Engineering, Oakland, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

TREES

Avocados—I have a limited number of fine trees nicely balled and well established from two to six feet in height which I am offering for from two to three and a half dollars each. Fuerte, Linda, Puebla, Sharpless, Ganter and No. 2. Yearling Valencia trees 75c balled and guaranteed. A. R. Rideout, Rideout Heights, Whittier, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

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5,000 Valencias; 2,000 Eureka lemons; 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

For Sale—Navel and Valencia trees for spring and summer planting, exceptionally fine selected buds. Address: Paul Smith, Whittier, R. F. D. No. 1, Phone Whittier 1371.

It's Not Too Late for Planting Vines—4 kinds cheap. 5000 No. 1 Muscats, Trees, Plants, Farm and Garden Seeds. Sudan, Cane, Egyptian Seed Corn. Hay in carloads. Box 501, Fowler, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

For Sale — Loganberry plants, 30,000 tips, 10,000 2 year old plants. Immediate delivery. W. E. Archambeau, Sutherlin, Oregon.

Budded Avocado Trees. Write for special prices for orchard planting. S. & S. AVOCADO NURSERY CO., 15 North Raymond Ave., Room 6, Pasadena, Calif.

400 Mission, 100 Manzanilla Olives, ¾ inch caliper. 2,000 young roses, choicest varieties. South St. Olive Yard, Cornus, California.

200 Late Valencia Orange Trees balled 35 buds—inspector's certificate — to close out at $75.00 per 100. Los Nietos Valley Nursery, Downey, California.

Florida Sour Seed Bed Trees, six to sixteen inches high, straight roots, stocky trees. L. A. Tuttle Nurseries, Route 1, Pasadena.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

MACHINERY

Mr. Farmer Here's Your Chance For Cheap Implements. 1 new No. J. A. John Deere Disk or 6-shovel cultivator for $75.00. 5 No. J. A. John Deere second cultivators, disk or 6-shovels used one season, first class condition for each $60.00 1 No. 919 John Deere corn and bean planter, new $65.00. 1 No. 212 John Deere corn and bean planter, new $70.00. 3 No. 236 John Deere cotton and corn planters, new, each $70.00. Address, Wm. Mumby Hardware Company, Dos Palos, California.

For Sale 50 rebuilt windmills,
50 new and used tanks,
50 brass cylinders, rods, plunger pumps 1-in. to 30-in. capacity.
Why pay more? When you can save so much these times. Send for bargain sheet. Demmitt Co.'s. Office 120 North Main, Los Angeles. 15191.

For Sale—Pomona pump, 28 head, nearly new. Clarence Wagner, Terra Bella, California.

TURKEYS

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

"Goldbank" Strain — Giant Bronze turkey toms. Partridge Plymouth Rock chickens. Chicken and turkey eggs in season. M. M. Reiman, Planada, California.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St., Pomona, California.

ROOFING MATERIAL

SPECIAL SALE
The largest roofing dealers in the West
GUARD ROOFING COMPLETE
1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35
PIONEER SANDED ROOFING COMPLETE
1-Ply $1.70; 2-Ply $2.20; 3-Ply $2.65
Roof Paint Special, 40c a gal., $2.00 for 5 gal. can. We carry a full line of roof and house paints.
Prompt deliveries on Mail Orders.
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Mammoth White Pekin Duck Eggs for hatching. $1.00 per dozen. A. Surtman, Petaluma, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

RABBITS

Pedigreed Fleming Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California.

PHEASANTS

Chinese Ringneck Pheasant Eggs. Orders filled immediately $3.00 per setting. El Nido Pheasantry, Fairoaks, California

LIVESTOCK

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks. Butte City Ranch, Box C, Butte City, Glenn County, California.

Spring-Time Is Here

AND the Mountains and Canyons are calling to you.

It is wild-flower time in the beautiful hills. The streams are especially alluring, and the pine trees sigh with the voice of contentment.

Get one of our "Hiking" folders, learn the paths of this Arcady of ours and plan week-end visits to Nature's play ground.

This railway will convey you to the entrances of "Hiker's-land."

Pacific Electric Railway

O. A. Smith, Gen'l Passenger Agent

SACCHARINE SORGHUMS

(Continued from Page 611.)

grow from eight to ten feet in height. The dwarf varieties also yield a finer quality of brush. Recently a superior type of dwarf broom corn called Acme has been developed by the United States department of agriculture, which produces a brush equal to that of standard broom corn in length. Broom corn requires the same climatic conditions as the other sorghum varieties and is cultivated in the same way in California. About one-half of the entire production is centered in Colusa County, but other parts of the state are equally well suited for its production. Considerable hand labor and technical skill are required in the production of high grade broom corn brush. The brush must be tabled or cut by hand while the seed is still soft and at a time when the brush is bright green in color from base to tip. Brush which is harvested too early is weak and of poor quality. California grown brush is somewhat coarser than eastern brush and is of slightly lower market value. In order to preserve the green color, strength and quality of the brush, it must be cured in the shade, but the seed is first stripped by means of special stripping machinery. It is then spread out in shallow layers on trays, in a drying shed, where it remains until it is thoroughly cured. Care must be taken not to expose the green freshly picked brush to the direct rays of the sun for more than an hour or two. Too much exposure will result in deterioration in both color and quality. After curing the brush must be graded in order to eliminate brush having twisted stems or a large rachis. It is only by careful grading that good market prices can be obtained. The brush is then baled and shipped to the market. Broom corn is not a highly remunerative crop. It costs an average of about $40 per ton to produce and is worth on an average of $75 to $100 per ton, with a top price of $250. Average yields range from 500 to 800 pounds of baled brush per acre, but under especially favorable conditions yields of 1500 to 1800 pounds per acre have been produced.

Broom corn seed has a very low feeding value and is comparable with the saccharine sorghums in this respect. The stover or fodder remaining after the brush has been harvested is coarse and of inferior feeding quality. The stalks are coarse and pithy and the leaves are small and harsh.

The broom corn is a very limited market and may be easily flooded. There is no export demand for this crop.

Sweet Sorghums

Sweet sorghum varieties are used in various parts of the United States in a small way for the production of sorghum syrup, and the varieties which have been most largely used are Honey, Orange, Texas Seeded Ribbon Cane, Sumac, Red Amber, Gooseneck, and Coleman. In California the variety Honey has been reported upon as being satisfactory for this use. The crop is grown essentially in the same way as when grown for forage production, but should be irrigated more frequently in order to keep up the moisture content of the stalks. It is also a desirable practice to plant progressively in blocks at different times in order to lengthen the manufacture period and allow the mill to run continuously through September and October. The crops should be harvested with a row corn binder when the seed is in the early dough and the leaves, heads and suckers stripped from the stalks immediately. The stripped stalks must then be milled within two days after cutting in order to avoid fermentation of the juice. This is done by passing them through heavy pressure rollers operated by horses, gas engines or electric motors. One ton of stalks should yield from 700 to 1,000 pounds of juice, which in turn should yield from 8 to 30 gallons of syrup, depending upon the sugar content. Under good conditions in California one acre of ground should yield from 100 to 300 gallons of syrup. Refining is done by the process of straining through a fine screen, settling and filtering through cloth. Full directions for this process may be found in California Circular No. 198, entitled, "Syrup From Sweet Sorghums," or in the U. S. D. A. Farmers' Bulletin No. 477, entitled, "Sorghum Syrup Manufacture." Any of these may be had from the Agronomy Division, University Farm. Sorghum syrup is used for cooking, canning, preserving fruit and making jellies, and also as a table syrup.

Johnson Grass

Johnson grass resembles Sudan grass very closely in appearance and it is very difficult to distinguish between the two from an examination of the plant above the ground. Johnson grass differs from Sudan grass in having a perennial root system, composed of fleshy jointed underground root stalks. When once Johnson grass has become established in the land it becomes one of the most difficult weed pests to eradicate. Like Sudan grass the tops are destroyed by frost in the early fall, but the fleshy roots remain vigorous and send up a new growth in the late spring or early summer. These grow with such vigor that summer cultivated crops are choked out and cannot be successfully grown. This grass has become a serious pest in several parts of California and every precaution should be taken to avoid introducing it into regions which are at present free from it. It is more widely distributed in Arizona and parts of the Southwest than it is in California and Sudan grass coming from these regions is apt to contain Johnson grass in mixture. The seed of the two grasses are so nearly similar that even an expert analyst cannot always distinguish between them. For these reasons Sudan grass seed from Johnson grass infested areas should not be sown, moreover there is a California law prohibiting the sowing of Johnson grass.

Sorghum Poisoning

All varieties of the sorghum family, including Johnson grass, may become poisonous under certain conditions which are not thoroughly understood. When the plants have been stunted by frosts or severe drouth they are liable to become poisonous and should be pastured with caution. Losses of livestock from eating poisonous sorghums have been most frequent from Johnson grass, but very few authentic cases of poison have been reported from other members of the sorghum family. The poisonous principle which develops in these plants is commonly called prussic acid and is the same as exists in wild cherry, casavas and kernels of the peach, plum and bitter almond. Plants which are known to contain this poison lose it entirely upon curing, and cured fodder may be fed with safety even though it has been known to be poisonous while green in the field. The symptoms of stock having eaten poisonous plants are staggering or falling, the eyes become motionless or dilated, the heart action is slow, respiration becomes convulsive and death usually follows within a few minutes after the animal has taken the poison. If the animal lives for thirty minutes after taking the poison into the stomach there are chances for its recovery. An analysis of the stomach of animals killed by sorghum poisoning is of no value for the reason that prussic acid is a glucoside which is rapidly absorbed and disappears. An animal suffering from prussic acid should be placed in the shade with its head above the level of its body and if bloating occurs the pouch should be punctured. It has also been recommended that ammonia be inhaled to start heart action, and a drench consisting of equal parts of hydrogen peroxide and water has been recommended as an antidote. A further remedy which is recommended in sorghum poisoning is found in California Leaflet No. 9, entitled, "Precautions Against Poisoning by Johnson Grass and Other Sorghums," as follows:

Dissolve one ounce of sodium carbonate in one pint of water, place it in a quart bottle and cork well. Secondly, dissolve one-half ounce iron sulphate in one pint of water and place in a second quart bottle and cork well. Mix the contents of the two bottles, shake well and administer as a drench.

BORDEAUX SPRAY FOR POTATOES

The Minnesota agricultural experiment station has compiled the results of spraying experiments carried on at the station for a number of years, from which it appears that the average increase in yield from spraying in the absence of late blight has been more than 30 bushels per acre for late varieties and about 27 bushels for early varieties. The most satisfactory formula for use is said to be the 5:5:50 Bordeaux mixture. Equally satisfactory results were reported from several substations as well as from cooperative tests under farm conditions.

HOLT ANNOUNCES NEW TRACTOR

The Holt Manufacturing Company announces its new Western ten ton "Caterpillar," designed along the same lines as the ten ton Holt used by the government during the war, but particularly adapted to meet the severe conditions of power farming on the Coast. Its motor develops more than 60 horsepower and its drawbar rating is 38 horsepower.

Long life and low upkeep cost have always been features of the Holt product. These qualities are emphasized in the Western. The Holt metallurgical laboratories have developed stronger, longer wearing steels and alloys. Common sense engineering has developed features of design that minimize friction and wear. The improved motor, for example, has pressure oil feed to the crankshaft bearings, providing a positive oil film in which the shaft floats, preventing metal to metal contact. And not only is the oil compelled by the new pressure feed system to do full lubricating duty, but all possibility of pollution by dirt and dust is eliminated. The new motor is perfectly protected against the entrance of dust and dirt — valve push rods are enclosed, the cylinder heads are completely covered, there are new dust proof and dirt proof types of breather and oil filler, a new and perfected air cleaner is standard equipment. The transmission has big bearings, cut steel gears, both gears and bearings perfectly lubricated. Throughout the tractor, both in the making of parts and the assembling of the complete machine, the most exacting standards of accuracy are rigidly maintained, a factor of utmost importance in contributing to long tractor life.

It gains its wide adaptability by means of its flexible power, that gives it ample power capacity for big jobs, together with operating economy for light jobs. Then there are its features of compact construction and short turning ability, that make this tractor invaluable for high power orchard work, logging and road work, as well as general farm work of all sorts.

Full spring mounting is an especially attractive and valuable feature. The spring mounting relieves the strains and jerks and jars of the more or less continual rough ground travel that every tractor encounters, greatly increasing the life and service of this tractor.

Another exclusive feature is the split truck construction that makes perfect flexibility of the track—an advantage in all work and a feature that adapts this tractor to extreme rough ground work.

It is exceptionally easy to operate and convenient for the operator. The steering column carries spark and throttle control and the two armed clutch control that releases the drive to either track. Hand levers control the master clutch and gear shift. A geared hand starter is operated from the driver's deck. The fuel tank is filled from the deck and the flow of oil to the tracks controlled from the deck.

The Western is notable for its accessibility. By the removal of the hood the motor is made completely accessible and the interior of the crankcase can easily be reached by taking off large removable side plates. By making care and operation a simple matter, insurance is provided that the machine will be given the necessary attention to keep it in best condition.

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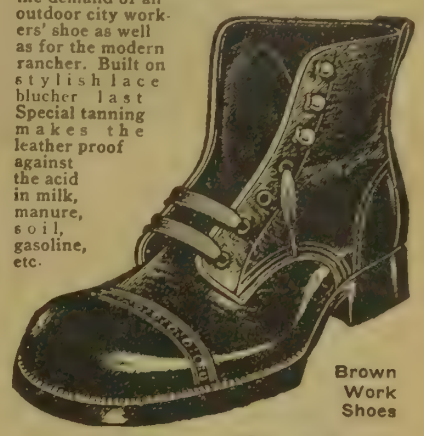
These Work and Outdoor Shoes are such wonderful values that we will gladly send them to you by mail, no money down. You will find them so well made and such a big money-saving bargain that you will surely keep them. No need to pay higher prices when you can buy direct from us. Why pay $6.00 or $7.00 for shoes not near so good? This shoe is built to meet the demand of an outdoor city workers' shoe as well as for the modern rancher. Built on stylish lace blucher last. Special tanning makes the leather proof against the acid in milk, manure, soil, gasoline, etc.



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Double leather soles and heels. Dirt and waterproof tongue. Heavy chrome leather tops. Just slip them on and see if they are not the most comfortable, most wonderful shoes you ever wore. Pay only $2.98 for shoes on arrival. If, after careful examination, you don't find them all you expect, send them back and we will return your money. SEND your name and address, and be sure to state size and width you want.

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Send me.....pairs of shoes as marked below, postpaid, at once. I will pay postman for them on arrival. If I am not entirely satisfied I will return them and you will refund my money immediately.

Size..... Width.....

Name .....
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Town..... State.....

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This plant was used about 12 months; is 32 volts, and is in excellent order. Cost nearly $1,100.00; will sell it for $400 f. o. b. Santa Barbara. The price includes about 120 lamps.

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A&M reliable SEEDS

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Aggeler & Musser Seed Co. Los Angeles, California

Plant Winter Rhubarb FOR PROFIT

Growers netted this year $1000 per acre. April, May and June are absolutely the best months to plant for full crop next winter and spring. We can supply plants —all sorts for large fields. Write for price list.

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Rhubarb and Berry Specialist, Pasadena, Cal.

CALIFORNIA WONDER CORN

Has averaged as high as six ears per stalk. Prices low for May and June planting. Send for circular.

James McKee, Riverside, Cal.

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It explains why the McQuay-Norris Piston Ring combination will increase gas engine power, save fuel and oil, and decrease carbon troubles. Address Dept. AB

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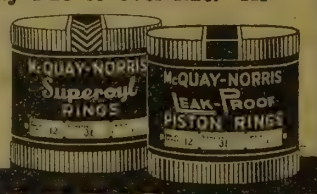

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Wm. E. Shepherd, Scranton, Pa., wrote — "Two weeks after we started last spring we were a mighty discouraged pair. Every day from three to six chicks dead. A neighbor put us next to Germozone and we are now sure if we had had it at the start we would not have lost a single chick." Ralph Wurst, Erie, Pa.—"Not a case of white diarrhoea in three years." C. O. Petrain, Moline, Ill.—"I never had a sick chick all last season." Mrs. Wm. Christiana, Olive Ridge, N. Y.—"Have 800 chicks now 5 weeks old and not a single case of bowel trouble."

GERMOZONE is a wonder worker for chicks, chickens, pigeons, cats, dogs, rabbits or other pet or domestic stock—for roup, bowel trouble, sniffles, gleet, canker, swelled head, sore head, sores, wounds, loss of fur or feathers.

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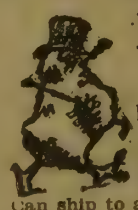

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Turkeys and How to Raise Them

By Jean A. Koethen

SOME weeks ago a letter from a Cultivator subscriber asked for an article on this topic, and I am glad enough to comply, but the question of how to raise them is not the easiest in the world to answer. I have interviewed a good many turkey breeders the last few years and read all the literature I could get hold of, to say nothing of doing a little experimenting on my own account, and the more I hear and read and experiment the less I know. Everybody has a different method, and the Rhode Island Station, which is a leading investigator, says, "If you have found a method of feeding which gives fair results, do not change it," so we are forced to conclude that the secret of raising every turkey hatched, or even 90 per cent of them, has not been discvered.

In the hope of getting new light I wrote the Rhode Island station for any publication they might have issued since 1916, but received no answer. Then I went to see Mrs. Middleton.

Six years ago Mr. and Mrs. T. T. Middleton bought a little place at Lankershim, named it "Lone Star Ranch," and started raising turkeys. Mr. Middleton spends his days carrying mail for the city of Los Angeles and his nights studying turkey probems. Mrs. Middleton mothers the little turkeys along with her own two husky youngsters, and she has worked out a pretty satisfactory system for both turkeys and children, if one may judge by the rosy cheeks of the latter and the glossy plumage and bright heads of the former. "I have not found the secret yet," she declares modestly, "for raising every turkey, but last year I raised 75 per cent, and this year I am bound to do better. One year I raised only one turkey."

Last year the Middletons raised 150 turkeys, and all but those reserved for breeding were sold alive to customers who came to the ranch for them for 50 cents a pound, a result which fully justifies their six years of effort and study.

Breeding Stock

Fifty breeding turkey hens are kept on Lone Star Ranch. For the most part they are yearling hens, not because two-year-old hens are not preferred, but because thy are not available. The young hens, however, selected for vigor and early maturity, and mated to two year old toms, ten hens to a tom, have laid eggs with strong fertility and excellent hatchability. In the pens where older hens are used they are mated to young toms. Twenty hens last year laid 1600 eggs. Several extra toms are kept, but except in case of sickness it is not often necessary to change the matings.

The breeders receive a laying mash with extra beef scrap added, two handfuls to a large pail of the mash. This is kept before them constantly, and they have milo maize at night, with all the greens they will consume at noon. They are kept confined, and—rain or shine—roost on uncovered roosts in their runs.

Artificial Brooding

Every poult is hatched in an incubator and raised in the brooder house around a big brooder stove. Neither turkey nor chicken hens are to be trusted as mothers, in Mrs. Middleton's opinion A brooder stove does not uncover the poults and let them get chilled in the early morning, neither does it drag them out into the fog nor overfeed them. Even a stove, however, needs managing, and Mrs. Middleton has worked out quite a nice little system of brooding.

As soon as the poults are dry they are removed from the incubator to the brooder house. This is usually the morning after the hatch is completed, and it is important that they be moved in the morning rather than at night. The stove has been lighted for 48 hours in preparation for the poults, and the temperature is kept steadily at 85 degrees. "Keep them comfortable, but not too warm," is Mrs. Middleton's rule, and she lowers the temperature just as rapidly as she can and still keep the poults comfortable.

On warm days the heat can be turned very low or perhaps turned off altogether, but the birds are given some heat at night till they have learned to roost, at about two months of age.

POULTRYMAN'S CALENDAR—MAY, THE TURKEY MONTH

May is not exclusively the turkey month. The big turkey breeders began to get out their birds in March. But it is the time when the backlotter and farmer aim to begin to raise their Thanksgiving birds and is perhaps as good a time as any.

May is also fattening time for the early cockerels. They should be penned in small yards when they are separated from the pullets and given a ration rich in corn and ground oats with as much milk as possible. The Cornell ration for fattening with milk consists of 50 pounds corn meal, 20 pounds wheat middlings and 10 pounds ground heavy oats. This is mixed to a batter for each feeding with buttermilk or skim milk. If milk is not available 20 pounds meat scrap is added to the ground grain, and the mash is mixed to a batter with water. The fattening ration used at Purdue consists of 2 pounds corn meal, 1 pound each of shorts and ground oats and 8 pounds buttermilk. These rations are not given a ration rich in corn and ground oaths, with as much milk as posmay have cracked corn, barley, and a moist mash once or twice a day.

No rule can be given for temperature with turkeys. They must be watched and kept comfortable just like children. If they are allowed out in the sun that first day—and there is no reason why they should not go out if the sun is warm—they must be brought in at the first signs of huddling.

But the most interesting part of the Lone Star brooding system is the way the poults are put to bed at night. They are not allowed to huddle around the stove. Little wire boxes about two feet square are provided, a box for every 25 poults, and on each box is a hover with long pieces of felt or flannel to lie on the poults' backs, just like those used in fireless brooders. As night approaches the poults are tucked away in these brooders, which have been warmly lined with straw or hay. The hovers, which are hung from the ceilings by pulleys, are lowered so that they almost rest on the tops of the boxes, but not quite, for there must be a crack for ventilation. A piece of galvanized iron as wide as the stove is high is put around it to shut off as much as possible of the heat, and the temperature is run as low as can be

This seems to me a very carefully worked out brooding plan. The poults which are so easily chilled, are kept warm in their snug brooders, yet are in no danger of piling up on top of one another, which has been the main objection to brooders. In the morning the heat is run up before the poults are let out, and when the room is warm they may go where they please Little gates let them into the runs outside if the weather is suitable. As many as 500 poults can be brooded at once by this method, and everyone kept warm and comfortable.

Feeding the Babies

Water and grit are placed before the poults as soon as they are in the brooder house, but they are not fed till the morning of the second day when they are about 48 hours old.

Hardboiled egg, stale bread or rolled oats, and onion tops or fresh alfalfa cut fine, all chopped together, are the nursery feed. I tried to make Mrs Middleton say in just what proportion she mixed these three ingredients, but

she would not for fear she might not remember exactly. The green feed, she thought, was about one-fourth the whole—as for the egg and bread, she just mixed them till they looked right. Then I tried to get her to remember how many eggs she used for 50 poults, but that she did not dare to say, as she could spare. Whatever the proportion, this mixture is fed at first four times a day, with a single change in omitting that it depended on how many the evening meal, the last before they go into their brooders. At this meal one large onion for about 50 poults is chopped fine and added to the egg and bread and green mixture.

Then I tried to pin her down again. How much did she feed at this first meal and the subsequent feedings that first week? How many teaspoons to 50 poults, say, but she didn't measure it that way. The mixture is spread on a clean flat board and left there, Mrs. Middleton was sure, not more than a minute, for the only rule for feeding is, "Keep them hungry." The time of feeding is lengthened a little as the poults grow, but always the food is taken away while they are still hungry.

As the poults approach three weeks in age a change is commenced in their ration. In place of part of the bread and egg they get rolled breakfast oats moistened with sweet or sour milk. The change must be gradual, but by the time they are four weeks old they are off the bread and egg and on the rolled oats. At about three weeks the four meals a day are diminished to three, and at six weeks the three meals are changed to two. A little grit and some greens, preferably onion tops, are mixed in every meal the first three weeks, and the alfalfa is mixed with the oats till the end of the six weeks.

When the poults are three weeks old growing chick mash is placed before them, at first just for a short time, but later for the whole day.

At the end of the sixth week this ration is changed to soaked rolled barley morning and night and mash before them all day with cut alfalfa at noon. The rolled barley is soaked 12 hours, then the water is poured off, charcoal added, and the whole dried with bran till it is crumbly. This is their ration from the sixth week till they are ready to fatten in the fall.

Fattening

Corn meal moistened with boiling water till crumbly, is the main dependence for fattening. This is at first added gradually to the soaked barley and bran, beginning about the middle of October. The last week before the birds go to market this corn meal mush is kept before them constantly. Some whole corn is given, but the birds do not eat it readily.

Poultry Queries

Conducted by Jean A. Koethen

Rolley Barley

Is rolled barley good for chickens? —Subscriber, Puente.

Rolled barley is one of the standard poultry feeds, but it should not be fed to the exclusion of other grains. Barley alone puts too much fat on the body of the average hen, and the fiber is apt to make trouble sooner or later. Fed with wheat or milo or both it is a very satisfactory feed.

Corns

Can you tell me the cause of corns on the feet of my year old pullets? They roosted at first on 1 by 4 roosts, but now have 2 by 2, rounded on top. Our soil is coarse sand.—Subscriber.

I think what you call corns must be bruises on the bottoms of the feet, due probably to jumping from a too high roost. You should examine them carefully to make sure there is no pus. Should you find pus, open the swellings, wash with carbolized water and paint the entire surface of the cavity with a solution of nitrate of silver, ten grains to an ounce of boiled water. The foot should then be poulticed and wrapped to prevent filth and dirt from getting into the opening. This is commonly called bumblefoot. It hardly seems as if the narrow, rounding roosts could be harmful to the feet, but there is no object whatever in having them rounding. A hen can keep her place on a wide flat roost without effort, and is more comfortable.

Leg Weakness

What is the cause and cure for leg weakness in chicks a few weeks old? —Subscriber.

Overfeeding, which makes the body put on weight too fast, and lack of the exercise necessary to keep the strength of the leg muscles proportionate to the weight they have to carry are the main causes of leg weakness. Sometimes chicks that have been overheated in a brooder develop leg weakness without other apparent cause. The remedy is, of course, as much exercise as can possibly be given and a ration containing more protein and ash and less carbohydrates. Sprouted oats, rolled oats, sour or skim milk, five per cent bone meal added to the mash, will all help muscle development, but exercise is the main thing.

Breed From the Best

My 20 hens have done splendid laying this year. Shall I get a good rooster and breed from them next winter or buy baby chicks again — Subscriber, Mrs. S., Madera.

If you wish to build up a strain of your own select from the 20 the five or six hens which you know are your best layers, then purchase the best cockerel you can afford. If he is the son of a hen that made a record of 200 eggs or better in her pullet year you will have a worth while foundation on which to build. If your only aim is market eggs it may be less trouble to buy the chicks.

EGG BREAKAGE

The California Poultry Association has for years been urging greater care in the handling of eggs, especially to reduce the cracks, on poultry ranches in hauling to shipper and shipping to market. The department of agriculture has entered into the campaign and we now have from an express company a four page paper, "The Eggspress Agent," aiding in the campaign for better packing and better handling. One cracked egg isn't much, but many gathered together are quite some. The "Eggspress" says:

"The egg production of the United States in 1920 was said to be 67,000,000 standard cases, with an estimated value of $1,206,000,000. As the standard case contains 30 dozen, the annual egg output last year amounted to 2,010,000,000 dozens, or 24,012,000,000 eggs.

"The value of these billions of eggs seems like a part of the national debt. And while the loss of $1,267,000 seems a comparatively small figure beside it, our loss and damage claims on eggs made a big dent in the company's revenue. And no one profited by it—neither the shippers, the carrier or the expressman."

After eggs have been laid four days their likelihood of hatching depreciates at the rate of four per cent a day, according to the observation of Ohio chick hatchery managers. And if eggs are set after the twentieth day they are found to be practically worthless for hatching.

Baby Chicks

Largest assortment of baby chicks in the West. Hatched in the RIGHT way. Can ship Express or Parcel Post. We carry a complete line of poultry supplies. Fireless brooders that are made to care for chicks properly. Chicks shipped safely in these brooders. Breeding and Pet stock of all kinds. Write us your wants. Send for price list. Dogs, cats and rabbits.

Copyright June 17, 1918

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Factory to You Paint Sale

Order by Mail

Read this advertisement carefully and remember we are selling reliable paints at manufacturers' prices. Now is the time to Paint and through our Mail Order Department we are serving hundreds of satisfied customers.

Buy Paint direct from the factory—large stock, all colors.

House Paints (22 shades)	$2.45 gallon
Furniture Varnish	2.05 gallon
Floor and Every Purpose Varnish	2.40 gallon
Outside White	2.50 gallon
Floor Paints (10 shades)	2.75 gallon
White or Ivory Enamel	2.95 gallon
Flat White or Ivory	2.00 gallon
Automobile Enamel (all colors)	1.20 quart
Barn, Bridge and Roof Paint (Red and Green)	2.10 gallon
Green Roof and House Stain, in 5-gallon lots	.95 gallon
Red and Brown Stain, in 5-gallon lots	.75 gallon
Painters' Turpentine	.75 gallon

Linseed Oil at Wholesale Market Prices.

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is as profitable as grain growing. Successes as wonderful as those from growing wheat, oats, barley, and flax have been made in **raising Horses, Cattle, Sheep and Hogs.** Bright, sunny climate, nutritious grasses, good water, enormous fodder crops—these spell success to the farmer and stock raiser. And remember, you can **buy on easy terms**

Farm Land at $15 to $30 An Acre

—land equal to that which through many years has yielded from **20 to 45 bushels of wheat to the acre**—grazing land convenient to good grain farms at proportionately low prices. These lands have every rural convenience; good schools, churches, roads, telephones, etc., close to live towns and good markets.

If you want to get back to the farm, or to farm on a larger scale than is possible under your present conditions, **investigate what Western Canada has to offer you.**

For illustrated literature with maps and particulars regarding reduced railway rates, location of land, etc., apply to Department of Immigration, Ottawa, Canada, or

Gilbert Roche,
3-5 First St., Sheldon Block, San Francisco, Cal.
Canadian Government Agent.

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—SEEDS—PLANTS—TREES—SHRUBS—

CALIFORNIA WILD FLOWERS

Seventeenth Annual Catalog, Illustrated

Theodore Payne 345 So. Main Street Los Angeles

Los Angeles Markets

Los Angeles, May 4, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price, 37 cents.

Apr.	27	28	29	30	May 2	3
'21 ...	37	37	37	37	37	37

CHEESE

Brokers' prices:
California flats, 16@18.

EGGS

Fresh extras (case included): Produce Exchange closing price 24 per dozen. Case count Produce Exchange closing price 22. Pullets, closing price 19 per dozen.

Dairy Exchange price last week on extras:

Apr.	27	28	29	30	May 2	3
'21 ...	25	25	25	25	25	24

Eastern quotations are seriously off—lowest of the season with no promise of immediate betterment. Cal. whites are now quoted in New York at from 32 to 40 cents. Eastern stock is badly off as to quality. Nearly all local stock going into storage.

POULTRY

Price to producers: Hens, lt., 28; heavy 28; colored, 35; broilers, 20@36; roasters, 40; old roosters, 11; fryers, 45; ducks, old, 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 13@17; old, 9.

LIVESTOCK

Los Angeles, May 3. — Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 9.00; 175 to 225 lbs., 10.00.

Cattle (on foot, gross weight): Steers, good, 8.00@8.50; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Bulls and stags, 4.00@4.50. Calves, 125 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 4.00@5.00; lambs, 8.00@10.00.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe Avenue. Receipts from the interior for 24 hours ended at 10 a. m. Tuesday were: 273 hides, 312 pelts, 2,760 lbs. tallow, 285 lbs. wool.

Green and green salted hides: No. 1 heavy hides, 50 lbs. and up, 4 per lb.; No. 1 light hides, 25 to 50 lbs., 4 per lb.; No. 1 kips, 15 to 25 lbs. 6 per lb.; No. 1 calfskins, under 15 lbs., 10 per lb.; No. 1 slunks, 15@35 each; No. 1 bull hides, 3½ per lb.; No. 1 horse hides, over 50 lbs., 1.50 each; No. 1 horse hides, 40 to 50 lbs., 1.00 each; No. 1 horse hides, 30 to 40 lbs., 75 each; ponies, 30 each; No. 1 grubby hides and skins, 1½ less; No. 2 hides and skins, 2 less; glue hides and skins, 1 per lb.

Dry flint hides—No. 1 hides, 16 lbs. and up, 9 per lb.; No. 1 kips, 6 to 16 lbs., 9 per lb.; No. 1 calf skins, under 6 lbs., 10 per lb.; No. 2 hides and skins, 6 lbs., 10 per lb.; No. 2 hides and skins, 2 less; glue hides and skins, 2 per lb.

Pelts: Large, long wool, 40@70 each; medium, 20@40 each; short wool and shearlings, 10@20.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock May 3, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market firm. Idahos: Russets mostly 2.25@2.50, Rurals 1.90 @ 2.00. Oregons: Burbanks, 2.25@2.35; few 2.50. New potatoes: Supplies liberal, market steady, best 1.90@2.10, small 90@1.10 per lug; jobbing sales best 1.80@2.00. Sweet potatoes: Supplies liberal, market firm. Mostly 2.25@2.50 per lug. Oklahomas: 6@7½ per lb.; jobbing sales 7 per lb.

Onions: Supplies heavy, market dull. Stocktons: White Globes and Browns, cold storage stock best 1.00, poorer 60@75 per cwt. Local: Per bunch green mostly 12½. Coachella Valley: Practically no sales. Imperial Valley: Bushel crate, Yellows 1.20, Wax 1.40.

Garlic: Supplies liberal, market dull. Wide range in quality and condition. Best mostly 10@13, poorer 7@9 per lb. New 12@15 lb.; few higher.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock May 3, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Supplies heavy, market weak, 50@75; few fancy 1.00 doz.

Asparagus: Market steady, supplies liberal: Local: Mostly 14@16 per lb. Northern, 9@12 per lb.; jobbing sales 9@11 per lb.

Beans: Supplies liberal. Per lb., Green Kentucky Wonders 21@23 per lb., green pods 15@17 per lb., Wax 15@16 per lb.

Beets: Doz., 30@40.

Cabbage: Field crate best mostly 1.35@1.50.

Carrots: Doz., 35@40.

Cucumbers: Hothouse, best, 3.00 doz.; poorer 2.50@2.75.

Lettuce: Local field crate quality poor, 75@1.00; best mostly 1.20@1.30.

Peas: Local: 7@8 per lb.; jobbing sales 6½@7½ per lb.

Radishes: 25@30 doz.

Rhubarb: Local strawberry 1.00@1.19 bx.; jobbing 90@1.00.

Spinach: Mostly 20@25 doz.

Squash: Summer, 1.50@1.65; Italian per flat 1.25.

Tomatoes: Mexican, per lug, best repacked 3.00@3.50; Imperial Valley crates small to large 1.20@2.00; jobbing 1.60.@1.85.

Turnips: Doz., 40@45.

FRESH FRUITS

Cherries: Lb., 30.

Strawberries: Supplies moderate, market weaker. Per crate, 30 pints, best 3.50@4.00; poorer 2.00@3.00.

CITRUS FRUITS

Grapefruit: Supplies liberal, market firm on good stock. Local: per box, market pack 2.00@2.50, special packed brands 2.75@3.00.

Lemons: Supplies heavy, market dull, wide range in prices. Local: packed box 1.50@2.25, few high as 2.75, loose 75@1.00 per box, per lug mostly 40@50.

Oranges: Supplies firm, market firm. Navels, market pack, large sizes 3.00@3.50, small low as 1.75, special brands, large sizes 4.00@4.75, small sizes 3.00@3.50. Valencias, best brands, all sizes 3.75@4.00, packing house culls 50@75, few best 1.00@1.75 per box. Tangerines: Supplies liberal, market steady, best 6@7½ per lb., small 4 per lb.

HONEY

Supplies of honey are still generally heavy, but old crop is cleaning up in some sections. Poor wire inquiry. Movement slow, market weak. Carloads f. o. b. usual terms: Per pound, few sales of White Orange Blossom 12½@13; White Sage 12@12½; light Amber Alfalfa 6@6½; Light Amber Sage 7½@8½; White Alfalfa 7½@8; Hawaiian White 7; Light Amber 6; Honey Dew 4½. Producers are reported as offering contracts for new crop. White Orange Blossom 10 per lb., but buyers are holding off. Prospects for the honey crop are generally favorable throughout the state, except in the San Diego district and Salinas Valley, where rainfall has been very light. Darker grades of honey are now on cheap price basis and competing with sugar for commercial use. The outlook is for a continued downward trend in prices for the darker colored stock.

GRAIN AND FEEDS

Grain Exch. price bid May 3:
Wheat: Mixed feed 34.25.
Corn: Bulk, No. 2, Yellow 1.63¾; No. 2, White 1.62 1/3.
Bran: Kansas, 31.00.
Kaffir: Eastern, 1.58¾.
Milo: Carlots, 1.56¼.
Barley: 1.32½.

HAY

Alfalfa Growers of California report under date of May 2:

There were 330 tons received on the Los Angeles tracks the week ending April 30 with 100 tons held over as against 260 tons the week before.

Rabbit Alfalfa	25.00
No. 1 Dairy	21.00
Standard	18.00
Stock	15.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@30.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@16.00
Straw	10.00@13.00

Special Offer!
Midwest Utilitor

The Utilitor has proven its ability and economy in farm work. Plows, harrows, cultivates orchards, vines or row crops. Four horse power for belt driven work of all kinds.

Easily pulls a field mower or rake in alfalfa or grain. Ease of handling and positive control are distinctive Utilitor features. One gallon of gas provides power for 6 to 8 hours.

We have a special offer on a Utilitor to one person in each locality. Only one can be placed special in each neighborhood. If you have use for a small tractor write for particulars. If successful it means money saved and additional profit for you.

FARWEST SALES CO. 169 N. Los Angeles St. Los Angeles, Cal.

BEKINS
FIRE-PROOF STORAGE

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Now located at 1248 Van Ness Avenue

Consolidated Car Shipments of Household Goods and Automibiles to and from Eastern and Pacific Coast Points at Reduced Rates.

MOVING
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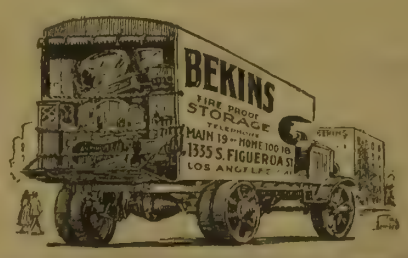


One of Our Large Fleet of Vans for Local and Suburban Transporting

San Francisco Markets

San Francisco, May 3, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras	33½

Dairy Exchange prices extras this week and year ago:

Apr.	26	27	28	29	30	May 2
'21 ...	34½	34½	34½	33½	33½	33½
'20 ...	58½	57½	57	57½	..	..

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	14½@16
Cal. Y. A.	17
Cal. Flats	14½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	25½
Extra Firsts	25
Dirties No. 1	24
Extra Pullets	20
Undersized	17

Apr.	26	27	28	29	30	May 2
'21 ...	28	27½	27¼	28	26	25½
'20 ...	46½	47½	47	47	..	..

POULTRY

Wholesale prices are:

Hens: Colored, 37@40; White Leghorns, 25@29; strictly young roosters, 42@45; old roosters, 18@21; fryers, 50@60; broilers, small, 33@36; large, 40@50.

Squabs: 50@55 per lb.

Belgian Hares: Alive, 23@25 per lb.

Pigeons: Old, 3.00@3.50 per dozen.

Jackrabbits: 3.00@3.50 per dozen.

LIVESTOCK

Western Meat Company prices are:

Cattle: Steers, No. 1, 7½@8; steers, second quality, 6½@7; steers, thin, 4@4½; cows and heifers, No. 1, 5½@6½; cows and heifers, second quality, 5½@6; cows and heifers, thin, 3@4.

Calves: Light weight, 8@9; medium, 7@8; heavy, 6½@7.

Sheep: Wethers, 5@6; ewes, 2½@3½.

Lambs: Milk, 6@7.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 10; 200 to 250 lbs., 9; 250 to 300 lbs., 8½.

HIDES AND PELTS

No. 1 heavy hides, 60 lbs. up, 8; do, medium, 45 to 60 lbs., 8; do, light, 30 to 45 lbs., 5; do, native bulls, 2; No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 5; No. 2 wet salt kip, 15 to 30 lbs., 3; No. 1 wet salt calf, trimmed, 7½; No. 2 calf, 2 per lb. less.

Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large long wool 25 up; lambs, small, 15@20; milk lambs, 5@10.

California Farm Bureau Marketing Association reports:

No. Hogs	Ave. Wt	Dock	Price
Turlock, April 19			
56	173	...	$10.00
41	219	...	9.50
15	260	...	8.50
1	420	170	6.00

Two cars, 26 consignors, $2,168.70.

Fresno, April 21			
18	105	...	8.75
50	212	...	8.75
86	159	...	8.75
8	322	...	6.50
16	322	200	6.50
2	410	260	4.00

Two cars, 23 consignors, $2,835.71.

Total for the week 4 cars, 49 consignors $5,004.41.

Tulare, April 26			
88	197	...	9.45
92	169	...	9.00
83	204	...	8.90
97	167	...	8.85
77	214	80	8.50
1	280	...	8.00
13	340	460	5.85

Five cars, 37 consignors, $7,686.73.

Visalia, April 27			
103	154	...	8.80
73	204	60	8.65
2	280	...	7.65
7	78	...	7.25
6	320	120	6.65
1	450	180	5.15

Two cars, 18 consignors, $2,918.82.

Hanford, April 28			
88	191	...	8.65
85	198	...	8.50
68	212	10	8.30
100	160	...	8.25
55	121	...	8.20
17	343	320	4.50
1 sow and 7 pigs			33.50

Five cars, 34 consignors, $6,318.48.

McFarland, April 29			
85	203	...	8.85
81	215	...	8.50
86	195	...	8.50
91	172	...	8.45
47	261	...	7.10
15	361	40	5.60
9	123	...	7.25

Five cars, 28 consignors, $7,057.74.

Total for the week, 17 cars, 11[illegible] consignors, $23,981.77.

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, nominal; do, Oregon Burbanks, 2.25@2.6[illegible] Idaho Gems, 2.50@2.60. Sweet potatoes Nancy Hall, 5.00@6.00 per 100 pounds New: 2@4 lb.; Garnets, 4@5.

Onions: Australian brown, 35@50 p[illegible] bag. Green, 1.50@1.75.

Garlic: New, 6@8 lb.

VEGETABLES

Wholesale selling price:

Asparagus: Lb., field run, 4@5; [illegible] 6@9; graded, 8@10; green, 3@5.

Artichokes: Cr., 6.00@10.00.

Beets: 1.00@1.50 sk.

Beans: String, 10@15; Wonder, 20 22½; Wax, 15@17½.

Carrots: 75@1.00 sk.

Cucumbers: Hothouse, small, 4.00@4. box of 2½ dozen; large, 2.50@3.00 per do en; English, 2.50@2.75 per dozen.

Cabbage. Lb., 1.

Celery: Cr., 1.25@3.00.

Eggplant: Lb., 10@15; Imp. 25.

Lettuce: Local, 2.00@2.25.

Onions: Green, per lug, 1.50@1.75.

Peas: 10@12 lb.; Bay, 12@13.

Parsnips: Sk., 2.00@2.25.

Peppers: Bells, Southern, 10@25 lb. f green; Florida, 10@20.

Rhubarb: Alameda, 1.25@1.75; S Jose, 1.75@2.00.

Squash: Valley Summer, 75@1.00; 1.50@2.00 lug.

Spinach: Lb., 3@5.
Tomatoes: Mex., L. A. lug, 2.50@3.00; mp., cr., 1.50@2.00.
Turnips: Sk., 50@1.00.

FRESH FRUITS

Avocado: California, doz., 3.00@5.00; Tahiti, 2.00@4.00.
Bananas: Lb., 8½@10.
Cherries: Drawer, 3.00@3.75; bulk lb., 5@30.
Pineapples: 4.50@6.00.
Strawberries: Peninsula and Watsonville, 85@1.10; Salinas, 2.00@2.50; Watsonville, 2.00@2.25 per crate, according to quality.
Loquats: Lb., 12@15.

CITRUS

Navel oranges, 2.25@4.90; lemons, 2.25@3.75 per box; lemonettes, 1.50@2.00; grapefruit, new crop, 1.50@3.50; slightly more on extra fancy.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 16½ lb.; Sunmaid, seeded, 36 15oz. pkgs. 22½ lb.; seedless Sultanas, 25 lb. bxs., 20 lb.; Thompson Seedless, 25 lb. bxs., 21½ lb.; do, 48 15-oz. bxs. 23½ lb.; 2-cr., L. M., 25 lb. bxs., 18 lb.; 2-cr., do, 7 lb. 1 lb. clusters, 20 lb. bxs., 5.40 box.
Apricots: Fancy 25 lb. boxes, 28 lb.; extra choice, do, 22 lb.; choice, do, 19 lb.; standard, do, 17 lb.
Peaches: Blue Ribbon brand, 48 11-oz. to cs., 7.00 cs.; Blue Ribbon brand, 24 2-lb. bxs. to cs., 8.00; fancy, 25 lb. bxs., 16 lb.; ex. ch. 25 lb. bxs., 12½; choice 25 lb. bxs., 12.
Figs: Fancy black, 25 lb. boxes, 12½ lb.; extra choice, do, 10 lb.; choice, do, 9 lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 extra choice, do, 10 lb.; choice, do, 9 oz. white, $1.25 bx.; 20 oz. white, $1.75 bx.; fancy 4 layer, 10 lb. bxs., $2 bx.
Prunes: 30-40s, 25 lb. bxs., 13 lb.; 40-50s, do, 10½ lb.; 50-60s, do, 9 lb.; 60-70s, do, 7½ lb.; 70-80s, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.; Persian dates, 14 lb.; Dromedary dates, 6,25 case; fancy silver prunes, 15 lb.
Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 8½ lb.; choice, do, 7½ lb.
Pears: Fancy, 25-lb. bxs., 15 lb.; extra choice, 25-lb. bxs., 11; choice, 25-lb. bxs., [illegible]

BEANS

Below California Bean Growers Association shippers prices choice recleaned.

Large Whites	3.30
Small Whites	3.20
Pinks	5.65
Mexican Reds	7.75
Red Kidneys	8.75
Henderson Bush	5.10
Cranberries	6.80
Bayos	9.60
Blackeyes	7.00

GRAIN

Sales grain exchange, May 3:
Wheat: Milling, 2.00@2.10; feed, 1.90@2.00.
Corn: Cal. Yellow, 1.35@1.45; White Egyptian, 2.10@2.25.
Oats:; Red feed, new crop, 1.45@1.55.
Barley:, Feed, 1.15@1.20; off grades lower; shipping, 1.25@1.45.
Milo: Cal. Red, 1.75@1.85; Eastern Red, 1.60@1.65.
Kafir: Eastern, 1.50@1.55.

HAY AND FEED

Alfalfa Growers of California report under date of May 2:

No. 1 Dairy	16.00
Standard Dairy	14.00

Under date of April 30, A. W. Scott Co. says:

Receipts past week 749 tons as compared with 875 tons of the preceding week. There has been very little change in the San Francisco market this week, either in tons or selling prices. Receipts have continued rather light, but the demand has been slow and this, coupled with the expectation of new hay in a few weeks has prevented any advance in prices in our local market.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Same Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00
Straw	10.00@15.00
Barley, ground	30.00@34.00
Barley, rolled	26.00@29.00
Oats, Rolled Feed	33.00@35.00
Bran, Red	34.00@35.00
Bran, White	36.00@38.00
Millrun	35.00@40.00
Middlings	47.00@50.00
Linseed Meal	45.00@50.00
Cocoanut Meal	25.00@27.00
Alfalfa Meal	26.00@28.00
Cottonseed Meal	35.00@40.00
Sugar Beet Pulp	32.00
Molasses, Tanks	23.00
Molasses, Barrels	26.50
Milo	35.00@40.00
Corn Meal	35.00@40.00

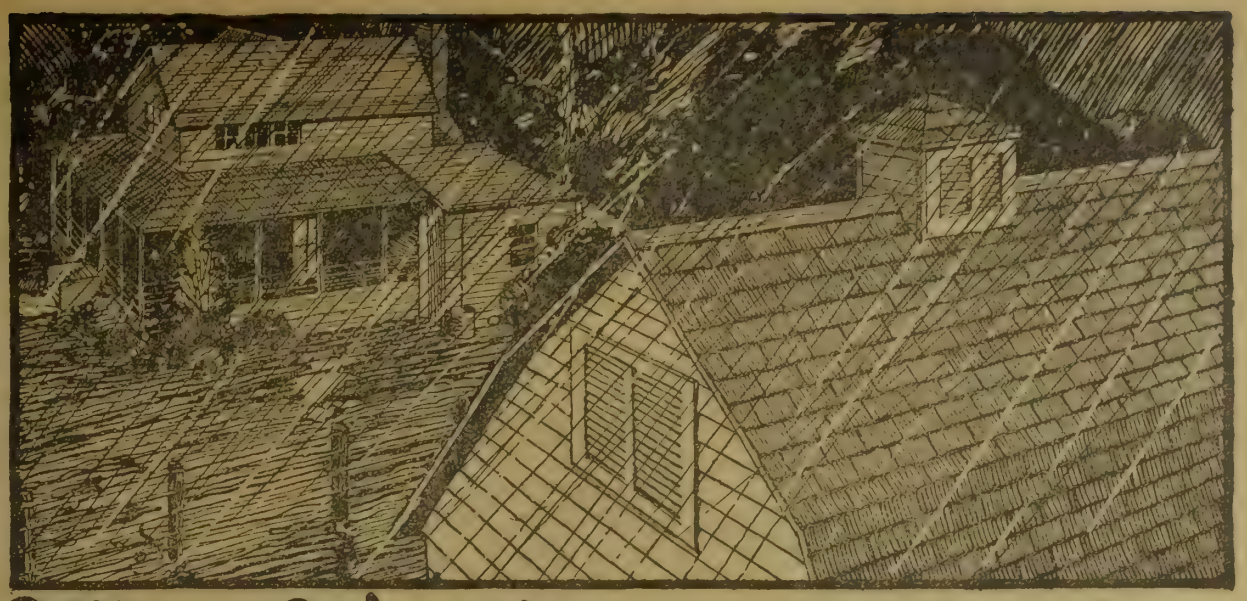
Citrus Markets

Los Angeles, May 4, 1921.

Finer quality of oranges never grew than this year's Navels. All other varieties are also of high quality, but run heavily to small offs. Valencias are now going from all the earlier Valencia districts.

Lemons featureless. All prices mean net loss to grower.

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 19,914 cars; lemons, 4,127; total, 24,041. To same date last season: Oranges, 15,980; lemons, 3,078; total, 19,058. From Central California to date, this season: Oranges, 4,948; lemons, 134; total, 5,082. To same date last season: Oranges, 4,570; lemons, 286; total, 4,856. From Northern California to date this season: Oranges 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.



Where Weather strikes hardest—
The Roof!

The roof takes the brunt of all weather—rain, wind and hot sun. Keep your shingle roof in good condition—a neglected roof means the cost of a new roof soon.

OTHER QUALITY PRODUCTS

especially prepared for use on the farm.

Oronite Roof Paint

A high-quality protective coating for prepared roofing and metal roofs.

Mica Axle Grease

Gives a durable, smooth lubricating film under every pulling condition. Keeps the axle cool; no hot-boxes, no gumming. The MICA makes it better.

Eureka Harness Oil

Preserves the original strength and life of leather and keeps it soft and pliable. Keeps harness "new looking."

Standard Hand Separator Oil

Correct Lubrication for your Hand Separator, under the conditions of high speed and close fitting parts.

ORONITE SHINGLE OIL
Preserves Shingles

Deterioration of shingles is caused by the penetration of moisture and air into the fibre of the shingles, hastening disintegration and decay. The natural oils in the wood evaporate and cracking and warping result. Your shingles need constant protection against the elements—rain, wind and sun.

Use Oronite Shingle Oil on all shingles either on roofs or on side walls. It is a high-quality preservative for shingles. It penetrates the shingle fibre and fills the pores with a moisture-resisting preservative. It retards evaporation of natural oils in the wood and counteracts the effect of age and exposure.

Oronite Shingle Oil is easy to use. It can be mixed with colors. Ask our nearest agent for formulas. Oronite Shingle Oil will make your shingle roof last longer and give better service to you.

STANDARD OIL COMPANY
(California)

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2050 Fertile Acres to be sold at AUCTION May 26th, 10 A.M.

Announcement Extraordinary!

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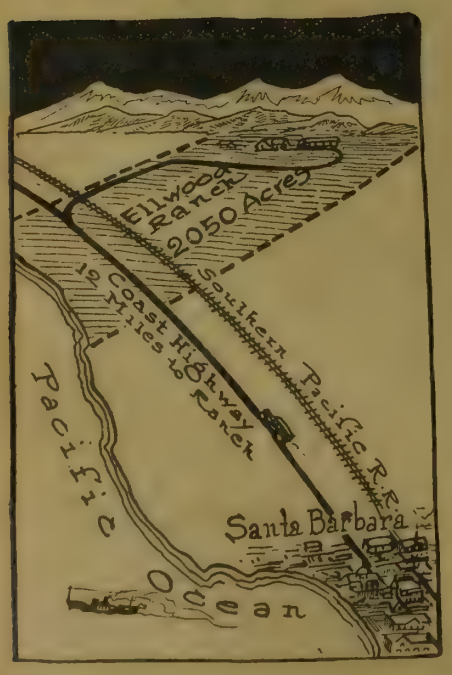
The State Highway, paved and the Southern Pacific Ry. cross the Ranch — Ellwood Station is on the Ranch. One mile frontage on the Ocean with a beautiful crescent beach. The view is unsurpassed. The Ranch is highly cultivated, including— Producing groves of every description. There are extensive Lima bean and grain fields. A large tract being admirably adapted to hog raising.

The tall Eucalyptus, the Oaks and Sycamores beautify the ranch. The **buildings are numerous** and are exceptionally well constructed. The full blooded stock and splendid Equipment will also be sold — **The Stock** includes some 75 head of beef cattle, fine horses, registered hogs, sheep and poultry. The **Implements** include a Locomobile truck, auto with trailer, complete blacksmith shop, olive mill and dairy equipment. Everything necessary for the Ranch.



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626 PANTAGES BLDG. — LOS ANGELES, CAL

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — May 14, 1921 — No. 20

The Avocado Seeks the Foothills

Entrance to Wm. A. Spinks Avocado Orchard Above Duarte

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

Vol. LVI No. 20

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C. B. Messenger, Editor.
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R. P. Royce, Livestock Editor.
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Subscription Price.....$1.00 per Year

Copy for change of advertisement must be in the office on Saturday preceding date of issue. New advertising copy must be in the office Tuesday preceding date of issue to insure insertion.
Advertising rates furnished on application.

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The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

Member

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Member Audit Bureau of Circulations.

Entered as second-class matter February 12, 1900, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Saturday, May 14, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

The avocado seeks the foothills and there gives added beauty to the landscape and added wealth because of its productiveness. For more than a dozen years we have been hoping for much from our avocado plantings. These plantings have been increased every year and the time will soon come when it will be possible to send to the large eastern markets this fruit in carlots.

* * *

The development of the avocado as a commercial proposition has been somewhat slower than it would have been had varieties of known quality been developed earlier. There are perhaps a hundred varieties with, however, only five admitted to the preferred list of the association, and some growers hold strongly to the opinion that all of these may not keep their place under later revision. It is probable, however, that others may be added. Meantime individual growers are experimenting in growing and marketing these hundred or more varieties. There is no month in the year but avocado cocktail and all through the menu to avocado ice cream may be had from fresh fruits gathered from California trees.

The exhibit at Pasadena last week was certainly an eye-opener as to the magnitude of the industry and as to the vast number of desirable varieties now being experimented with. It was by far the largest exhibit ever made and brought strong conviction to avocado growers that the time would soon be here when the consumer must be informed of the wonderfully healthful qualities of this fruit little known at least outside the larger cities.

* * *

The federal farm loan board has succeeded in disposing of the $40,000,000 farm loan bonds and the work of advancing this money to the farmers is being expedited. As fast as the red tape can be cut the money will be placed in the farmers' hands. We believe the 11th district will get about $13,000,000 of this, and we believe applications are already on file for much of this money.

* * *

Dean Thomas Forsyth Hunt has tendered his resignation as delegate to the International Institute of Agriculture at Rome and has been succeeded by William H. Stevenson, vice-director of the experiment station of Iowa state agricultural college. We regret that Dr. Hunt has found it impossible to continue the work which he has carried on for several months. California has a feeling of ownership in this great institution because of its initiation by a Californian, David Lubin.

* * *

The British Medical Society reports that "Discussion on the position of vitamines in clinical medicine touched upon certan general considerations in regard to deficiency diseases and discussed briefly scurvy, beriberi, xerophthalmia and rickets. New evidence in regard to the stability of fat-soluble A was furnished in the report of experiments on rats showing that butter heated to 120 degrees Centigrade without aeration retained its growth promoting properties thus indicating that the vitamine, while having considerable heat stability, is easly oxidized. For satisfactory nutrition of animals the diet must have an adequate caloric value and must contain a sufficient amount of the following constituents: Mineral salts, carbohydrates, fats, proteins, adequate in amount and of suitable nature; water soluble or anti-neuritic (anti-beriberi) accessory factor, or vitamine; fat soluble accessory factor, anti-scorbutic accessory factor." Rather formidable but harmless, for we have been eating them all our lives.

* * *

Various portions of the state, especially under leadership of the daily press, are making much of slogans and catch phrases expressing the boost spirit. "Southern California Straight Ahead," "Northern California Straight Ahead," "Superior California," and other slogans have been adopted and are perhaps proving of value in engendering more of a community spirit. The Fresno Republican, however, takes the position that while loyalty to our own community is to be admired, our first loyalty is to our state, and why isn't "California" good enough for us all?

* * *

Camping parties are already arranging for the mountain trip. Members of these parties should consider the awful costs of carelessness with camp fires, with cigarette stubs, sometimes with gun wads. The immediate loss because of fuel or timber destroyed is only a small part of the great loss to California horticulture. The greatest loss is due to the denuding of the watersheds. This story is so old that it has become trite, and even perhaps to many of our careful campers offensive, but the fires continue year after year, so we must all continue to preach the gospel of greater care.

* * *

It may be in order in connection with the fire warning to remind our readers of the week established by the governor's proclamation which was given in full in last week's issue, "May 22 to 28, 1921, Forest Protection and Fire Prevention Week."

* * *

An Eastern farm paper suggests to its subscribers: "You have got to give full fair value or you won't last." That is about what California lemon growers are suggesting to the consumer, excepting that it is changed somewhat and ends like this, "we won't last." If the country wishes to be supplied in the future with California lemons it will have to take some means of getting to the lemon grower the cost of production.

* * *

NEW TRICKS

Prof. Gilbert Bailey remarked to us the other day that the time had come when we California producers must devote more energy to teaching new dogs old tricks. He said the old idea that you cannot teach the old dogs new tricks is proving so thoroughly dependable that we must turn our attention to the education of the youngsters, especially in the matter of putting our soils into a state of higher productivity.

In the first place there are some fundamentals as old as the hills in which the youngsters must be grounded in order to have a foundation for the information of a newer day. We were standing in the quarries where shells and decayed bones of animals which were living possibly a million years ago are being removed to add to the fertility of soils to grow fruits for 20th century people.

Years ago Dr. Hilgard remarked that the presence of lime exerts a dominant and beneficial influence on the productivity of all soils. "In general we find that lower percentages of potash, phosphoric acid and nitrogen are adequate when a large proportion of lime carbonate is present." The richest agricultural lands of the world are those which nature has limed or else any deficiency has been supplied by calcium in some form. Dr. Hilgard maintained that most California soils were rich in lime as well as in potash.

Presumably Dr. Hilgard was right, but there are still hundreds of thousands of acres of this Pacific Coast which need a bit of lime, hence the interest in a great deposit left in Palos Verdes hills when those hills may have been a sink in the bottom of the sea. However, they must have been near to land for, mingled with the untold millions of tiny shells, there are bones of animals long since extinct. These deposits are being quarried, crushed, screened, and thousands of tons are being hauled to citrus orchards. Nor is the citrus the only crop benefited, for just the other day in a little backyard garden in the town of Anaheim in Orange County we saw where a liberal application from these natural lime deposits had given one of the most wonderful exhibitions of lush growth in lettuce, beets, onions and possibly a dozen other garden crops.

Unless one knows our soil conditions, and few of us do, the application of lime may prove of great benefit.

The story of one day's observations is too long to give in this space and next week we wish to quote liberally from Dr. Hilgard and also just a bit from the imagination of writers of the present day as to the history of this lime deposit.

A FLOOD OF OIL

The emergency tariff is not showing any excessive activity. In fact, as an emergency proposition it may be so deliberate that any immediate advantage which was promised at the beginning of the present movement will be lost. Secretary Hoey of the California Olive Association finds that there is a flood of foreign oil flowing into this country from the Mediterranean which is increasing every day in the effort to get all available supplies into America from Europe before the enactment of the tariff is possible. Mr. Hoey says:

"While the industry is based upon the canned ripe olive which is produced nowhere else in the world outside of California and Arizona, the fact that 50 per cent of the crop, not of sufficient size or quality for canning, must be sold as oil makes it necessary to the life of the industry that this domestic oil should not be sold at a loss."

And the olive is only one of the many California industries which are threatened with destruction unless congress wakes up and does something besides everlastingly talk.

CROP CONDITIONS

The reports which have been quoted from so freely during the past few weeks show serious losses to the growers in many sections, but we may remind our growers, although it is desperately poor comfort, that they are not alone in this situation for all the Middle West, in fact the entire country, has suffered severe losses from freak weather. For instance, from report of the department of agriculture just received: "Wet soil is delaying planting in central states and is retarding preparation of soil in northern states. Replanting necessary in many sections." The above as to corn. With wheat: "Conditions fair to good; growth checked somewhat by recent cold weather." "Taking on yellow tinge in Illinois, Ohio and Tennessee." "Green bugs in some counties of Oklahoma." Cotton: "Planting delayed by wet, cold weather; replanting necessary; cultivation and chopping backward." Irish potatoes: "Severe frost damage almost everywhere."

As to a general look at the fruit situation the department reports: "The territory in which fruit has been severely damaged by freezes has increased in size and now embraces portions of the central belt of the United States as far west as the Rocky Mountains. The severe frost of April 24 and 25 probably caused almost a complete failure of cherries, apricots and peaches in the southern counties of Idaho and damaged peaches considerably in Utah. Frequent rains have been unfavorable for the setting of fruit in Oregon. The berry crop throughout the country has apparently escaped serious injury. Cherries are being shipped from California."

Livestock situation reported fair though poor in New Mexico and Arizona. "Hog cholera appearing in all sections of Illinois and increasing. Blackleg reported in Nebraska."

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The Avocado Convention

By Ernest Braunton

THE sixth annual meeting of the California Avocado Association was held, May 6 and 7, at the Maryland Hotel, Pasadena. Though the weather was bad and the storm elements threatening, a large per cent of the membership was present and many visitors. Some years ago former president Shedden said: "The avocado is rich and nutty and so is the avocado fancier." But it has been abundantly proven that the average grower at present is neither, and at no previous meeting has so much material advance been made in the interests of the avocado orchardist.

Friday afternoon the convention opened with an "experience meeting," with President W. H. Sallmon in the chair. Nearly the whole time was spent in discussing irrigation, drainage and soil problems. It was clearly proven by examples cited that the avocado tree cannot be given too much water if drainage is good. Some have irrigated trees once a week and others have them in lawns subject to daily waterings. In all cases trees are vigorous and have borne well. In contradistinction to this treatment, Mr. Hertrich, of the H. E. Huntington estate, has irrigated some in heavy soil but once in 60 days and none are in better condition. Thorough cultivation is his substitute for water. It was agreed that a soil auger test is the only sensible way through which the orchardist may learn the need of soil moisture. For nursery trees very large balls are necessary to contain a desirable root system. L. B. Scott advocated selection of seedlings for budding, using only the best.

On the Half-shell

A distinctive feature of the dinner enjoyed at 6:30 p. m. was a fully ripe half-fruit beside each plate, on the original shell. Avocado cocktails, avocado salads and avocado ice cream were other delicious dishes. President W. H. Sallmon acted as toastmaster with that usual engaging "smile that won't wear off." His introductory remarks were indeed prophetic. After recounting the happy semi-annual dinners of the past and expressing the hope of their continuance, he said the avocado industry was now upon such a large and substantial basis that marketing problems would in the near future far overshadow all other considerations, but made a plea to keep in view and practice the social side which has proven so attractive to members and visitors alike and extended the knowledge and use of the avocado as nothing else could have done.

The Speakers

The after-dinner speakers all were editors of leading farm journals of the state. The first was N. L. Chapin, editor of the California Farmer, formerly the Rural World. Then followed E. A. Street, editor of the California Citrograph; J. C. Knollin, editor of Orchard and Farm; and C. B. Messenger, editor of the California Cultivator. President Sallmon expressed regret that the editors of Pacific Rural Press and Times Farm and Tractor could not be present. All responded to some subject connecting the farm journals with the avocado industry and all happily acquitted themselves for the applause given was very generous.

Public Program

Saturday at 9:30 a. m. came the formal program of scientific and practical papers on phases of the avocado industry, of which all or part of each will appear in the Cultivator. The list of subjects and authors follows: Further Experiments on Maturity Work on Avocados, E. M. Chace, U. S. department of agriculture, Los Angeles; Discussion of Analyses of Avocados from the Standpoint of Nutrition, Prof. M. E. Jaffa, University of California, Berkeley; Effect of Girdling Trees on the Fruiting of Avocados, Dr. J. Eliot Coit, Los Angeles; Proper Method of Marketing California Avocados, L. W. Albright, Los Angeles; an interesting letter on his work in Central America, from Wilson Popenoe, department of agriculture.

Saturday afternoon was held the business meeting of the association, the public being invited, but the members only occupying the central section for convenience in voting. President Sallmon read his annual address covering experiences and progress of the three years in which he had been retained in office. He announced his retirement from the directorate and therefore from the presidency, with hearty thanks to all for the splendid work done in building up the membership to three times the number listed when he was first elected to the chair. By a unanimous rising vote the gavel used during his three terms was presented to him and it was ordered mounted with a silver plate, suitably engraved and inscribed to commemorate his happy and successful three-term presidency. J. M. Elliott, who presented this gavel to the association, quietly drew forth another to take its place and modestly, without speech, handed it to President Sallmon.

Varieties of Avocados

The report of the committee on varieties made no extension of the official preferred list of last year, which included: Fuerte, Spinks, Sharpless, Dickinson and Puebla, and no mention was made of the three varieties dropped from the original list. The report stated many inquiries were received asking for the name of a hardy variety for home use in the range of citrus districts in general throughout the state. For this purpose the Ganter, weighing about a half-pound, is recommended. Of new varieties two raised by W. A. Spinks are very promising, a large green named Alexandria and a thin-skinned violet-black named by the committee "Mission" (the name suggested by the Cultivator representative). Three winter varieties are growing in official favor, Dutton, Tiger and Dorothea. The Tiger is alone recommended for far interior districts, Redlands for example, as an excellent sort for family use.

In the secretary's report it was shown that there are 403 paid up members and 37 unpaid (25 in other states and 15 outside the United States); and the treasurer reported $2,013 in the treasury. F. O. Popenoe of the avocado correspondence course committee announced that a revision and extension of its course would soon be published and distributed by the state university. E. G. Hart introduced an amendment to the by-laws leaving the members in their original standing at $5 per year, except they shall not hold office or have their crops handled by a marketing department to be formed. This latter will be handled from a membership which calls for an annual fee of $16 a year. It passed with little opposition as the growers are evidently anxious to see the industry placed upon a firm cooperative basis such as has brought such grand results to the citrus industry. A resolution looking to legal standardization of the marketing of the fruit failed of adoption because of its drastic provisions and the fact that the marketing department will rule on such matters. The election of three directors to hold office for three years each resulted in the highest number of ballots, in a list of six, being cast for A. E. Barron, San Diego, William Hertrich, San Marino, and Dr. W. R. Manning of Fillmore. Mr. Barron is new blood to the list of active workers, and his election is due to the popularity of the retiring president. Mr. Sallmon explained the differing conditions in San Diego County, especially the earlier ripening season of the fruit over that of Los Angeles and vicinity and asked for the election of a director from the southern county. The result was an almost unanimous ballot for the candidate from the city of "bay 'n climate." The meeting then dissolved with everybody evidently in a happy frame of mind, for great things were accomplished for the avocado industry and the future has a bright, even a brilliant outlook. Not all avocado growers are "rich" or "nutty."

The exhibit of fruits was the largest and most varied of any yet held, consisting of 67 named varieties and two score or so of numbered seedlings of fine appearance. W. A. Spinks, Duarte, had 20 named varieties, 14 of the 24 Wilson Popenoe introductions, four Knight introductions, the Spinks and Colorado. W. P. Sherlock had a good lot of named varieties and 14 unnamed but numbered. A. R. Rideout of Whittier was there with a large number of Lyon and Dickey A., and an extensive collection of colored photographs of trees and fruits. The Mather Nurseries of Altadena had a fine tree exhibit. The number of fruits displayed ran into four figures and so did the number of visitors. All the exhibits, except the fruits given away, were sold Saturday afternoon, to all who applied, and a complete "clean-up" resulted.

The Effect of Girdling the Avocado

By J. Eliot Coit Before California Avocado Growers

CERTAIN varieties of otherwise excellent avocados are losing popularity on account of not coming into bearing as early and as promptly as is desirable for a commercial fruit. Various growers have attempted to overcome this difficulty by ringing or girdling. I have been asked to collect, digest and present the results so far secured.

Scientific Consideration

In the first place, it is well for us to consider the girdled branch from the standpoint of plant physiology.

Dr. Jacques Loeb of the Rockefeller Institute for Medical Research in New York City, working on the general problem of regeneration of tissues in animals and plants, has brought to light new facts in regard to plant growth which have a wide practical application to the propagation, pruning and girdling of trees. To state the matter in a few words, Dr. Loeb has found out that every growing tip of twig or shoot is continually giving off a certain substance which, for lack of a better name, he calls an "inhibitor," which flows downward toward the root. This substance represses, slows up, or prevents the growth of buds on the main stem by which it passes. The path followed by this substance is the bark just outside of the cambium.

The dormant buds at the leaf bases situated some distance down the stem are prevented from all growing out as soon as they are formed by being continually repressed by this downward stream of inhibitors from the growing tips. If it were not for this, all the buds on a branch would immediately grow out, taking all the sap as it passed by them; there would be nothing left for the tips, and growth in height could not occur. This discovery explains why tip buds which are farthest from the root grow the fastest. They are able to grow because they are at the apex, and there is nothing beyond them sending down an inhibiting substance.

As soon as we accustom ourselves to this new idea of a downward stream of growth inhibitors, we are in a position to undersand why, when we girdle an avocado limb, the region immediately back of the girdle gives rise to several vigorous suckers. It is because the dormant buds near the cut are freed from the repressing effect of inhibitors, and inasmuch as the sap channels are large and abundant, the new shoots are extra vigorous. We can now better understand why, in top-budding avocado trees it is usually better to girdle the limbs above the buds than to cut them off entirely. The girdle relieves the bud from inhibitors and allows it to spring into normal growth; whereas if we cut the limb off entirely, the bud is sometimes drowned out by the excess of sap.

The effect of girdling a limb there-

(Continued on Page 642.)

Agricultural News Notes of the Pacific Coast

Northern California

Newcastle is shipping out strawberries and cherries.

Grain growers conference at university farm, Davis, May 17-19.

The first box of cherries from Newcastle sold in Chicago for $50.

Modoc, Lassen, Shasta and Inyo Conuties are planning big squirrel drives this month.

Sutter County held its annual farm bureau picnic May 7 in the Dow Grove above Sutter Buttes.

A shipment of dried fruits through the Panama Canal to New York came through in perfect condition.

It is proposed to organize a unit of the Grange Patrons of Husbandry at Point Arena, Mendocino County.

Yuba County will hold its agricultural fair August 29-31 at Browns Valley, ten miles east of Marysville.

The annual citriculture trip taken by students of the state university visited Sacramento County, May 10.

Horticultural Commissioner Sherrard of Tuolumne County says there are 713 acres planted to apples in that county.

Tehama County grain growers have settled on a wage cut of approximately 50 per cent from last year's schedule.

Superintendent of Rodent Control Jacobsen has been holding rodent control demonstrations throughout Glenn County.

The farm home department of the Alameda County farm bureau held a garment finishers demonstration at Hayward on May 4.

The California Prune and Apricot Growers Association has won out in its membership campaign, going well past the goal it had set.

Potatoes shipped from California to Oregon must be inspected and certified by the standardization service of the state department of agriculture.

Former Secretary Bigelow of the state marketing commission has been appointed general manager of the California Farm Bureau Exchange.

The Farm Bureau Elevator Corporation's terminal elevator on the Oakland Estuary is now ready to receive all kinds of grain for storage, cleaning and conditioning.

Water users and land owners of the Glenn-Colusa irrigation district are discussing necessity of measures to control seepage of rice water which damages nearby lands.

The Pacific Rice Growers Association has filed petition with the state railway commission asking that rice shippers be allowed the same milling in transit privileges granted to grain shippers.

Secretary Iversen of the Point Arena Cow Testing Association reports 761 cows tested during March. The highest testing cow gave 75.9 pounds fat. She is owned by James Biaggi and Son.

The Bernard bill increasing penalty for delinquent reclamation assessments to 20 per cent and providing for sale of delinquent property has been passed by the legislature. Colusa County farmers say they never heard of the bill and they are getting in vigorous protests before it goes to the governor for his signature.

Central California

It is rumored that the great Miller and Lux holdings are to be broken up and sold.

Fresno is planning to appoint a permanent organization to plan for future raisin festivals.

There is talk of establishment of a plant at Turlock to manufacture alcohol from watermelons.

Fresno reports expenses paid by every branch of the raisin celebration except the music festival.

Kern County farm bureau meetings at Mountain View, May 16; Pond, 18; Inyo-Kern, 19; Rosedale, 20.

The state land settlement board has recently added 240 acres to its holdings near Delhi, Merced County.

Farm home department meetings in Kern County: Weed Patch, May 17; Inyo-Kern, 19; Kern Delta, 24; Wasco, 26.

The farm bureau at Kerman, Fresno County, is planning a campaign to raise $1,500 to improve the community picnic grounds.

The most unfavorable April weather for ten years is reported by W. G. Bennett of the U. S. weather bureau service at Fresno.

Officials of the U. S. air service recently made a landing at Porterville to inspect the field with a view to establishing a base for the Sierra air patrol.

The Kern County cotton gin has closed down after handling 3,700 bales. The gin handled cotton from Kern, Tulare, Kings, Fresno, Madera and Merced Counties.

The state supreme court has ruled that the Kern County supervisors must permit Miller & Lux to form a reclamation district to irrigate 85,000 acres of Kern County land with water from the Kern River.

Members of the Milk Producers Association of Central California have passed a resolution urging Governor Stephens to veto Bill No. 98 regulating tuberculin test for dairy cows.

Prof. F. T. Bioletti of the University of California has been holding demonstrations of disbudding and tying young vines at the demonstration vineyards at Turlock, Stanislaus County.

Farmers of Livermore Valley, Alameda County, have set minimum prices for volunteer hay at $13, barley $15, wheat $18. These prices are for barley hay f. o. b. Livermore, choice grade.

The pea aphis is doing considerable damage in Stanislaus County fields. Growers have been trying to get hold of ladybirds but they will not be available for some time until the heavy snows have melted in the mountain canyons.

Members of the San Joaquin Valley "diplomatic mission," numbering about a dozen representatives of civic organizations, visited Los Angeles chamber of commerce to obtain support of that body of withdrawal of the power filings made by Los Angeles in the Sierras.

The Associated Dairymen of California has formed a cooperative marketing organization to sell its products direct to retailers. Distributing plants are to be located in San Francisco, Los Angeles, Modesto, Fresno, Sacramento and other large centers.

Southern California

California produced in 1920 140,000 bales of cotton.

Aphis is causing much loss in many of the citrus orchards.

The first crate of cantaloupes out of Imperial Valley was sent May 3.

Annual picnic of the Orange County farm bureau at the County Park today, May 14.

Yucaipa Valley apples are reported as free from any injury by the late spring frosts.

Alfalfa growers of Chino, San Bernardino County, have organized a marketing association.

Orange County cow testing association now has 628 cows, seven herds averaging above 40 pounds.

Imperial Valley cantaloupe crop will be the largest in its history. Total acreage is about 23,271.

Poultrymen of Orange County are contemplating organizing a cooperative egg marketing association.

Twelve carloads of lemons were sent from San Dimas last week on the steamship Steelworker, via Panama.

Palmdale in the Antelope Valley of Los Angeles County celebrated the recent opening of the Mint Canyon road.

Commissioner Waite of Imperial County has a large corps of inspectors ready for the cantaloupe shipping season.

Carload shipments of tomatoes are now being made from Imperial Valley. The planting totals about 1,600 acres.

A community picnic of all residents on the Irvine Ranch in Orange County will be held at Orange County Park, May 28.

Apple growers of Yucaipa Valley are getting ready for closer cooperation in the handling of the coming season's output.

Growers in many Johnson grass infested districts report the April frosts as having killed many of the plants back to the roots.

More pure bred Guernseys are being introduced into the Imperial Valley. Many dairymen who deserted dairying for cotton are now coming back.

Coachella Valley shipped its first car of onions at the end of April. If price and railway rates permit, the valley will probably ship a total of 700 cars.

Garden Grove, Orange County, gave unusually large attendance to demonstrations on canning and drying fruits conducted by Miss Clark of the university extension.

Cotton growers of the Palo Verde Valley of Riverside County have united and will make consignments of cotton to dispose of last season's crop, which is yet largely in the hands of producers.

Growers and shippers from the entire Southwest gathered in Los Angeles last week and presented claims for lower freight rate before a representative of the interstate commerce commission.

Covina, Los Angeles County, held a great May festival on April 30. Citrus and walnut associations of the valley entered floats in the parade and there was an old settlers' picnic at noon on the high school grounds.

The Coast and General

Considerable injury to peaches from freezing is reported in Smith County, Texas.

It is expected that the forest service will expend some $6,000 in the vicinity of Tucson.

A personal survey of the farm credit situation is being made by Mr. Harding of the federal reserve board.

The animal husbandry department of the University of Arizona reports that Arizona is the only state that has a surplus of cattle in the spring market.

The state of Washington has a new plant quarantine law vesting the power of establishing absolute quarantine in the state's agricultural commission.

More than $150,000 has been pledged by county farm bureaus over Illinois for establishment of the national headquarters in Chicago of the United States Grain Growers, Inc.

Upon advices from the California authorities, 275 cases of Manchurian walnut meats reshipped from California were seized at Seattle, condemned as inedible and later released and sold for hog feed.

Reports from ranch sections of Arizona are to the effect that water for stock is becoming low in many places. Stock losses continue in some parts of the state. Some cattle are being shipped out to the Northeast.

A. B. Ballantyne, formerly county agricultural agent of Graham County, Arizona, has been appointed assistant extension director of the University of Arizona and will give special attention to the boys and girls club work.

Chelan County, Washington, commissioners have passed a resolution consolidating the offices of the agricultural agent and the soils expert with that of the horticultural inspector, all of the work to be conducted under the direction of P. S. Darlington.

One-fourth of the alfalfa crop of Kansas will be lost as the result of the ravages of the pea aphis. The infestation has been more severe in the southeastern and south central sections but late reports state that it has spread to northeasern and north central Kansas.

A new rabbit poison is being tried out in the vicinity of Casa Grande, under direction of D. A. Gilchrist, rodent pest director for Arizona. It is said that the first day's work resulted in killing 47 cottontails, two jack rabbits and over 150 kangaroo rats, at a cost of only 30 cents for the poison.

Cattle ranges in the national forests are being appraised upon the quantity and quality of forage, amount, distribution and usability of water, slope, exposure and altitude of range, distance of range from shipping points and markets, distance and character of driveways affording access to the ranges.

Twelve southern states have united in a cooperative cotton marketing plan, following meeting at Memphis, Tennessee, called by the American Farm Bureau Federation. Aaron Sapiro of San Francisco explained to the cotton men the workings of cooperative marketing as it is succeeding in California. The plan is to pool cotton crop for seven years.

Farmers Club's Twenty-Fifth Birthday

AT ONE time there were 69 farmers' club in California —now there is one—and it's a real club, a live club. In other sections the farm bureau has replaced the club.

The one club yet in existence is the Claremont Pomological Club which has just celebrated its twenty-fifth birthday. The day was devoted to a review of its history and to a memorial service for Dr. A. J. Cook, its founder. The club has a history showing accomplishment of value to all of California. This accomplishment is largely in the state legislature.

While it is called the Claremont Pomological Club it has members from Claremont, La Verne, Pomona, Glendora, Walnut, Anaheim, Ontario, Upland, Pasadena and Los Angeles. Of course, most of these members formerly resided in Claremont. The meetings are held at the homes of members, the host family providing the entire entertainment, but as each family is called upon only once in five years it is not a burden. The host at the last meeting was J. B. Coulston of Pasadena at his ranch on the Foothill Boulevard between San Dimas and Glendora.

Many guests were invited to this meeting, all being present excepting Dr. H. J. Webber, former head of the citrus experiment station at Riverside, and State Director of Agriculture Hecke. Dr. Webber replied, reviewing much of the work performed by Dr. Cook, and regarding the activities of the club said:

"While the club exists primarily to foster a knowledge of improved methods of agriculture, this is but one of its real functions. It has now become a recognized part of the community. Age has given it place and dignity. It is a community institution and one of the community's most noteworthy features. The club cannot be allowed to go down as it would be a distinct loss not only to the members but to the community and to the state. I greatly doubt whether the members of the club fully appreciate all that this club does mean to their community. It is distinctly a community feature. There is no other like it in California."

Mr. Hecke expressed regrets at not beng able to be present at the meeting and added:

"The Claremont Pomological Club is a historical landmark in California horticultural development, and its standards and influence reach far beyond the community in which it was organized. I want you to feel that the department of agriculture is in sympathy with your work and ideals, and we need your interest and support in the service we endeavor to render. Through our cooperative agreements with the federal department of agriculture I believe that your state department is in a better position than ever before to prevent duplication and overlapping of service and thereby make all efforts count."

Reading the letters from these absentees was the opening feature of the meeting, after which V. V. Leroy, who has been secretary of the club nearly all of its 25 years of existence, and a most faithful worker, read a history of the club activities and paid tribute to Dr. Cook. In part he said:

"Dr. A. J. Cook, who spent his life helping others, was the founder of the Claremont Pomological Club which is celebrating today its twenty-fifth birthday. When he came to Pomona College from the Michigan Agricultural College early in the year 1896 he saw the need of more scientific knowledge for the citrus growers, who 25 years ago were building up a great industry through many trials and tribulations.

"The first meeting was held at the ranch home of Prof. C. B. Sumner, Twin Oaks, on the Foothill Boulevard west of Claremont. So far as is known the only charter members alive today are Prof. C. B. Sumner, Edwin Squire, Mrs. E. M. Pease, Frank L. Palmer, Mrs. C. C. Johnson, Mrs. J. R. Moles and Mrs. F. D. Joy.

"The writer came to Pomona in the fall of 1898 and was the greatest tenderfoot in the West. But he proceeded to buy an orange ranch before he was here a week and has never regretted it. Knowing that he knew nothing about ranches or farms of any kind, being an eastern business man, he at once joined the Claremont Club. The next spring, 1899, he was elected its secretary and has held that position up to date, except one year when he and Dr. Cook were abroad.

"On our return in 1906 it was decided to change from afternoon to all-day sessions, with a dinner at noon. The club bought its silver, dishes, lap boards, coffee boiler, folding chairs, etc., so that each member in turn could entertain the 60 to 100 present without hiring these necessary accessories.

"The club has always been active in every progressive movement for the benefit and uplift of the state and community. Eighteen years ago the writer was asked by Dr. Cook to make a circuit with him on his institute work and give addresses on good roads."

Mr. Leroy referred to the work of W. A. Johnstone, at that time in the state assembly. The initiative of the club resulted in Mr. Johnstone getting behind a good roads bill and securing its passage. Mr. Johnstone supplemented the secretary's report as to the good roads effort by a history of his work on roads, fertilizer and other bills, the start for which was made in this club.

Other good work taken up by the club and referred to by the secretary was the establishing of a telephone system and pest control of the neighborhood immediately surrounding Claremont. Regarding this fight on one of the pests Mr. Leroy said:

"The inspection was made with E. O. Essig, now probably the best authority on insect pests in the state, in charge of the inspectors, and Prof. Baker superintending the records and the secretary receiving the reports each evening. A warfare was started under the direction of the club in cooperation with the county commissioners and the Claremont Citrus Association. The result was a complete eradication of a pest which in Ventura County cost one rancher $10,000 on a 40 acre ranch one year in an effort to clean it up.

"In this inspection a new scale was found by Mr. Essig which was not considered bad and hence was not taken in hand so strenuously but which is now getting to be serious. At that time, 1909, it was thought to be the coccus longulus, which later was found to be an error. The authorities now call it the gray citrus scale or coccus citricola Campbell."

Mr. Essig supplemented Mr. Leroy's talk on the scale with some of the details of the fight and referred to the life of Dr. Cook especially wtih reference to his work as an educator.

Dr. C. P. Sumner, president of Pomona College at the time of Dr. Cook's coming from Michigan, said:

"Dr. Cook came to Pomona College with a reputation of which anyone might be envious. He was one of the foremost scholars of the age in scientific and practical farming. His scholarly instincts not having been satisfied with the course of the agricultural college, he had gone to Harvard where he might sit at the feet of Agassiz and drink in of his profound study and experience."

Ernest Braunton of the Cultivator staff said:

"My first meeting with Dr. Cook was at a farmers' institute at Covina. 20 years ago. He had written to Dr. L. H. Bailey, who was then preparing the first edition of his great Cyclopedia of Horticulture, to know if he had a collaborator in Southern California who could lecture on plants and their uses as ornamentals. It is an odd coincidence that the two first institutes I spoke before were the only two that Dr. Bailey addressed. Two months later I first spoke before the Claremont Horticultural Club.

"Dr. Cook afterward told me that he was particularly pleased to have me recommended by Dr. Bailey, for the latter was one of his pupils back in Michigan when he was teaching common school. He spoke of the intense love of the Bailey boy for all departments of nature and how he loved to lead him farther into such studies. After listening to Dr. Sumner and others who have eulogized Dr. Cook as a teacher who enthused all students in his classes, to an unusual degree, I am wondering if he was not at least partially instrumental in launching Dr. Bailey upon the career that has made him world famous as an horticultural authority. World wide fame was denied Dr. Cook because he so loved his fellow man that he concerned himself with the welfare of those immediately about him rather than applying all his time to his chosen science. He was quite the reverse of the 'cold blooded scientist.'"

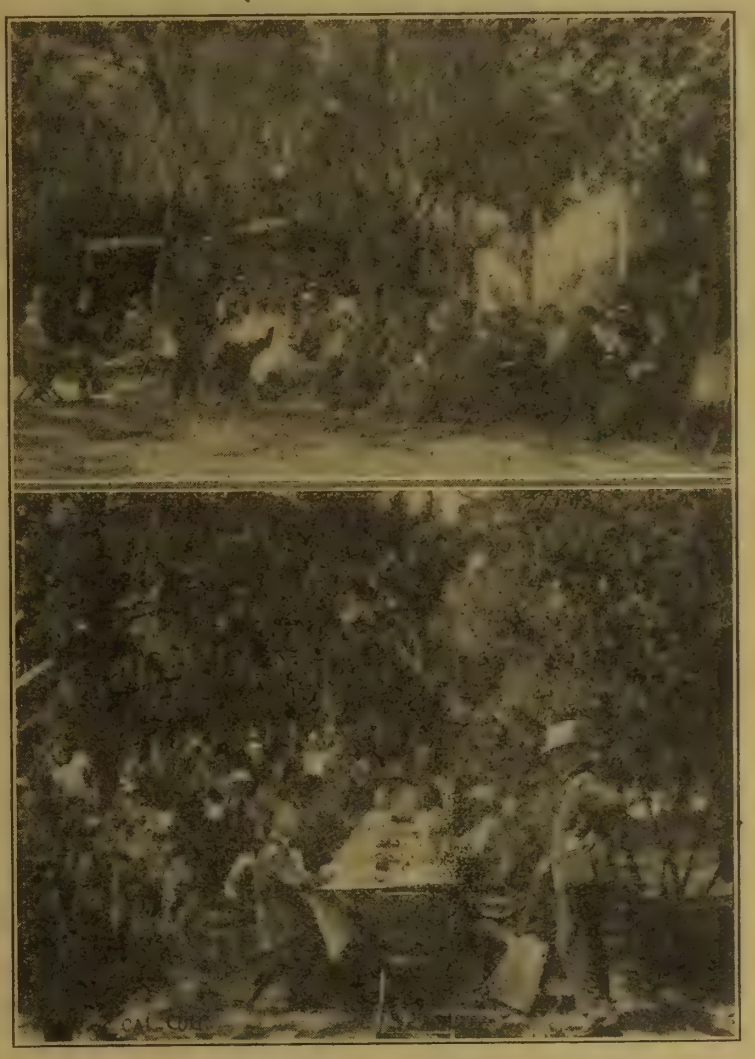
H. E. Strong of the state quarantine service; H. A. Ryan, horticultural commissioner of Los Angeles County; Dr. A. T. Barrett, head of the citrus experiment station; C. C. Teague of Santa Paula, and C. C. Chapman of Fullerton and others paid tribute to Dr. Cook's life.

Reminiscences regarding the installation of the telephone system and recounting of some of the difficulties which had to be overcome were given by C. B. Messenger of the California Cultivator. After reviewing some of the early history of the college and the club, he said in part:

"Later came Dr. A. J. Cook from Michigan, and with Cook came work and troubles and optimism and enthusiasm and accomplishment for many of us. Many of us were only slightly in touch with the college but he reached out and said, 'Come, men, let us get together.'

"We got together and amongst other cooperative movements he started was this Claremont Pomological Club. At one meeting at his home in the spring of 1902 Dr. Cook presented the matter

(Continued on Page 644.)



Feast of Reason and Other Good Things Under the Trees

Annual of the Claremont Pomological Club at the J. B. Coulston place. Upper photograph taken while club was being addressed by C. C. Teague. Back of the speaker, and sitting nearest margin of photo, President Needham. Lower picture taken at tables, J. B. Coulston standing.

THE EFFECT OF GIRDLING THE AVOCADO

(Continued from Page 639.)

fore is to permit the growth of suckers immediately behind the girdle, which appropriate a part of the raw sap, thus checking the vigor of growth beyond the girdle. At the same time, the elaborated sap coming from the leaves, which is transported through the bark is checked by the girdle and soon reaches a concentration which forces a rapid formation of blossoms and fruits.

Practical Results

Turning now from the field of plant physiology to actual results in the orchard, we find that girdling avocados does throw them into bearing. The testimony is unanimous on this point. I will have time to cite only a few of the large number of growers who have been good enough to answer my letters.

J. M. Elliot girdled a lot of Taft limbs in October. These limbs all bore from ten to 20 fruits each with nothing on the remainder of the tree. This year he has girdled a much larger number.

On October 24, 1918, Mr. Whedon girdled 65 Taft trees. The following summer he sold 234 fruits from the girdled trees, and none from those not girdled. It is interesting to note that even the next year the old girdles showed results, and in 1921 the Tafts bore 120 fruits while those not girdled are still bearing nothing.

Wm. Hertrich girdled 25 seedling trees with the results that 75 per cent of them blossomed and set fruit. At the ranch of Geo. D. Hoffman at El Miridor, Mr. Dolman has gotten good results from girdling and is continuing the work in an experimental way.

Dr. Keller girdled one branch of a three year old Linda with the result that the branch matured 38 fruits while only two were borne on the rest of the tree. Mr. Rideout and a number of others have had very similar results. Mr. Knight varies the process by using a binding wire instead of cutting out a girdle. His results show some variation, depending on the time the wire was left on. Mr. Spinks uses the girdle extensively in propagating and top-working trees, but not for fruit production.

While practically every one who has girdled in October has gotten fruit, a good many seem to think the procedure is dangerous on the ground that the limbs may be weakened and break at the scar. No one cites instances of actual loss by breakage, and I am inclined to the opinion that this fear is not justified. Where the cut extends just through the bark and is quickly healed over, the branch should not be weakened to any extent.

Conclusions

Girdling is inexpensive and brings big results. It has not yet been shown to be attended with serious damage to the trees. The best time is October. The best width of girdle varies with varieties from ⅛ to ¼ inch. Suckers arising behind the girdle should not be removed too soon.

By way of suggestion I would like to point out that more experiments should be made on root pruning. If a tree like the Taft persists in wasting its substance in riotous living and refuses to take life seriously, might not a vigorous root pruning furnish a sufficient check to vegetative growth to produce results without the scarring incident to girdling?

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OREGON GROWERS ARE COOPERATING

By C. E. Wilson

R. C. PAULUS, former sales manager of the Oregon Growers Cooperative Association, was elected general manager of the association and the Oregon Growers Packing Corporation at the annual meeting of directors held at Salem, Oregon, April 25. C. I. Lewis, former manager of the organization department, was made assistant general manager.

For 12 years Mr. Paulus has been active in fruit circles of the Northwest, holding many positions of trust, besides that of manager of the Salem Fruit Union. Mr. Lewis was for 14 years head of horticulture of the Oregon agricultural college at Corvallis, and is regarded as an authority on all matters horticultural in the Northwest.

The Oregon Growers Cooperative Association was organized August 1, 1919, with 137 members controlling 3,000 acres. The present membership is 1,648, with a control of 28,838 acres.

Loganberries handled by the association amounted to 1,072,956 pounds, averaging growers 12.7 cents a pound. Cherries averaged the same, 12.7 cents a pound, with sales of 1,014,955 pounds. The average of other berries a pound is as follows: Gooseberries, 7.9 cents; raspberries, 20 cents; strawberries, 16.9 cents; currants, 10 cents; evergreen blackberries, 7 cents; green prunes, 4.4 cents.

Of pears, the association sold 402 cars into 50 markets, believed to be the largest distribution ever given Oregon pears. New York City was the greatest market, taking 123 cars. Chicago bought 30 cars, San Jose 24 cars and San Francisco 18 cars. Forty cars were shipped to the southern markets with Baltimore in the lead, taking 15 cars.

England was a good buyer of Oregon apples. From the association London bought 86 cars and Liverpool four cars. Total shipments were 279 cars.

Pear shipments amounted to 402 cars. From the great pear district in southern Oregon in the Rogue River Valley the association shipped 5,555,953 pounds of pears. Of this, 3,955,870 pounds were Bartletts shipped from Medford and 618,225 pounds shipped from Grants Pass.

The association handled 27,514 crates of broccoli, selling 85 per cent of carlot shipments out of the state, developing 38 markets.

FRUIT GROWERS SUPPLY COMPANY HAS NEW LUMBER MILL

The California Fruit Growers Exchange announces the opening of its second lumber mill and box factory at Susanville, Lassen County. Coming at a time of readjustment and economic unrest, when prices of fruit as well as other food stuffs are low and the cost of production is high, this new undertaking is another progressive step in line with the policy of the California Fruit Growers Exchange in attempting to keep production costs at a minimum and also keep the price of citrus fruits within the reach of the consumer.

It was in October, 1907, that the Fruit Growers Supply Company was organized for the purpose of furnishing citrus growers with necessary orchard supplies at a minimum cost. Three years later, following the purchase of the Hilt properties, consisting of 25,000 acres of timber land, the company actually entered the field of shook manufacturing in order to supply a portion of the demands of the growers. In 1912 the mill at Hilt was rebuilt, making it a modern institution in every respect with a capacity of 50,000,000 feet per year as a maximum output. At that time this production was sufficient to supply half the box shook requirements of all the Exchange growers.

Answering Olive Oil Importers

By Frank Simonds

THE Olive Oil Importers Association has asked through the press a series of open questions which would tend to imply a case against the request for an adequate protective tariff that is being made by the American olive industry. It is with pleasure that we answer these questions.

They ask why in the years 1907 to 1912, when the Payne-Aldrich tariff of 40 and 50 cents a gallon was in effect, California produced only around 100,000 gallons, and that the highest production of the state, 200,260 gallons, was in 1916, which was a low tariff year.

Whatever the source of their figures, the honorable gentlemen seem to believe, or at least desire to make their readers believe, that olives are like summer squash and can be planted in the spring and harvested a few months later, and that therefore the growers of the state can adapt themselves promptly to market conditions.

It takes ten years to bring an olive tree into profitable bearing for oil production, and the olives planted for oil production as a result of the stimulus of the Payne-Aldrich bill were supplying their crop in the oil production of 1916.

Moreover, the Payne-Aldrich bill was never adequate to compensate the difference in cost abroad and in this country. The average of wages listed in the government's bulletin as being paid in various branches of olive oil production in Spain and Italy is 85 cents a day. The average of wages paid for the same service in California is $3.20 a day. The cost of producing a gallon of olive oil in California before the war was $1.63. The average cost at the factory of olive oil in Europe, during the same period, was 65 cents. A tariff of 40 cents would obviously not encourage extensive planting of olives for oil production in California, especially when there was no assurance that it would not be repealed, as it was a few years later.

The olive importers state that California and Arizona, where all American olives are raised, have not done very much but try to force high prices upon the American public. When the tariff on oil was reduced from 40 to 20 cents under the Underwood law, the consumer was not benefited in the slightest degree. The retail price was not reduced. The oil, as sold retail in small containers, is not priced at fractional figures giving the consumer benefit of lowered duty. The benefits were entirely absorbed by the importer. The California growers expect that oil will drop from its present figure even with the duty they ask, since producing costs are coming back to pre-war level. They only ask insurance against a drop that will destroy their industry and encourage the planting of a half million acres available for olive culture in California.

The olive importers quote the secretary of this association as stating that olive oil is only a by-product of the olive industry, but fail to catch the point that it is a necessary by-product. Nearly 50 per cent of the crop is not suitable for canning ripe and must therefore go into oil. Is it just that the American producers should lose money on half of their output or be forced to increase the price of ripe olives to make up their losses?

The olive importers stress the point that only two per cent of the olive oil consumption is produced in America. This is exactly the situation we desire to remedy. We have half a million acres on which to build a thriving American industry if protected from the product of European pauper labor. What are we to do with this land—let it grow up to cactus and sagebrush when it stands ready to supply this country with all of the olive oil it needs? It is neither reasonable nor American to do so.

Another bogie of theirs is that California olive oil is inferior to foreign imported oil. A California oil won the grand prize for quality at the Panama Pacific and St. Louis expositions in competition with oils from France, Italy and Spain.

They quote the fish canners of California as saying that it is too acid to be used for canning purposes. In answer to this Dr. Phelps of the bureau of chemistry says: "California olive oil is equal in quality and as good as the olive oil that is imported." When asked if it contained acid that gave an unpleasant flavor to canned fish, he said at the congressional committee hearing: "That is not true of good olive oil."

And at last the importers ask, "Is this a political or economic issue?" It is both. It is an American issue. A great American industry hangs in the balance and asks for a recognition that will enable it to supply the American market at fair American prices. It contemplates no increase in the price of olive oil, but would forestall the imposition of European pauper standards of living upon American life through the unloading of great quantities of European oil on our shores in an attempt to regain a lost balance of trade.

LABOR SCHEDULES

Farm organizations generally are agreeing on reduction of wage scales in grain fields and general farm work. Grain growers met recently at Red Bluff and agreed upon a wage cut of approximately 50 per cent from last year. The following schedule of wages was established for harvest hands during the coming season:

For general hay hands, $2 per day and board.

Irrigators, $2.50 per day and board for ten hour day, and 25 cents an hour for overtime. Employers are to furnish boots.

Tractor drivers, 50 cents an hour.

Separator tenders, $5 per day and board for 12 hours.

Sack sewers, $4 per day and board.

Header tenders, $3 per day and board.

Sack bucks, $3 per day and board.

The Salinas farm bureau center has adopted a wage schedule to be paid by farmers in employing different classes of labor.

General farm labor, $2 per day.

Horses, per span, $1 per day.

Teamsters (beet hauling and beet plowing), $3 per day.

Experienced tractor drivers, $4 per day.

Irrigators, 30 cents per hour.

Sack sewers, $3.50 per day.

Hauling sacks from field to pile, $3.50 per day.

Experienced separator tender, $6 per day.

Hired man, per month, $50 per month.

Header loaders, $3.50 per day.

Threshing hands, $3.50 per day.

It was agreed that this schedule of wages would be adhered to until such time as it would be necessary to draw up a new schedule.

GARDEN CRAFT

Some hints by F. L. Wright in The Flower Grower:

Nearly the whole of the shrubs should be deciduous, so that the winter sunshine and health giving breezes may reach the ground among them. Only here and there a clump of evergreens may be planted. They always prevent flowering plants from succeeding if planted amongst them.

Among the shrubs should be planted all of those beautiful things which nature grows in such situations—primroses by hundreds, pansies in spots where they will be shaded during the summer, anemones of many kinds, ferns, all hardy lilies.

The nature which has been so long banished from gardens is the allowing and encouraging of every plant grown to develop its true character and beauty instead of ignoring that beauty, by pinching, trimming and training the plants into unnatural shapes, as is usually done.

The art which should find a place in gardens is the arranging of plants after the manner of nature's best groups, so that the plants may enhance each other's beauty by contrast of form of leaf and flower and habit of growth. It is just because that art is neglected that beds of hardy plants often have a poor effect.

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FARMERS CLUB'S TWENTY-FIFTH BIRTHDAY

(Continued from Page 641.)

of a farmers' telephone line. Pomona had a few phones in operation in nearly all business houses and some residences. The expense demands for farm extensions were prohibitive. The service of such phones as were installed was maddening.

"But how could we, the inexperienced farmers, and some of us who wished we were farmers, ever build, equip and operate a telephone system? It was a pipe dream without the pipe. 'If the powerful Sunset with millions behind it could give only such wretched service, what could one without capital or experience accomplish?' 'Nothing doing!' and similar remarks were not heard by Dr. Cook.

"My work was with the business men of Pomona. They wanted nothing of the new outfit. Why tempt fate? But the outside of town workers were getting the farmers into line. Our minimum was 150 subscribers. Our rate was to be—if possible—50 cents per month for homes with slight increase for business houses. The 150 subscribers have increased in less than a score of years to nearly 6,000.

"The franchise was sold July 3, 1902, to D. S. Parker for $85. It was a long time before the city council could get a quorum. Finally George Carter came in from the desert and he with Moses Petty and W. H. Poston voted the franchise.

"Financial saving with far greater efficiency to thousands is possible because of the success of this institution fathered and mothered by Prof. A. J. Cook and this Pomological Club.

"And in giving tribute let us not forget the faithfulness, dependableness and hard work of V. V. Leroy, a pioneer and a stayer.

"Another child of the Claremont Club is the Los Angeles Mutual Fire Insurance Company, organized because of the initiative of the club at a meeting in 1899. The growth of this concern has been continuous, and it is now carrying over $13,000,000 insurance at a cost to the farmers of about half that of old line insurance. A. T. Currier is president and George F. Cromer, secretary. That company has organized another mutual insurance company of which Fred C. Cromer is secretary. One year ago, May 1, 1920, Policy No. 1 in that new company was written. Today it is carrying three-fourths of a million in business."

Probably the greatest benefit from any one movement initiated by the club was secured from the passage of the fertilizer bill drawn and pushed by members of this club. Frank L. Palmer, who was chairman of the committee, reviewed some of the work of Dr. Cook and the club, and regarding the fertilizer bill said:

"At a farmers' club institute or convention held in Pomona in March of 1902 a resolution was passed emphasizing the necessity for a fertilizer law in this state, and a committee was appointed to draft the proposed enactment and to submit such draft for the approval of the next similar convention that should be held. That committee consisted of Rev. C. B. Sumner of Claremont, George F. Ferris of Claremont and myself. I naturally took a strong interest in the project myself because at that time I was buying fertilizers for 300 acres of orange groves under my charge and was fully alive to the importance of securing the proposed legislation. Our committee fully realized that in anything that might be proposed we must secure the endorsement and approval of the state agricultural experiment station, and I therefore opened a correspondence with Dr. E. W. Hilgard who at that time was the head of the agricultural department of the state university and the director of the state experiment station. Throughout the preparation of the proposed bill, or draft of the proposed law, we acted under the advice of Prof. Hilgard and with his helpful cooperation.

"Our committee obtained copies of the fertilizer laws then in force in the states of Massachusetts, Rhode Island, New York, Ohio, West Virginia, Georgia, Florida and New Jersey. When we came to study and compare these laws of the older states we found a striking similarity in their general provisions, both in the requirements and in the manner of enforcement. Our task then became one of less difficulty than we had anticipated, for we learned by correspondence with the authorities in the older states that their fertilizer laws were in most respects effective and satisfactory, and we came to the conclusion that similar provisions would apply in California. I will say that our existing law as finally passed was patterned quite largely after the law then recently enacted in West Virginia, and which contained more stringent requirements to be observed by the manufacturers of commercial fertilizers than those of any other state.

"We finally got the proposed enactment into a shape that met the approval of the committee, and then after submitting it to Prof. Hilgard and after inevitable minor changes and modifications, we were prepared to fully endorse it and to go to the people, particularly to the fruit growers, for their endorsement. I went before the convention of Farmers Clubs which met at Santa Ana on December 19, 190 , presented our proposed bill and asked for the approval of the bill and for the endorsement of the convention.

"The convention after satisfying itself that the bill was a good one gave it unanimous approval and a strong endorsement.

"It is not a very difficult matter to frame a law such as this, but it is a totally different matter to get the proposed bill enacted into a law by the legislature of the state. The fruit growers of Southern California were most fortunate in having in the legislature during the following session a champion in the person of Wm. A. Johnstone of San Dimas. It was Mr. Johnstone who fathered our bill, who introduced it, and who finally summoned to its support the best element of the legislature in sufficient strength to overcome the opposition. It is a remarkable thing that a young man during his first session could have won the recognition that was accorded to Mr. Johnstone. It was due to his efforts more than that of any other one man that the fertilizer law was placed upon our statute books. And as Mr. Johnstone was a member of this club we have every right to count this law among the achievements of the Claremont Pomological Club."

Tribute to Dr. Cook and his life history were given more completely by Charles C. Teague of Santa Paula, from which we take the following short paragraphs:

"For nearly 50 years Dr. Cook unselfishly served the agricultural interests of the United States. By reason of his education and scientific training he was unusually well fitted to perform the splendid service which he gave the country during this period. His college degrees were: Bachelor of Science, Michigan agricultural college, 1862; Master of Science, Michigan agricultural college, 1865, and Doctor of Science, Michigan agricultural college, 1905. He was also a student at Harvard from 1867 to 1868. He was a professor of zoology and entomology in Michigan agricultural college from 1868 to 1893; curator of the general museum, Michigan agricultural college from 1874 to 1879; entomologist of Michigan agricultural experiment station from 1888 to 1891;

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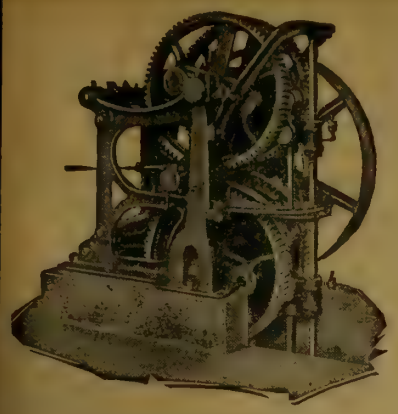

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and professor of biology, Pomona College, 1893 to 1911. He was also conductor of the University of California agricultural extension work from 1894 to 1905.

"For over 40 years he was an enthusiastic conductor of farmers' institutes and clubs. His activities as an author and in farmers' institutes gave him a nation wide acquaintance which brought him a large volume of correspondence on a great variety of subjects. No one ever addressed an inquiry to Dr. Cook which remained unanswered, even in the later years of his life when his health was poor; when he should have taken a much needed and well earned rest, he insisted on attending to correspondence even if it were necessary to burn the midnight oil to do so.

"It was appropriate that such a man as Dr. Cook should have been called to serve the state of California as its horticultural commissioner, which appointment he accepted and entered upon a work which many of his friends consider the crowning work of his life.

"Dr. Cook's capacity for choosing the right man for the right place is evidenced by his untiring efforts to secure for the public service in California such men as Dr. H. S. Fawcett, Harry S. Smith, Geo. P. Weldon, E. O. Essig, C. F. Baker and R. S. Vaile."

HUGE TONNAGE BY WATER

Returning from an extensive trip through the Northwestern states, C. S. Whitcomb, vice president of the California Fruit Growers Exchange, and chairman of the committee on water transportation, reports great progress toward securing refrigerated space on steamers between the Pacific and Atlantic coasts.

The assured cooperation of the large tonnage shippers in both fruit and vegetable lines on the coast has proven to the shipping interests that the producers of foodstuffs are very much in earnest in trying to avoid prohibitive transcontinental rail rates by using the all water routes, it is stated.

Several shipping concerns are now working upon methods for the installation of refrigerated space on steamers which now have only ventilated compartments and one other line is considering entering the field with ships reconstructed and refitted with refrigerated compartments designed especially to meet the needs of the perishable fruit shippers of the Pacific Coast.

Growers in apple districts of Oregon and Washington are in hearty accord with the plans of the California citrus fruit growers and vegetable shippers to facilitate year round shipments by the all water routes. According to statements issued by the various apple interests of the Pacific Northwest, they now stand ready to furnish a guarantee of 70,000 tons in apple shipments per year out of the port of Seattle, thereby assuring their cooperation with the citrus growers of Southern California when they agree to ship 70,000 tons of citrus fruits from the port of Los Angeles.

LEMONS SHIPPED BY WATER

In a publication of the U. S. department of agriculture it is reported that "The initial shipment of citrus fruit from California by the water route was made in January and was accompanied by a representative of the department. The cargo in this case was loaded at Los Angeles and sent to Philadelphia and Baltimore, where it arrived in a highly satisfactory condition A prejudice exists against cold storage lemons, so this fruit is usually transported under ventilation without refrigeration. Carrying lemons through the heat of the canal zone without refrigeration constitutes a severe test. This, combined with the fact that the trip lasted 22 days, gave ample opportunity to study the limitations and possibilities of the water route. Conclusions indicate that it may be possible to transport lemons by this method, but that refrigeration will be desirable for the proper shipment of oranges."

Manager Powell estimates that it will be possible to ship at least 10,000 boxes of citrus fruits by Panama.

NOTICE

We have just closed the most successful tree, shrub and plant selling season in the life of this Company.

We have on hand for delivery in the winter and spring of 1921-1922 a magnificent stock of deciduous and evergreen ornamentals and fruit bearing trees.

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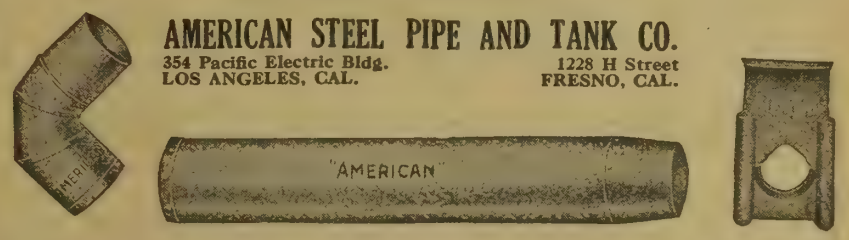

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Any windmill which does not have the gears running in oil is only half oiled. A modern windmill, like a modern automobile, must have its gears enclosed and run in oil. Dry gears, exposed to dust, wear rapidly. Dry bearings and dry gears cause friction and loss of power. The Aermotor pumps in the lightest breeze because it is correctly designed and well oiled. To get everlasting windmill satisfaction, buy the Aermotor.

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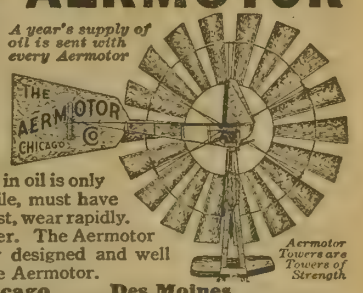

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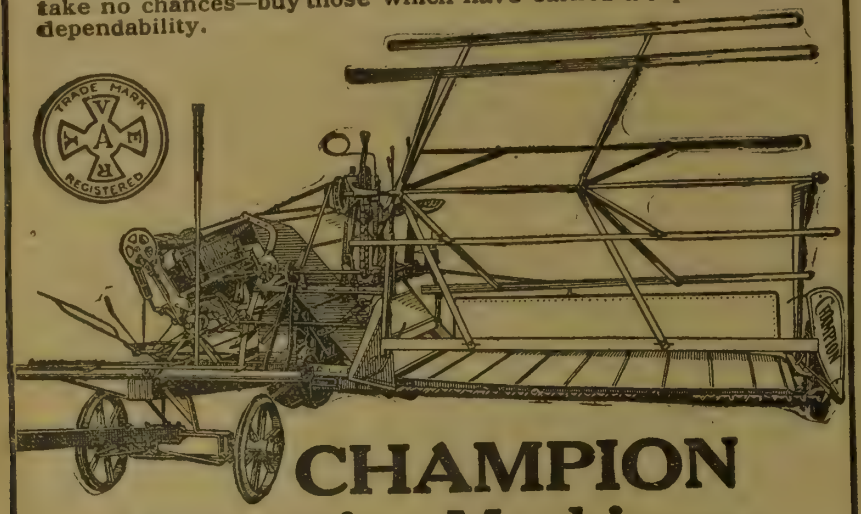

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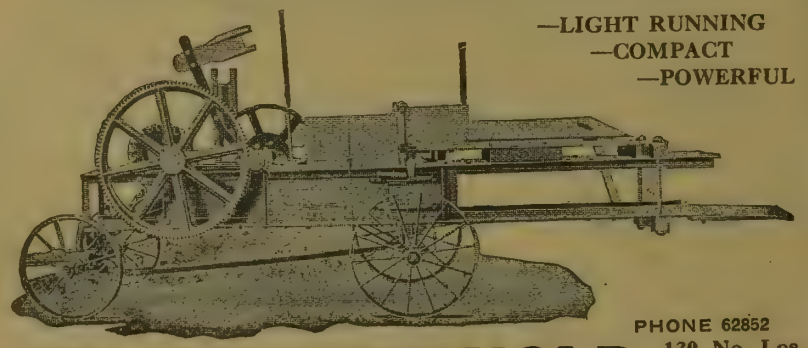

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TOP-WORKING FIG TREES

By Ira J. Condit

In California there are doubtless hundreds of fig trees which serve no useful purpose, except possibly as shade or ornament. Caprified fig trees are found in yards where some edible variety of fig is desired. Adriatic and Calimyrna fig orchards are planted in situations where profitable crops rarely if ever can be expected, but where the Mission or Kadota would pay handsomely. Odd varieties bearing fruit of no value except for bird feed are frequently seen.

Such trees need not be maintained at a loss or be grubbed out as cumberers of the ground. They can be worked over to a good variety of edible or caprifig which will produce fruit for one's children and grandchildren. The best season for this top-working is just at hand although it may be done successfully in most parts of the state for some time to come. The following account of methods is offered as a guide to owners of such trees.

Budding

Young fig trees can be most readily worked over by budding, the common shield bud being used. In branches from one to three years old the buds, cut large for the older limbs, can be readily inserted any time the bark is slipping freely. This means practically any time during the growing season from March until October.

Buds inserted early in the season can be forced out by cutting back the stock and a good growth from the bud secured the same year. Buds placed in September or October will remain dormant until spring and must risk damage from cold and wet weather. It is remarkable the ease with which buds can be placed in young trees in September even on unirrigated land.

The buds are cut from succulent wood of the previous season's growth if spring budding is practiced and from plump buds of the present season if fall budding is done. Do not use buds from the base of the stick where the eye is not green and plump. Make as small a "T" shaped cut as possible and let the bud push its own way down at the base. Wrap with ordinary three-ply cotton string and leave for about three weeks, when the strings can be cut. The stocks must be partly cut back in order to force out the buds; it may be advisable to leave a safety branch or two to prevent too rapid growth from the buds.

Budding, however, is applicable only to young trees and to sprouts from older trees. Grafting is therefore the usual method used for top-working large trees.

There are several methods which may be used, but we shall mention three only — the cleft or split graft, the wedge or insert graft, and the bark graft.

In cleft grafting the stub or stock is split through the middle and two scions inserted, one on each edge of the split. This method is commonly and very successfully used on deciduous trees. It has the serious objection, however, of necessitating a split in the stub which is often hard to fill in with wax and is hard to heal over.

Fig scions are usually thick and require at least a quarter-inch split in comparison with peach or apple wood which can be cut thin. The cleft graft therefore is not advised for top-working figs.

Bark Grafting

Bark grafting is very similar to budding except that a scion is used instead of a bud. The work is best done in March whenever the bark is found to slip freely. Any limb of an old tree may be grafted provided it is healthy and not sunburned. Such limbs are cut back to stubs and the scions inserted around the edge, the number depending on the size of the stock.

The scions are cut with a sloping cut along the lower end in the same manner as for a whip graft, then a "U" shaped piece of bark the same width and length as the cut on the scion removed from the edge of the stub. In some cases the flap of bark is left.

The scion should then be inserted snugly into the opening in the stock so that the bark on each side of the scion touches the bark of the stock.

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After a sufficient number of scions are inserted in the stub they should be tied firmly in place with strong cotton twine.

All exposed surfaces are then covered thoroughly with grafting wax. The bark of the exposed stubs and trunk should be whitewashed to prevent sunburn. It is desirable that a number of scions grow on each stub for a year or two until the end of the stub heals over, after which the scions can be thinned out to the desired number.

Nails Often Used

In bark grafting some workmen use small finishing nails or brads to tack the scions to the stock, but string is used as well to hold them in place firmly. Scions, however, can be easily inserted only when the bark is slipping. The operator, however, cannot always strike the favorable time in which the work can be done. The scions moreover often fail to become firmly attached to the stock and break out. The wedge graft is therefore often used to give a firmer union.

Wedge or Insert Grafting

In wedge grafting the stock or stub is prepared just as in bark grafting. A "V" shaped piece of wood is sawed or cut from the edge of the stock and the edges smoothed with a knife. The scion is then cut on one side into a wedge shape so that it will fit snugly into the notch in the stock.

While this operation sounds difficult, a little experience will soon enable a workman to get good results.

It is the method advocated by G. P. Rixford. If the scions and the stock are properly prepared for wedge grafting the scions do not need tying as they are held in place by the wedge and the wax.

Cutting Scions

There seems to be a difference of opinion regarding the proper time to cut scions for grafting. One person with considerable experience insists upon cutting them in January or February and heeling them in sand so they will become "hungry" and keep dormant. Another operator with extensive experience in grafting all kinds of fruit trees cuts his scions at time of grafting or only a short time previously if he has to get them from a distance. In fig grafting it is essential to success to use two year old scions or scions in which the proportion of pith is small. When such scions are used they can be cut fresh and set immediately with good success.

Ruins of One of Nature's Work Houses of Millions of Years Ago

One view of the pits or quarries where nature stored up lime for use on twentieth century orchard soils. These quarries are located in the hills just south of Lomita and not far from Los Angeles Harbor. Thousands of tons have been placed on Orange County soils and run down orchards are showing wonderful renewal of vitality, with yellowed leaves turning to the dark green color of health. This is the deposit of decomposed marine shell with which are mixed decomposed bones of prehistoric animals. Some of these bones have become petrified and are being sought by scientists who are constantly watching the development of the quarries.

Fruits and Nuts: Then and Now

By Prof. M. E. Jaffa before Claremont Pomological Club
(Continued from last week.)

It should be said at the outset that certain unknown essentials have no direct relation to the ordinary nutrients such as protein, fats, carbohydrates and mineral matter. Osborne and Mendel, McCollum and others, found that diet of purified food substances, that is, purified protein, fat, such as lard, carbohydrates and mineral salts, was inadequate for the promotion of normal growth and development in rats. When butter was substituted for lard in an otherwise satisfactory diet the rats developed normally. Here, then, was another unknown dietary essential furnished by the butter, termed by some "vitamine," by others, "growth promoting substance."

The three terms, then, "anti-scorbutic vitamine," "anti-neuritic vitamine," and "growth promoting substances," are not the only designations that have been proposed or suggested. Others are, "growth substances," "growth determinants," "food hormones," "accessory food substances," "dietary essentials," "fat-soluble vitamines," "water-soluble vitmines." It has been quite clearly shown that there are two groups of these so-called "vitamines," one soluble in fat and one soluble in water. The latter again have been divided into two sub-groups, anti-neuritic vitmines, fairly widely distributed in plants and necessary to prevent polyneuritis and beriberi, and the anti-scorbutic vitamine so necessary for prevention of diseases like scurvy. There has been suggested, therefore, the provisional name "fat-soluble A," "water-soluble B" for the anti-neuritic vitamine, "and "water-soluble C" for the anti-scorbutic vitamine. All three are necessary in the diet for optimum growth and normal development of the young and for the maintenance of health and activity and ability to work in the adult.

It is of interest to relate the foregoing discussion to fruits. **Fruit** has long been used as a food for **man** but it is only of recent years that the role of fruit in nutrition has been appreciated, and this is due entirely to the investigations above referred to.

The compostion of fruits as determined by chemical analysis, indicating the percentage of the several nutrients, including mineral matter, has been well known for many years, but the character and importance of the latter were not until recently properly recognized. The predominating ingredients of the ash or inorganic part of fruits are potash, soda, lime and magnesia. These are basic in character and tend to balance the chief ingredients of the cereals, meats, etc., which are of an acid nature, namely, phosphorus, sulphur, chlorine, etc.

It is thus seen as a result of the modern investigations that there is a fuller appreciation of the value of fruits as a source of mineral matter

(Continued on Page 663.)

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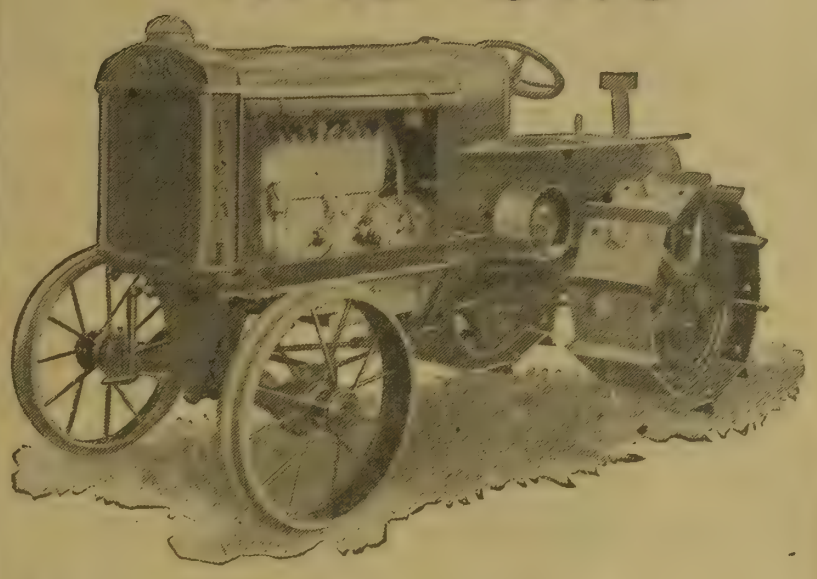
STRENGTH TESTED TRACTORS



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Control of Potato Diseases

THE treatment of seed potatoes with formaldehyde or with corrosive sublimate has been recommended for many years as a preventive of scab and other diseases carried on the tubers.

Such treatment is, on the whole, profitable, but has several limitations which should be clearly recognized to prevent disappointment. The object of disinfecting seed potatoes is to destroy the germs of scab and other surface parasites which might otherwise be planted with the seed and infect the new crop. Only surface infections are reached by this method. It is only partially effective against deep pits of common scab. Formaldehyde is less effective than corrosive sublimate against the black sclerotia or resting bodies of rhizoctonia, or russet scab, and against powdery scab. Neither chemical, as ordinarily used, will destroy silver scurf. Either one will kill surface infections of blackleg, but neither will reach the internal infections common in tubers from blackleg hills. Neither fusarium wilt nor late blight infection in potato tubers can be reached by any seed treatment, nor can any of the non-parasitic diseases of potatoes, such as mosaic leaf roll, and curly dwarf, be prevented.

Clearly, therefore, the most important precaution against these diseases is to select clean, disease free seed potatoes from healthy, vigorous plants, as determined by field inspection during the growing season and at harvest. Seed treatment should then be applied as an additional precaution. It will not be effective, however, if the soil where the potatoes are to be planted is already full of disease.

Soil Conditions

Soil conditions have an important relation to potato tuber diseases, and many of these are widely spread throughout the country, perhaps native to some soils. Common scab is favored by a neutral or slightly alkaline soil, and seldom gives thouble in acid soils. It is therefore increased by liming and by fresh stable manure, wood ashes, and alkaline fertilizers, such as nitrate of soda and ground bone, while acid phosphate and sulphate of ammonia tend to diminish scab.

Rhizoctonia occurs to some extent in nearly all soils, but appears to attack potatoes most when the conditions are unfavorable to the best development of the potato plant. Bring the land to an ideal state of tilth to minimize loss from rhizoctonia.

Powdery scab is worst on cold, wet, or poorly drained soils. Blackleg, on the other hand, is carried by infected seed. No potatoes showing a deep brown discoloration at the stem end should be planted.

Sulphur tends to prevent common scab. It is not a substitute for corrosive sublimate or formaldehyde, but is a good drier for cut seed. Applied to scab infected soils at the rate of 500 pounds per acre it reduces the scab, but such heavy applications can not be generally recommended as profitable. Preliminary experimental trials are advised.

Disinfect Seed

The formaldehyde treatment consists in soaking the potatoes, before cutting, for two hours in a solution made by adding 1 pint of formaldehyde to 30 gallons of water. The solution can be used repeatedly. The gas treatment is no longer recommended.

Corrosive sublimate is used at the rate of 1-1,000 for one and one-half to two hours. Dissolve 2 ounces of the salt in hot water and dilute to 15 gallons. This is a deadly poison. Use with great care. It must also be kept in wood, porcelain, or glass vessels, as it attacks metal. It is more effective than formaldehyde, particularly against rhizoctonia and powdery scab. Do not use the same solution more than three times, as the strength diminishes with each lot of potatoes soaked.

To treat large quantities, set several barrels on a slightly elevated platform. Fit a plug in a hole in the bottom of each barrel, fill with potatoes, cover with solution, let stand two hours, draw off solution, and pour into another barrel. Increase the number of barrels in proportion to the quantity to be treated. Another method is to use a large wooden vat or trough, into which the potatoes in sacks are lowered by a rope and pulley and later hauled out, drained and dried on slatted racks.

Seed potatoes may be treated several weeks before planting, provided they are not reinfected by storing in old containers or storage bins.

Sprouted potatoes are injured by treatment, but will throw out new sprouts. In general, however, potatoes will not be injured by following the above directions. Many growers believe germination is improved by treatment.

IRRIGATING BEANS

Please give me your advice on irrigating pink beans. When is the best time to irrigate them, before they blossom or after?—Subscriber, King City.

This is rather a vague question, for practice necessarily varies with soil, climate, etc. If soil is in good shape, sufficiently moist when planted, it is usually unnecessary to irrigate again until pods "begin to fill." This is, of course, some time after the blossoming. In soils that dry out quickly the waterings should be given as needed. There are no don'ts on irrigation, but after the blossom period do not cultivate deeply. We have known a promising crop to prove a total loss by such disturbance of the roots just as young beans were forming.

FROSTED POTATOES

A potato grower of prominence was asked about the effect of frosted tops upon the crop. He replied that he believed tops cut down early would not result in crop loss. They will always grow again and the general effect will be as though the potatoes were planted at time of frost. This might subject the crop to whatever of harm comes through late planting, nothing more. He further stated that if potatoes had begun to form, no matter how small, when tops are lost through any cause no crop at all will be had, for there would be no leaves to manufacture plant food for the tubers. Loss of top at or near this time would doubtless cause a total loss. But the same injury before the time noted would allow of some degree of recovery. The younger the tops the greater and more rapid would be such recovery.

BONES OF CAESARS

By Ernest Braunton

Persia's most famous poet wrote:
"I sometimes think that never blow so red
The rose as where some buried Caesar bled."

Down at Torrance, Los Angeles County, on the property of the Torrance Lime and Fertilizer Company workmen have for weeks been unearthing remains of gigantic prehistoric animals of the same species whose remains are found in Hancock Park in western Los Angeles, embedded in asphalt. At Torrance the bones are found in large masses of a composed marine shell lime. Imperial elephants more than a dozen feet high, saber tooted tigers, huge wolves and other quadrupeds have mingled their remains with those of prehistoric whales, sharks and other denizens of the deep. Of late several bones of mankind have been found. The composite dust now goes to make "the rose so red," to fatten the orange trees and make fertile the fields. "To what base uses do we return, Horatio!"

Some cotton was sold recently in the Salt River Valley for 28 cents and 30 cents. Most farmers are holding back, waiting and believing that the price will go higher. It is considered encouraging that buyers are in the market at any price as up until a short time ago there were no offers.

Maricopa County, Arizona, hay growers have effected an organization, with Fred Tait, president of the farm bureau, as temporary head.

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10,000 ft. light wrought iron 8 inch pipe with cast iron collars.

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CALIFORNIA TRACTOR AND IMPLEMENT ASSOCIATION

The two tractor associations which have been very effective in boosting the tractor game in California have decided to close up shop and a new combined association is now being perfected. Meetings have been held and the temporary officers elected at the meeting in Fresno are:

President, C. L. Butler; vice-president, Robert Killefer; secretary, George Collins; chairman board of directors, W. E. Shepherd; directors, W. G. Criswell, J. F. Griswold, Robert Killefer, Ben Root.

Later the temporary board of directors met in Los Angeles, adopted bylaws and placed in nomination for permanent officers of the association the following:

President, W. E. Shepherd; vice-president, B. L. Graves; treasurer, George Wheeler; directors, C. L. Butler, W. G. Criswell, J. F. Griswold, O. P. Robb.

The membership is divided into ten departments, as follows: Manufacturers, branch houses, jobbers, dealers, lubricating oils, pumps and irrigation, farm press, accessories, farm lighting, dairy supplies.

LEGISLATIVE PROGRAM OF AMERICAN FARM BUREAU FEDERATION

A repeal of the guaranteed railroad rates and a lowering of freight rates.

The same tariff protection for the farmer as industry enjoys.

Retention of the excess profits tax; opposition to the general sales tax; opposition to the proposed one per cent federal excise tax on land.

Commodity financing on warehouse receipts; livestock financing on the proper pledge; personal rural credits secured by proper insurance features; use of federal reserve profits in a revolving fund to provide working capital from date of application for loan until sale of debentures; increase of maximum federal farm loans from $10,000 to $25,000.

Fair and just packer regulation, vested in the United States department of agriculture rather than a separate commission.

These plans make up the legislative platform of the American Farm Bureau Federation as adopted by the executive committee after a fortnight's session in Washington. In outlining the legislative program careful consideration was given to the views expressed by various government officials and experts as well as to the mind of the farmer expressed by delegates from the state farm bureau federations.

THE EXASPERATING ANT NUISANCE

Although spring brings much happiness and joyful feeling to people generally, it is always accompanied by one intolerable aggravation to the housewife—the pesky ant. There was a time when all one could do was to "grin and bear it," but now the eradication of the ant is a comparatively simple matter. Or, if he can't be eradicated, he surely can be very materially reduced by the use of remedies which may be had in every market. The best of it is the ant often takes to some of these remedies, carries it as food back to his nest and fails to return for more.

If not controlled by some of these easily available remedies ants may become an awful nuisance and even cause great financial loss.

Only a few cents and a little persistence will bring relief.

TRACTOR DEMONSTRATIONS

The National Implement and Vehicle Association, or rather its tractor demonstration committee, has reported unanimously in favor of a number of demonstrations to be held during the coming season, the number and place to be determined by the committee later. This committee consists of the following members: J. B. Bartholomew of the Avery Co.; E. J. Gittens, Case Threshing Machine Co.; C. B. Sharpe, Cleveland Tractor Co.; Harry Bates, Bates Machine Co.; J. A. Everson, Internati nal Harvester Co.; G. I. Giellette, Minneapolis Steel and Machine Co.; Donald McDonald, Avery Co.; F. O. Mount, Advance Rumely Co.

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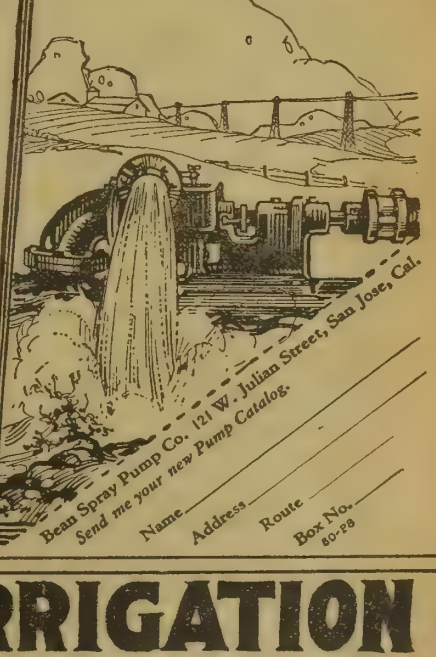

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Seventeenth Annual Catalog, Illustrated
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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Rooting Roses

Will you please tell me the right time of year to root rose cuttings, or can they be rooted any time of year? What part of bush is best for the cutting?—Subscriber, Glenn County.

We have had excellent results in rooting roses which were cut late in the month of September or during the month of December. These were ripened wood cuttings the size of lead pencil or perhaps 12 inches long. These cuttings will make a showing of roses during the next spring. They root more satisfactorily in warm sandy loam. Presume the cuttings could be taken at any time the parent plant is dormant. In fact the rose is so hardy that we have seen cuttings taken in nearly all stages of growth which have grown but in much lower percentage than where plant is dormant.

Strawberry Red Spot

On page 585 of the Cultivator of April 30 I notice an item headed "Strawberry Red Spot." I am of the opinion that if "Subscriber, Denair" will examine his diseased vines very closely he will find imbedded in the the heart of the root a very diminutive worm or weevil. And the only remedy known to me is to pull the vine and destroy it, being very careful not to scatter the soil immediately around the root. Burn every vine or plant as soon as it is known to be affected. The pest (if I am right in my diagnosis of the case) works in the ground and no spray of any kind will have any effect. I think the sooner Mr. Subscriber gets busy and the more "heroic" the treatment the better it will be for his plants.—W. H. Gunsolus.

Lettuce—Garden Seed

Would like to know if lettuce will make heads again after the first crop is taken off. When garden seeds are soaked is hot or cold water used?—Subscriber, Yuba County.

Lettuce has no second crop. Some varieties of cabbage do, of which the well known Cannonball is a good example, the second crop occasionally bringing more money than the first, though commercial growers do not plant with such expectations. Vegetable seeds are not soaked in common practice, except in Bordeaux or a similar mixture, to prevent fungous diseases. Soaking in water invites fermentation and fungi and while practiced by a few is not recognized as desirable.

Thompson Seedless Near Coast

Can you tell me through the columns of the Cultivator of anyone having experience with Thompson Seedless grapes seven miles from the coast? I am going to shade them with burlap from the salt air and see if that will be of any benefit.—Subscriber, Del Mar.

The difficulty you will have, if any, will be from mildew, provided, of course, you protect them from excessive wind. The Thompson will probably do as well as any of the European grapes under coast conditions, but you might experience some difficulty if you attempted to make raisins.—F. K. H.

Ripe Avocados

How does one cure avocados after they are picked from the trees so that they will become soft or ripe and fit to eat.—Subscriber.

If the fruit is not softened and butterlike within ten days from picking it was probably picked too green. In that case it may soften somewhat but instead of being like butter it is more like leather. There is no curing required.

Dip for Potatoes

Kindly advise what proportion of formaldehyde to use for treating seed potatoes; also how long to leave in the solution. How long should they be treated before planting?—Subscriber, Carson City, Nevada.

Formaldehyde one pound, water 30 gallons. Immerse for two hours. Seed may be planted as soon as thoroughly dried or held for several weeks provided they are not reinfected by storing in old containers.

Cane Berries

Can you give me some information about the Cory Thornless blackberry; how long before it bears? I had them set a year ago but they show no bloom this year, while the Burbank Thornless planted the same time is setting fruit. Should the Cory be handled any different from any common blackberry? Which berry is considered the most profitable here in California, the blackberry or red raspberry, and what variety of raspberry is grown commercially? I want a good berry for local trade.—Subscriber, Los Angeles.

You or the dealer must have mixed your labels as the Burbank is notoriously unfruitful as compared with the Cory. The heaviest grower of cane berry plants in Southern California, who supplies nearly all local dealers, is this year discarding the Burbank Thornless blackberry after several years' trial. It really is thornless, also nearly fruitless. It grows tons of wood but little fruit. Some growers believe that heavy pruning might result in a fair crop. Cory Thornless is a good yielder and practically thornless. Occasionally a cane will produce a few thorns. While a thornless berry plant is much to be desired and may prove the most generally satisfactory, the record for yield is held by the Himalaya. On the other hand the thornless crop is more easily and quickly harvested and all berries are recovered by the average picker. Choose for yourself. The best standard raspberry is the Cuthbert. Of late years the St. Regis has come to the fore on account of yielding a light crop the year of planting, if strong canes are planted early. Experienced grow-

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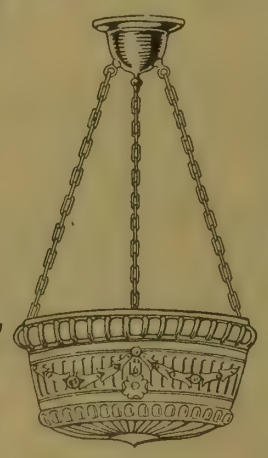
Here are a few typical prices that show you the money we save you on all kinds of electrical goods. Remember we carry a complete electrical stock wire, lamps, insulators, fixtures, appliances, fans, etc.



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Bowl Fixture $12.00

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Flush Switches	40c each
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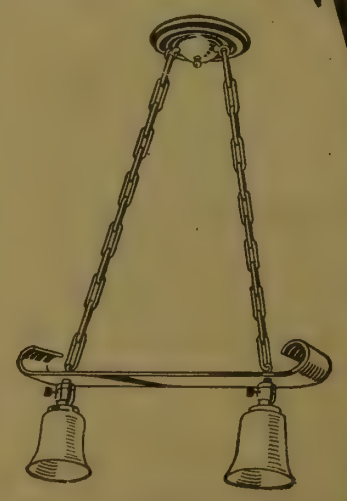
Entrance Switches	85c each
Arrow Transformers	$1.50 each
Electric Door Bells	65c each
9-inch Electric Fans	$11.00 each
Cleat Receptacles	20c each
Lamp Cord	$2.50 per 100
Solid Knobs	$2.50 per 100



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ers say there is little choice between the two and many commercial growers still stick to the old standard. Blackberries are several times as profitable as raspberries, according to several leading growers.

Salt Spools

Please give me information as to how to make salt spools for cattle. We can only buy the salt lick in blocks here.—Subscriber, San Jose.

We do not know of the "salt spool" being used in this state. So far as we know it is a commercially made proposition. If, however, any of our subscribers can give suggestion for our San Jose inquirer we will appreciate it. We believe the generally preferred method of salting stock in California is to use the mineral rock salt.

Mildew on Roses

Questions continue to come as to control of mildew on roses. The season has favored both of these pests. The simplest aid in control of the mildew is liberal use of best quality of sulphur. In good hot weather this is very effective. If, however, the roses are on the shady side of the house, or if continual foggy or moist weather prevails, the dry sulphur is not so effective. In such case one may spray with weak lime-sulphur solution, 1-33, or use wet spray of liver of sulphur, 1 ounce to 3 gallons.

Silage and Forage

1. What do you consider the best crop to be planted in the spring to cut and fed green to dairy cows 2. My neighbors insist green field corn dries up cows. Does it? 3. How does Sudan sorghum compare with corn (field) for silage? 4. Would the second growth of Sudan if frosted be injurious to stock?—Subscriber, Julian.

1. Sudan sorghum, believed to be a hybrid. 2. It does not, if fed in proportion. Some feed so heavily of such roughage that the bulk fills the animals and they do not eat enough of concentrated foods. This results in a temporarily decreased milk flow. A return to properly balanced rations will restore milk flow to normal. 3. Sudan sorghum is superior to corn in food value because of heavy sugar content and it yields two crops a year and some winter pasturage. 4. It is doubtful. Growers claim that if frosted and a few warm days come a new growth nearly a foot high will grow in a week. Cattle are turned in to feed upon this and no ill results have been noted.

Caprifigs

I have a white Smyrna fig tree that is loaded with figs that are spongy and dry. They grow to full size and one would think from appearances they were all right.—Subscriber, Corning.

If you really have a Smyrna fig this case is puzzling. Unless pollinated the Smyrna drops off before half grown. We are inclined to the belief that you have a caprifig. The summer crop on some of the varieties, Milco for example, often grows full size seedless spongy figs which are very fair to look upon but of no value. Having the capri, you should now plant one or more Smyrnas.

Avocados and Loquats

Can avocado and loquat trees be raised from seed in nursery rows, and after being budded, transplanted in loose roots or balled the same as citrus trees?—Subscriber, San Marcos.

Avocados should be grown and handled the same as citrus trees, though far larger balls are necessary for good results. The matter of bare roots is difficult of determination from a business standpoint. We do not know of a grower defoliating and handling with bare roots but see no reason why it may not be done if extreme care is used. In early April the writer dug up 16 seedlings from named fruits and mossed the bare roots. They lay three days in package and were planted and shaded by burlap screens. Nearly all are doing well.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Collecting Note

We loaned money on a promissory note which was endorsed by a third party. The note has not been paid. The maker has his property mortgaged. Can we collect the note?—Subscriber, Santee.

You are entitled to bring an action on the note against the maker and endorser. Attachment may be levied upon the real property notwithstanding the fact that it is mortgaged, but on the personal property it would be necessary to discharge any chattel mortgage. An auto is not exempt from execution.

To Recover Tools

I loaned some tools. When I went to get them the borrower claimed that I owed a bill. He kept the tools as security therefor. I paid this bill but he still refuses to deliver. What steps should be taken?—Subscriber, Cibola, Arizona.

It is necessary only to bring an action for replevin, in which you can recover the tools or the value thereof.

Line Fence

What is the rule as to the placing of line fences? — Subscriber, Cibola, Arizona.

With an agreement of the parties the fence may be placed upon the line. Without such an agreement the party desiring to place the fence is entitled to place it just within the line.

Real Estate License

What is the expense of license for a real estate broker and where shall application be made? — Subscriber, Nipomo.

The annual fee for a real estate broker's license is $10. If application is made during the second quarter of the year three-fourths of that fee should be paid. The real estate commissioner has his main office in Sacramento and branch offices at San Francisco and Los Angeles.

Patented Article

Can a person lawfully make and employ in his own use a patented article? —Subscribes, Hughson.

Both the making and use of such patented article without the permission of the patentee would constitute an infringement as it is distinctly provided that any unauthorized making, using, or selling of an invention during the life of the patent is an infringment. Even the making of such invention for amusement or for scientific use, if it is put into actual use, would constitute an infringement.

Diverting Percolating Water

Is the land owner liable for damages if he puts down wells near the line fence of adjoining property and drains the land above of water to pump on his own land? If he sells to another party, will the next owner be liable?—Subscriber, Fallbrook.

In one of the leading water cases in this state it was settled that the owner of soil lying in the belt saturated with percolating water is entitled to a reasonable use thereof on his own land, notwithstanding such reasonable use may interfere with water percolation in his neighbor's soil, but he has no right to injure his neighbors by an unreasonable diversion of water percolating through his land for the purpose of carriage or sale to distant lands.

Sand from River Bed

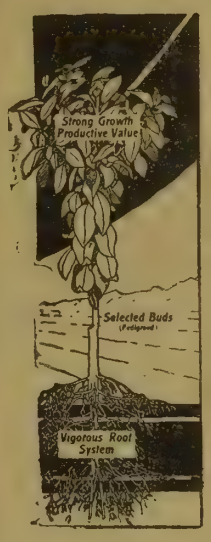
May I take sand from river bed without permission from my neighbor?—Subscriber, Cardiff.

It depends entirely upon whether the river is navigable or not, for the state is the owner of all land below the water of a navigable lake or stream. If it is not a navigable lake or stream then the parties bordering upon such stream or lake are presumed to own to middle or third of the stream. You could not, of course, trespass upon your neighbor's property and take sand therefrom any more than you could take earth from his land, but you certainly could take sand upon your own premises if you did not take it in such an amount as to cause your neighbor's property to sink in. There seems to be no such law interfering with the taking of sand from a navigable stream.

Closing Road

Land is sold with a 40 foot strip along the easterly boundary between that land and another tract owned by the grantor for the purpose of a roadway. Later the grantor sells a second tract to a third party, granting him right of way for road purposes across said strip. The grantee, over whose property the right of way was reserved, later buys from the grantee, in whose favor the reservation was made, the said reservation. Is the property then clear or does the general public, and more particularly a fourth party to whom such road is a benefit, still have the right to travel over and across the strip?—Subscriber, Solvang.

(Continued on Page 667.)



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Teague trees are the best that can be produced and have always given satisfaction wherever planted. Poorly grown trees are dear at any price so why take chances on planting anything but the best.

Avocados

Did you see the fine display of fruit at the California Avocado Association meeting at Pasadena?

Everyone should have one or more Avocado trees in their home orchard. We grow all of the recommended varieties.

Feijoas

This very useful shrub should be in every home garden. It is perfectly hardy and the fruit is excellent for jellies and preserves as well as fresh. We have a nice stock of grafted trees of the large fruiting varieties.

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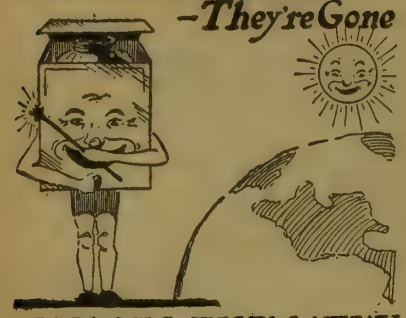

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Household Department

SACRIFICE

By Edgar A. Guest

There is no easy way to serve.
This life is one of sacrifice.
With courage and with steady nerve,
For conquest each must pay the price.

Who asks must willing be to give.
For friendship man must play the friend.
There is no royal way to live.
On service all man's joys depend.

Skill is a gift which man acquires
By patient practice day by day;
And he who stops because he tires,
Soon falls behind the way.

Time grants us what we gladly earn
And gives to every man his due,
But he who takes must, in his return,
Stand up and play the giver, too.

Not in the drowsy lanes of ease
Are fame or fortune to be found,
But on the hills of drudgeries
And on the rough and stony ground.

How much of self will you bestow?
How do you meet the sterner tasks?
How far for conquest will you goi
These are the questions greatness asks.

WITH PUP'S ASSISTANCE

(Continued from last week.)

"The Peters grove," thought Martha, and to Mr. Burnham she said: "There is a grove next to ours that my brother has been talking of buying. He was telling me about it this morning. He thinks it is a splendid buy. You might talk it over with Phil when we get home. Anyway, possibly he could give you some pointers about orange groves in general. He has made quite a study of them."

"Then I certainly want to talk to him," said Mr. Burnham enthusiastically. But by this time they had reached the little town with its flag and bunting draped streets, and nothing further was said on the subject.

It was a beautiful morning, and the parade went off as scheduled. Then there was some delay while the old veterans were gotten into the trucks and automobiles that were waiting, flag decorated, to carry them to the cemetery, a ten minutes ride from town. And while they waited, Mr. Burnham and his daughter produced a carefully packed and elaborate lunch, which they spread on an improvised table, and they all discovered that even this part of a morning out of doors had given them keen appetites. And while they ate, the autos containing the old heroes had one by one drawn off from the different corners where they had been parked, and our little party suddenly found themselves left behind. They quickly cleared away the remnants of their lunch, everybody assisting, and followed the road the others had taken.

Arrived at the big Sycamore tree, where all Memorial Day celebrations in the little town centered, it was apparent that something was wrong. There was a general craning of necks and an air of disappointment. The chairman of the day's exercises was a stranger to Grandpa, and just as our little party drove up, he had mounted the stand to make the disappointing announcement that the orator of the day had, for some unknown reason, failed to appear. At that moment he saw Grandpa, with his soldierly bearing, and the distinguished looking little party, alighting from an automobile that looked as if it had come a long distance. Not being acquainted with the orator of the day, and in his dilemma making a wild guess, he announced in a big booming voice: "Ladies and Gentlemen, the speaker of the day, Colonel Howson," and led the clapping.

Many of the people in the crowd who knew Grandpa, saw the trend events were taking and good naturedly clapped their encouragement. Grandpa didn't understand it was for him. "Speech, speech!" the crowd called loudly, and the sirens whistled. Finally comprehending the situation, Grandpa modestly indicated that he was not the orator, but the applause grew and grew and the smiling faces all about encouraged him.

"Go on, Father. Make them a speech. You can reminisce about the war, you know. There isn't another man here who can do it as well as you can," and thus encouraged by Martha, he straightened up to his full six feet and stepped onto the platform, but here Pup took a hand. He didn't understand the applause. "What were these people doing to Grandpa," and he jumped onto the platform beside Grandpa and barked his defiance to the whole assembly. "He'd let them know he was here to take care of Grandpa," and he barked and barked. Then he raced madly round and round the platform, barking at every leap. The exciting day had gotten into his spine and now he was just a bundle of excited nerves, and he continued to bark madly, until everybody was laughing at him, still clapping encouragement to Grandpa. Finally he stopped beside Grandpa as Grandpa put out his hand and patted him, finally letting his hand rest on Pup's head. That seemed to reassure him and Grandpa began his reminiscence. He talked well, did Grandpa, especially when he talked of Civil War days, and the people gave him the most flattering attention.

As long as Pup felt Grandpa's hand on his head, he behaved himself, but occasionally Grandpa would forget and lift his hand in an unconscious gesture. That was the signal for more barking from Pup. So the "speech" proceeded, punctuated by Pup's excited barks, which seemed to make the speech more emphatic, coming as they did at all the exciting places when Grandpa would forget and lift his hand.

It was a good speech. Everybody said so, and the crowd pressed around him, offering congratulations. As it was the only speech Grandpa had ever made, he was in an exalted mood, feeling that it was the greatest day of his life. Then the graves of the dead comrades were decorated, and early in the afternoon our little party was ready to start for home.

Martha and George Burnham had found opportunity to talk over old days and renew old acquaintance, and they had made the discovery that the charm each had had for the other in the old days still continued. Both were feeling very young and very happy when they started on the homeward way.

Now that the excitement of the day was past, Grandpa fell naturally into talking about affairs at home, telling Mr. Burnham about the orange grove, and as Mr. Burnham listened he surmised that the financial outlook of the little family was not very rosy. But Grandpa changed the trend of the conversation by remarking:

"This is a beautiful car you have."

"Yes, it's all right," replied Burnham.

"It's a mighty fine way to ride," continued Grandpa.

"Yes; you can get around with an automobile. They're all right. I heard of a California man who said his ideal of life in California was to have a $300 home and a $3,000 automobile. But in my opinion an automobile is a mighty poor substitute for a home. Don't you find living in the country, in an orange grove, mighty satisfactory?"

"Well, yes," replied Grandpa, "but there's lots of work. After all, it's farming of a sort, and you know farming always means work."

"I've always wanted to see an orange grove close up, and if you don't mind I would like to make the acquaintance of yours."

"Of course, it's understood you are coming in." "Yes, indeed," Martha warmly seconded her father. It certainly wouldn't be fair to Phil if you didn't, and you know you are going to get some first-hand information about orange groves."

By this time they were in view of their grove, and Pup, at the imminent risk of breaking his neck, was out in a headlong plunge and racing away to keep his engagement with the gopher. The others followed more leisurely and soon they came upon Phil, hot and tired, but brightening wonderfully at sight of new people. The introductions were acknowledged with unusual warmth on both sides, Mr. Burnham telling Phil of the old time friendship between Martha and himself. Soon Billy came rushing up. "Oh, Daddy! We had the best time. Grandpa and Pup made the speech."

"What are you talking about, Billy," admonished his father.

"Well, Grandpa made the speech, really, but Pup helped him a lot. You

The Cultivator Patterns

3567. Dressing Sack. Cut in 4 sizes: Small, 34-36; Medium, 38-40; Large, 42-44, and Extra Large, 46-48 inches bust measure. A Medium size will require 3¾ yards of 27 inch material. Price 10 cents.

3588. Dress for Misses and Small Women. Cut in 3 sizes: 16, 18 and 20 years. An 18 year size will require 4⅞ yards of 44 inch material. The width of the skirt at the foot is 1⅞ yards. Price 10 cents.

3580. Girl's Dress. Cut in 4 sizes: 6, 8, 10 and 12 years. Size 8 requires 3¼ yards of 36 inch material. Price 10 cents.

3127. A Splendid Work Dress. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 7 yards of 27 inch material. The width of the skirt at lower edge is 2 yards. Price 10 cents.

3581. Ladies' Blouse. Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. A 36 inch size will require 2⅝ yards of 36 inch material. Price 10 cents.

3568-3228. A Smart Costume. Blouse 3568 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3228 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. The width of the skirt with plaits extended is 2¾ yards. To make this costume for a medium size will require 4¼ yards of 36 inch material for the blouse, and 5¼ yards of 36 inch material for the skirt. TWO separate patterns 10 cents FOR EACH pattern.

2969. Child's Play Dress. Cut in 5 sizes: 2, 4, 6, 8 and 10 years. Size 6 requires 2 yards of 36 inch material. Price 10 cents.

3578. An "Easy to Make" Apron. Cut in 4 sizes: Small, 34-36; Medium, 38-40; Large, 42-44; Extra Large, 46-48 inches bust measure. A Medium size will require 4⅝ yards of 27 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cents) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS; we guarantee safe delivery of all patterns.

CATALOGUE NOTICE

Send 15c in silver or stamps for our Up To Date Spring and Summer 1921 Catalogue, containing over 500 designs of Ladies', Misses and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various, simple stitches) all valuable to the home dressmaker.

PATTERN DEPARTMENT
California Cultivator
Los Angeles

see Pup stood right beside Grandpa, so Grandpa wasn't a bit scared or excited," and they all laughed at the remembrance.

(Continued next week.)

PALACE HOTEL RAISIN RECIPES

Raisin Pie

Soak one pound of raisins in water three to four hours; drain off and put in saucepan, cover with water, add rind and juice of half a lemon and a little stick cinnamon, add sugar to taste and boil a few minutes. Stir in while boiling one-half ounce of cornstarch diluted with water. Let cool off before filling in lined pie plate; cover and bake in moderate oven.

Pie Crust: One cup flour, 3 tablespoons shortening, ½ teaspoon salt. Add enough ice cold water to hold together.

Raisin Bread

Twelve cups sifted flour, 8 tablespoons butter, 1½ cups sugar, 2 tablespoons salt, 2 cakes yeast, 2 cups milk scalded and cooled, 1½ cups lukewarm water, 2 tablespoons sugar, 4 eggs beaten, 1½ cups raisins. Dissolve the yeast and two tablespoons of sugar in lukewarm water, then add four cups of flour, the eight tablespoons of butter and the one and a half cups of sugar, after having been well creamed and beaten until smooth. Then cover and set aside to rise in a warm place for about one hour and a half. When well risen add one and a half cups of raisins, well floured, all the rest of the flour, the beaten eggs and salt, and make a not too soft dough; knead lightly. Place in a bowl, cover and let rise again until double in bulk. Mould into loaves, put them in well greased pans to fill only half the size of the pan; cover and let rise again, and then bake about 45 minutes, according to size of mould and oven. To toast: Use a quick fire.

HOUSEHOLD QUERIES

Sending Orange Blossoms East

Is there anybody who would tell me how to keep orange blossoms fresh and fragrant? They will have to travel to Massachusetts and reach there the 1st of June for my niece's wedding. She is very anxious to have a spray of real fresh orange blossoms to tuck in her dress as good luck. It is very late, I am afraid, but I hate to disappoint her. Many thanks in advance, and I also wish to tell you how I enjoy your department. I have found quite a few treasures.—Subscriber, Colton.

Can any of our readers help our Colton subscriber? We do not know of any way in which the blossoms can be sent so far and keep fresh and fragrant. The blossoms may, of course, be dipped in melted paraffine and maintain a perfect appearance, but will not be fragrant. In dipping in the paraffine have it only just hot enough to coat the blossom branch evenly, not hot enough to shrivel or discolor. It will require deft work and much experimenting to attain just this perfect result. As a hint, you will find boxes of these paraffined blossoms prepared by experts at a very slight cost, and it might pay well to buy one of these rather than risk failure in a case of this kind. Another suggestion: Pack in the same box with the paraffined blossoms a quantity of the fresh, fragrant ones. These will not keep their shape, but will retain all their exquisite fragrance and perhaps impart enough to the paraffined blossoms to be satisfactory. It is also possible that some deft work at the other end of the line in pasting faded petals beneath the paraffined ones will carry the true orange blossom fragrance with the flowers the bride wears.

HINTS FROM HOUSEKEEPERS

An Easy Way to Patch

An easy way of putting on a patch without using a needle:

Raise the foot on your sewing machine with the lever and unscrew the nut that holds it in place, then drop the foot as low as it is possible for the nut to hold it when screwed back in place again. This should leave room enough under the foot for your work to be moved freely. Do not move the lever again; leave it up, and you can then stitch in any direction by holding the garment you are mending firmly and pushing or pulling it very gently the way you want it to go. For rough patches or darning I seldom use a needle. I first trim off the rough edges of the rent or worn place, and place the garment in position on the machine then draw the patch piece under it. You can pin it in place if you wish and stitch once around the rent, leaving a margin about a fourth of an inch, which I turn under, and stitch again carefully on the very edge. This can all be done without breaking a thread, and after a little practice a very neat patch can be made.—Subscriber.

SELF CONSCIOUSNESS

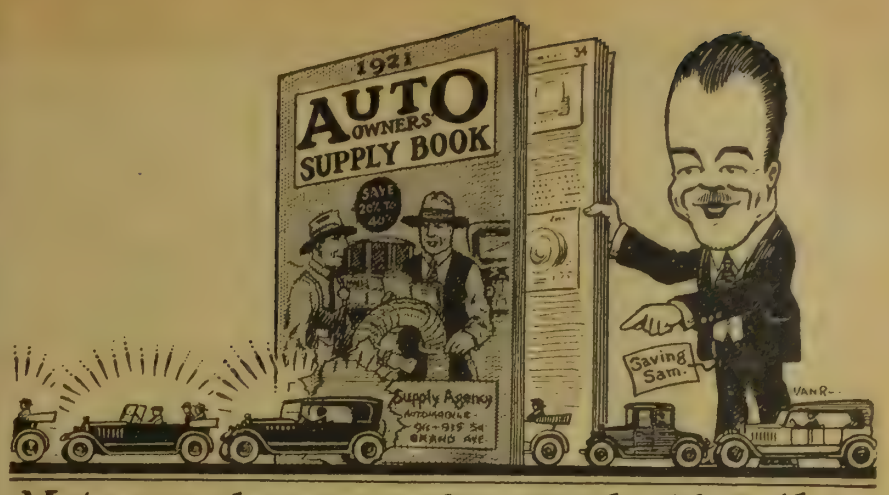
People are conscious of themselves chiefly in relation to other people or in relation to certain things that they must do or are expected to do. Self consciousness, then, is simply a consciousness of superiority or inferiority. In either form it is an undesirable trait; in the one case it is obnoxious to other people, in the other it is harmful to yourself.

The self consciousness that manifests itself in a sense of superiority to others, in arrogance and pride, may have solid reasons for existence. Few people are consciously superior without having some advantages in mental or moral or material equipment, but they frequently lose the benefit of their advantage by reason of their objectionable consciousness of it. Similarly the persons who feel themselves superior to the work that they have to do, even though their estimate of themselves may be warranted, are likely to do the work carelessly and churlishly and not so well as less superior persons. On the other hand, the people who feel diffident and deprecatory injure their standing in the eyes of others and tend to disqualify themselves for effective effort; in timidity they shrink from the tasks and the tests that if only they could feel confidence in themselves they could satisfactorily perform.

The habit of measuring yourself with others or with jobs that are to be done is a bad habit. The men who never give a thought to their superiority or inferiority, or to the superiority or inferiority of other men, who take people as they come and deal with them as individual human beings worthy of interest and respect, and who take the tasks and seize the opportunities neither with condescension nor with timorousness, are the most successful men and the happiest and are the truest exemplars of democracy. —Youth's Companion.

Milk has its great value as a food not because of its fuel value, but rather because of its ability to repair waste tissue, to supply material for growth and to keep the bodily machinery in good working order and to keep it running smoothly.

The man who makes the most noise talking makes the least noise thinking.



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The motorist who keeps this catalog handy and orders from it when in need of auto supplies or accessories

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Let the SUN give you plenty of HOT WATER

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SEEMS impossible, doesn't it: But a DAY & NIGHT Solar Heater will actually deliver an abundance of piping hot water in your home every hour of the twenty-four, because it concentrates and stores the heat of the sun's rays. Thousands of successful installations in Southern California provide actual proof.

Think of the saving in gas this system insures you—fully three-fourths of your expense of heating water. Think what a necessity the DAY & NIGHT is if you have no gas supply. Adapted to country or city home—mansion, bungalow. Can be installed in new buildings or old; no expense after first cost. Write for illustrated folder giving detailed explanation of the DAY & NIGHT. Address Dept. E.

Day & Night Solar Heater Co.

632 Metropolitan Bldg., Fifth and Broadway Los Angeles

Save 1-2 on Fuel

CHEAPEST HEAT YOU CAN BUY

The Sievert Oil Burner burns either distillate or kerosene oil in cook stoves, heaters, furnaces, pasteurizers, boilers, prune dippers, dairy sterilizers, etc. Absolutely safe, odorless, very convenient and low priced. MAKES HEAT AT HALF WHAT WOOD AND COAL COSTS. Install it yourself. Write for circular and prices on different sizes. Address Sievert Oil Burner Co., 710 North Main St., Los Angeles.

Kill All Flies! THEY SPREAD DISEASE

Placed anywhere, DAISY FLY KILLER attracts and kills all flies. Neat, clean, ornamental, convenient and cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed.

DAISY FLY KILLER at your dealer or 5 by EXPRESS, prepaid, $1.25.

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PERFORATED TREE PROTECTOR

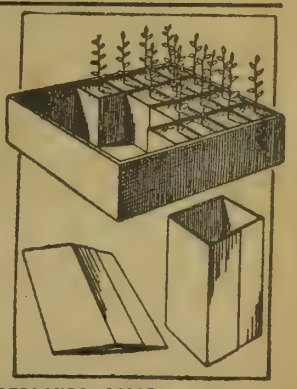
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

COLLAPSIBLE PLANTING POTS

Why not raise your early

Tomatoes, cabbage, chili, and egg plant for home use or for market. Do you know that you can start Cucumbers, Cantaloupes, Melons of all kinds in these pots in flats until they have three and four leaves, then plant pot and all, have melons two or three weeks earlier for market. Just the thing for Propagating Eucalyptus and Olive cuttings.

Write for samples and prices of both Pots and Protectors. State which you are interested in.



THE EXPAN CO., 935 E. CENTRAL AVE., REDLANDS, CALIF.

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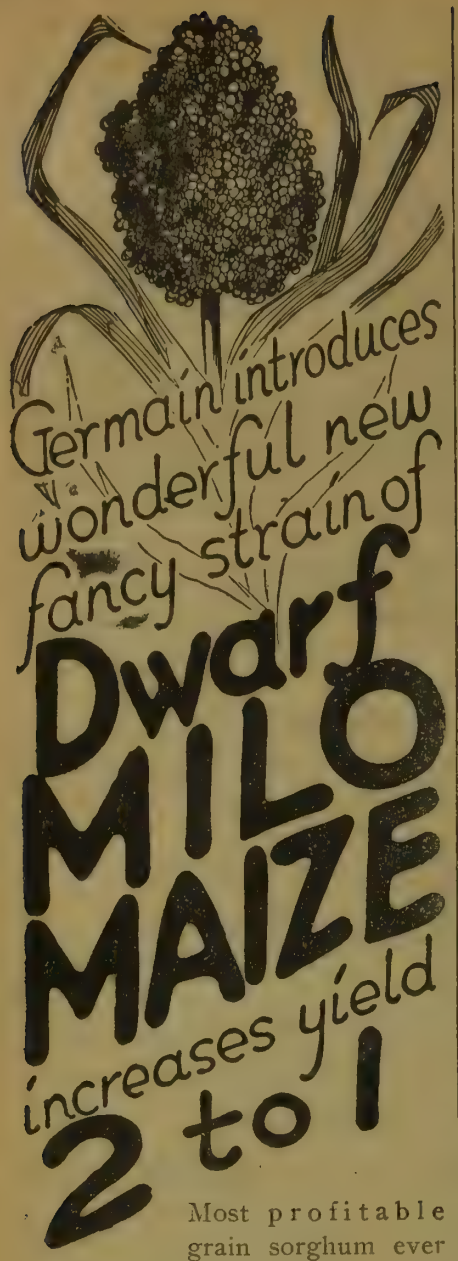

Most profitable grain sorghum ever produced; drouth resisting to last degree. Never attains growth of more than three feet which makes harvesting easy. Stalks are one mass of leaves and are greatly relished by stock.

Specify **Germain's Dwarf Milo Maize,** the original PROVEN strain from selected seed. Buy from your dealer.

Address Dept. B for free copy of our 1921 Catalog. It will interest you from start to finish.

Germain Established 1871
Seed & Plant Co.
N. E. Corner
Sixth & Main Sts.
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Los Angeles, Cal.

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RAISE BERKSHIRES
They are prolific, the best of mothers and will thrive under any of the climatic conditions in the West.

They Always Top the Market
We will supply your wants or tell you where you can obtain them. For full information address. Chas. M. Talmadge, Sec'y.

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The Profitable Hog

BERKSHIRES
universally recognized as the
SUPERIOR
breed for economical pork production. Send for literature and information
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Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Advance of Breeding Shown by Jersey Records

Eighteen years of record making under supervision of the state agricultural colleges and recorded by the American Jersey Cattle Club shows that the progress of cattle breeding is aided largely by the testing of dairy cows for production.

Even with more cows being tested in one year than were previously tested in 12 years there is a slight but progressive increase in the production of milk and butter fat.

From 1915 to 1921 there was an average increase of 458 pounds of milk and 24 pounds of butter fat in the records of all cows on Register of Merit test.

The exact figures for this period and for the years preceding are shown in the following chart:

Period	Records Accepted During Period	Avg. Lbs. Milk	Avg. Lbs. Fat
1903 to 1915, incl.	3,708	7,774	414
1916	1,556	7,735	419
1917	2,077	7,962	428
1918	1,909	7,964	429
1919	2,040	8,187	439
1920 (10 months)	4,301	8,232	438

15,591 records, all ages, average 5.35 per cent butter fat.

The uniform production of all cows on test is of particular interest when the number of tests accepted in ten months during 1920 was double that of 1919, and yet the variation in production of both milk and butter fat was comparatively slight, though it was higher in both cases.

The performance records of breed champions have practically doubled since Dollie's Valentine was champion of the Jersey breed in 1899.

World's Champion Jerseys—Past and Present—All Ages

NAME AND OWNER—				
Plain Mary 268206	AA	15,255	1,040	1920
Ayredale Stock Farm, Bangor, Maine.				
Vive La France, 319616	AA	14,925	1,031	1919
Pickard Bros., Marion, Oregon.				
Sophie's Agnes 296759	AA	16,212	1,000	1918
Ayredale Stock Farm, Bangor Maine.				
Sophie 19th of Hood Farm 189748	A	17,557	999	1914
C. I. Hood, Lowell, Massachusetts.				
Eminent's Bess, 209719	A	18,782	962	1913
W. S. Prickett, Sidnaw, Michigan.				
Jacoba Irene 146443	A	17,253	952	1909
A. O. Auten, Jerseyville, Illinois.				
Adelaide of Beechlands 168699	AA	15,572	849	1908
Estate W. S. Ladd, Portland, Oregon.				
Financial Countess 155100	AA	13,248	795	1908
C. E. Parfet, Golden, Colorado.				
Emma's Rowena 146877	AA	10,383	638	1905
C. I. Hood, Lowell, Massachusetts.				
Magyarland's Temisia 134765	A	10,419	638	1905
R. A. Sibley, Spencer, Massachusetts.				
Dollie's Valentine 105049	A	10,218	578	1899
Kentucky Agricultural Experiment Station, Lexington, Kentucky.				

Six out of eight cows holding records for their age in the Jersey breed today were tested by working farmers. The production in both milk and butter fat is greater in volume and practically unchanged in percentage. The per cent of butter fat, which fluctuates from year to year, shows only a slight increase in several years.

The records include animals of all ages, which in extreme cases bring in the year's tests of yearlings and on the other hand some mature cows of 20 summers.

In the year 1920 there were 1,459 mature animals tested (cows five years old and over). These cows produced an average of 9,701 pounds of milk and 510 pounds of butter fat, so that it is safe to say that all mature Jersey cows should be capable of making 510 pounds of butter fat in a year in order to measure up to the standard set by cows in that class today.

The average for four year olds is 8,777 pounds of milk and 472 pounds of butter fat; three year olds, 8,042 pounds of milk and 441 pounds of butter fat; two year olds (including yearlings), 6,691 pounds of milk and 356 pounds of butter fat. The Register of Merit requirements are much lower than this, but it seems as though the average animal has a good margin to spare in its record.

Testing of dairy cows has proved itself to be a valuable help to dairymen and breeders, as it has helped to improve production and profit as well as laying a foundation for breeding the dairy herds of tomorrow.—The American Jersey Cattle Club.

COW TESTING ASSOCIATIONS PROVE VALUABLE FOR WESTERN FARMERS

Numerous examples of the valuable work being done by cow testing associations are contained in reports of testers of these organizations sent to the western office of the dairy division of the United States department of agriculture.

According to the reports, marked progress has been made in replacing inferior bulls with high-class pure bred animals. Six of the testing associations, of which three are in Idaho, two in Colorado, and one in Washington, have reached the 100 per cent pure bred bull mark, having eliminated all scrub sires from their herds. Another 100 per cent association was added to the list in January, and several others are getting near this mark.

The Petaluma association has only two scrub bulls left. The dairy department of the local farm bureau of the county in which this association is located has a plan for an animal pure bred bull sale, the first of which was held several months ago. Young bulls out of 400 pound dams and older proved bulls are consigned to this sale by breeders and by dairymen wishing to dispose of bulls which they have used as long as they can in their own herds. The sale was the means of introducing 25 pure bred bulls into the county, and the association hopes by this means to eliminate all scrub bulls from the county and to keep the dairymen supplied with good bulls in the future. Through these sales it also hopes to open a market for proved bulls, and so keep these bulls in service in the county for many years.

The tester of the Skagit Valley, Washington, association reports that the last scrub bull has been "discharged from service." He says also that one farmer increased his production by 12 pounds of fat per cow on 25 cows from November to December by better care and feeding, and adds that this is an easy way of getting 300 pounds of fat more a month without milking any more cows.

The head tester for the Los Angeles association reports an increased production by the 3,000 cows in the association for December, 1920, as compared with December, 1919, which, he says, means an increase of more than $30,000 a month.

One herd of 30 cows in the Orange County association increased its production from 19 pounds of fat per cow in September to 36 pounds in December, largely as a result of advice on feeding given by the tester of the association. This increase of 510 pounds of fat a month is more than some 30 cow herds are giving at this season, he reports. Another herd in this association increased from an average of 27 pounds per cow to 41 pounds in six months. One dairyman in the association culled 13 animals from a 45 cow herd, and by so doing decreased his production only 12 gallons a day but saved over $60 a month.

The tester of the Ada association in Idaho reports that every cow in the organization has been tested for tuberculosis. Every herd in this association is headed by a pure bred bull and 25 per cent of all the cows are pure bred.

CALEDONIA SHORTHORNS

Imp. Caledonia

You Are Invited

to attend our third public sale to be held at the farms, Wednesday, May 25th. We have selected the best lot of material we have yet sold. We want you to come and see the sort of calves our three great bulls are siring—then you will understand why Caledonia calves always top the sale averages. Caledonia calves averaged $2,470 in the Anoka sale; $1,475 in the Lookabaugh sale and $1,487 in the Degginger sale. We believe we have some just as good—and you can set your price in the sale.

CALEDONIA FARMS
West Sacramento, Calif.
Office—57 Post St. San Francisco.

Rosebud Shorthorns
A Choice Herd of Fifty Females Headed by Milmar Stamp a Cruickshank Secret

FOUR BULL BARGAINS:

We have for sale at real bargain prices four extra good yearling bulls that are well bred and of good color. These calves are just right for the range man who wants to improve his cattle. Visit our herd or write for prices. Satisfaction guaranteed.

Edinger-Johnson Company
Hood, California

Shorthorn Bull Bargains

In order to close off the bulls now on hand, I am quoting some exceptionally attractive prices. These bulls were bred right and have been raised right to go on the range and increase your profits. Also a few good cows and heifers.

Howard W. Vaughn
Dixon, Cal.

The Willows Ranch
Home of Big Type Poland China Hogs. This Herd Noted for Size and Quality. Correspondence Invited
A. J. ELLIOTT, Proprietor
Box 45, Route 1, Tulare, Cal.

For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

D. G. Cummins & Son
Route 1 Visalia, Cal

KEEP BEES

Let them gather honey for your table and make your fruit more fruitful. Free booklet and price list of beekeepers' supplies for the asking.

The A. I. Root Company of California
1824 East 15th Street
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Everything for the Beekeeper.

Plant Winter Rhubarb
FOR PROFIT

Growers netted this year $1000 per acre. April, May and June are absolutely the best months to plant for full crop next winter and spring. We can supply plants—all sorts for large fields. Write for price list.

J. B. WAGNER
Rhubarb and Berry Specialist, Pasadena, Cal.

When writing advertisers, mention the Cultivator.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Month Old Calf

Please answer this question about a month old calf. Every time she chews her cud green liquid runs from her mouth, about a cupful. We are feeding calf meal and milk twice a day and a small amount of dry alfalfa hay.—Subscriber, Hynes.

Probably there is nothing wrong with the calf. The alfalfa hay may be a little coarse and irritates the tender mouth, causing the saliva to flow freely. If it continues you might examine the teeth to see if one came in crooked or if anything else is wrong in the mouth. Probably some green alfalfa or other green feed would remedy the trouble.

Depraved Appetite

We were raising three lambs by hand and all were doing fine and very fat, but they took to eating dirt and two died. To save the other we keep it in a pen with floor and lead it out for exercise. It is crazy to eat dirt. We keep salt in the pen all the time. Is there something we can feed to keep it from eating dirt, and what is the cause?—Subscriber, San Benito.

It may be caused by stomach worms. Give a teaspoon of turpentine mixed with two or three tablespoons of olive oil once a day for a few days. Also give a teaspoon of phosphate of soda dissolved in half a cup of warm water every morning for a week.

Freemartin

In the Cultivator of April 16 we answered a question regarding sterility of a heifer calf that was a twin with a bull calf. It seems that we were not posted on that subject. The fact is pretty well established that in case of such twins the bull is all right but that the heifer is barren and is called a freemartin. Since the article was published we have received several letters setting us right on the subject, and we wish in this way to thank those who took an interest in the subject and were good enough to write us about it. The object of this column is to give sound advice about animals, and criticisms and corrections are always welcome. Sometimes we have been criticized for not giving the latest known remedy for some disease. Our only defence is that very often if such remedies were prescribed the owners of the animals could not get the remedy nor would they be able to use it if they had it. Instead we try to prescribe something that will do as well and that the owner can get and in most cases knows how to administer. Many of the latest remedies are not in the drug stores, and if they were stock owners could not get them without a special prescription from a registered veterinarian, and then they would not be able to administer them without special instruments.

Paul Popenoe of Thermal writes:

In the California Cultivator of April 16 a subscriber asks whether twin calves are sterile. If the calves are both heifers or both bulls they are ordinarily normal. If one is a heifer and the other a bull the latter is ordinarily normal but in eight or nine cases out of ten the female is barren. Such a heifer is called a freemartin. The cause of this phenomenon has been worked out by several investigators during the last few years. The research of Prof. F. R. Lillie of the University of Chicago is particularly conclusive. He showed that the blood systems of twin cattle usually grow together. Apparently the male embryo secretes some hormone into the blood which, passing into the circulation of the female embryo, tends to prevent the normal sexual development of the famale.—Paul Popenoe, Thermal.

* *

I am a constant reader of the Cultivator and always find solid information in your columns. In April 16 edition, under "Are Twin Calves Barren?" you ask to hear from someone with the facts. Back in the '80's in the "Prairie State" we were raising Shorthorns for stock purposes and in looking over my old records find at least two cases of twins, bull and heifer, and in each case they failed to breed. Our neighbor had the same experience. As these were pure breds they were quite a loss to the breeder. The heifers were called freemartins.—J. N. Sanborn, San Jacinto.

Professor Gordon H. True of the animal husbandry department, University of California, pays the following tribute to J. Henry Meyer, whose death was recently announced in these columns: "In the death of J. Henry Meyer of San Francisco at his home in San Mateo in the early part of April, the Ayrshire breed lost one of its latest but most enthusiastic adherents. His little herd at Elkhorn Farm, recruited originally from the Willowmoor herd, Highland Farm and Canadian sources, has during its relatively brief existence taken a leading position among Ayrshire herds on the Pacific Coast. Mr. Meyer was an enthusiastic showman but was no less interested in the ability of his cows to stand high on the rolls of the Advanced Registry. More than this, he was interested in a broad way in the development of Ayrshire interests on the coast where he felt that, as a breed, they had not yet come into their own. In the business conduct of his herd it was not so much the immediate profit that concerned him as the laying a foundation for the development of a wider interest and fuller appreciation of the breed in a comparatively new field. While the passing of such a man seems to be an irreparable loss, it is most satisfactory to know that the son, J. Hillegas Meyer, no less interested than his father, and sharing his ambitions to make the breed better known and appreciated throughout the West, will carry on in the development of Elkhorn Herd."

ANNUAL H-F MEETING

The sixth annual of the Holstein-Friesian Association of America will be held June 1, at Syracuse, New York. There will be election of officers and reports of the accomplishments of the past year.

ORMSBY

PRODUCTION COMBINED WITH INDIVIDUALITY

Sir Ormsby Skylark
Sire of the World's Champion Cow

Records Made by Sir Skylarks' Daughters Last Year in Our Herd

	Butter
Daffy Orm. Sky., Jr. 2	891 lbs.
Joy Orm. Sky., Jr. 2	920 lbs.
Mabel Orm. Sky., Jr. 2	870 lbs.
Rag Apple Orm. Sky., Jr. 2	919 lbs.
Vera Orm. Sky., Jr. 2	864 lbs.
Carrie Orm. Sky., Jr. 2	720 lbs.
Lady Panzie Swy., Sr. 3	1042 lbs.

Duchess Skylark Ormsby
1,506 pounds of butter in one year

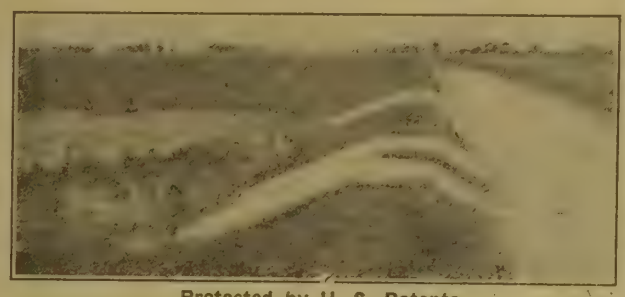
We are offering young bulls out of some of these cows, sired by sons of Sir Pietertje Ormsby Mercedes at farmer's prices.

MAXWELL FARMS

Ranch Near Universal City Office: Garden Court, Hollywood

The "SIPHON SYSTEM"

It Takes the "Gate" Out of Irrigation



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Some dandy young boars for herd headers. The choicest breeding and ready for service.

Every one tuberculin tested and cholera immune.

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The Best Crop for the Silo

The Wonder Forage Plant

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620 So. Spring St. Phone 60875 Los Angeles, Cal.

First Spring Sale

32 Registered Shorthorns 32

16 FEMALES—16 BULLS

MOUNTAIN VIEW HERD OWNED BY HOWARD VAUGHN DIXON, CAL.

Thursday, May 26, at 1 P.M.

This is the first individual public sale from this well known herd since its removal from Iowa to California, and for this offering Mr. Vaughn has selected a class of cattle that he depends upon to make a favorable impression in his initial sale in California.

Scotch and Scotch Top Females and Bulls

In the sale list will be found a number of individuals representing the most popular tribes of Scotch breeding, as well as American sorts of approved breeding and substantial individuality.

The females include cows with calves at foot, and bred and open heifers, among them some of outstanding worth and the balance rated as most useful breeding material.

THE BULLS are especially attractive, including individuals that may well be given consideration as herd headers, with a splendid selection for the range man, big, well grown, rugged bulls raised under range conditions and ready for heavy service.

TUBERCULIN TESTED—GUARANTEED BREEDERS

TERMS OF SALE: One-half cash, balance in six months on approved notes at 8 per cent, but terms are cash unless credit arrangements are made before sale. Applications for credit may be made any time between now and opening of sale to the sale managers.

MOUNTAIN VIEW HERD is located on the main State Highway one and one-half miles north of Dixon, Calif. HEADQUARTERS OF SALE will be Travelers Hotel, Sacramento, from which point transportation to sale will be provided to those coming in by train morning of sale.

CATALOG FREE ON REQUEST

Auctioneers:
Col. Ben. A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

Building Better Herds

THE productive period of a dairy cow lasts only about eight years. That's why progressive dairymen raise calves from their high average cows for herd maintenance. They also know the difficulty of buying-in productive, trustworthy animals.

OLYMPIC Calf Meal with *Dried Buttermilk* is a real substitute for milk. It offers the greatest assurance for successful calf raising. OLYMPIC Calf Meal with *Dried Buttermilk* furnishes the right nutrition for every growth demand, in the form most easily digested and assimilated.

But best of all, OLYMPIC Calf Meal with *Dried Buttermilk* will prevent scours and digestive disorders. *Dried Buttermilk* supplies a wealth of lactic acid which disinfects the alimentary canal, sweetens the intestinal tract and assists digestion and assimilation.

Blended by successful raisers, OLYMPIC Calf Meal with *Dried Buttermilk* contains Oat and Barley Flour, Red Dog Flour, Corn Flour, Alfalfa Leaf Flour, Linseed Oil Meal, Dextrose and *Dried Buttermilk*. While really a milk substitute it can be fed with skim milk instead of water, or as a dry ration, mixed with a small amount of grain.

OLYMPIC Calf Meal with *Dried Buttermilk* is also successfully used to wean young pigs.

Net 100 lbs.
OLYMPIC
CALF MEAL
WITH DRIED BUTTERMILK
GUARANTEED ANALYSIS
Protein 14% Crude Fiber 4%
Fat 4% Carbohydrates 50%
Ash 7%
Made from Dried Buttermilk, Oat Flour, Barley Flour, Red Dog Flour, Corn Flour, Alfalfa Leaf Flour, Linseed Oil Meal, Dextrose and not over 1% Calcium Carbonate and ½ of 1% Salt.

Ask your dealer for the free Olympic book on Dairy, Hog and Stock Feeds and Feeding or write to

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DRIED BEET PULP

Laxative, Succulent, Palatable—Keeps Cows Healthier

ATTRACTIVE PRICE NOW IN EFFECT

Ask Your Feed Dealer

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O.U.R. Hampshire Swine

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Essentials of Animal Breeding

By George M. Rommel, Chief Animal Husbandry Division

(This is a continuation of article appearing in Cultivator of April 23 and 30.)

IT IS clear to every one that in order to make the best out of the hereditary material represented in one's herd, and to use the laws of nature to the best advantage, one must have clearly in mind a standard which he sets for himself as the ideal toward which he must work. This standard must be definite and should be as practical and simple as possible. The exercise of selection, wisely and judiciously pursued, offers the breeder one of the two most effective means of bending to his own purposes the operations of chance, which otherwise nature will use to his confusion and undoing.

We have made the statement already that the hereditary material is passed down from generation to generation without change except so far as the operation of the laws of chance may have affected the process, beginning with the maturation of the germ cells. It is plain, however, that constant selection of a good type will increasingly intensify the properties of a given set of characteristics (in other words, of a definite type), but that this selection must be pursued constantly because the chromosomes which tend to produce the less desirable types continue to be present, although in decreasing numbers. If the force which has been selecting the desirable chromosomes is removed, then the undesirable ones may once more prevail. In other words, our modern breeds of farm animals are an improvement over the stock from which they sprang. There is, therefore, a constant pull backward and downward against which the breeder must work by wise selection and skillful matings. If this intelligent direction by human skill should be removed, our animal stock would rapidly degenerate to the level of the types of centuries ago.

Selection should be designed to correct faults in the parents, and, as a rule, the male is depended on to do it. A few concrete cases will illustrate. If the females have a tendency to be too leggy, select a male that is compact and close to the ground. If the backs are not ideal, select a male with an exceptionally strong back. If the sow's feet are not the best, get a boar that is unusually strong in his feet with strong, upright pasterns. We might multiply these illustrations indefinitely. Therefore, a sire should be a better individual than the females with which he is to be mated; otherwise the standard of the herd or flock may decline. To some extent a breeder may extend these principles to the grandparents, but for practical work on a farm that is producing market stock it is commonly unnecessary to go farther back than the sire to be selected. In other words, don't buy a poor male merely because some one tells you he has a good pedigree.

The breeding animals selected should look the part. Good bone; deep, broad chests; strong, broad backs; and fully developed bodies should be emphasized. Especial attention should be paid to the head, for that part of the body tells many a story which otherwise would be overlooked. Width between the eyes, full, prominent eyes of pleasing appearance, broad muzzles, and prominent nostrils indicate points of value both to the breeder and the feeder. In males, strong evidence of masculinity is important. The evidences of the masterful impressiveness of the masculine sex is often apparent in very young animals and may be taken to indicate a youngster that with proper feed and care will grow out into an impressive sire. In females we look for femininity, without indications, however, of weakness of constitution. Avoid cows, for example, with heads like those of steers. These points make up in total what breeders call "character" and are among the most important considerations which a breeder must bear in mind in building up his herd or flock.

Good feed, care, and attention are valuable adjuncts to selection. Unless feeding permits full development we can not select intelligently the animals which have received and can transmit the characters we desire to perpetuate. Starved animals which never have had an opportunity to demonstrate their capacity to produce meat, milk, wool, or other valuable commercial products, furnish poor material from which to select individuals capable of maximum and most economical production.

One must use these rules of selection with judgment and common sense. While faults undoubtedly can be corrected by the use of males of superior individuality, it may be unwise to use some females for breeding even market stock because they may be too inferior for even this purpose. To sell them and substitute better individuals, either high grades or pure breds, is often the more sensible course and the more profitable in the end.

Selection alone, however, is not certain to result in steady progress. Different combinations of hereditary elements may result in apparently the same characteristic. In practicing selection a man may introduce at any time the blood of a line which merely looks like that of his own stock, but which breeds differently. The result is the undoing of past progress, the next generation showing the variability characteristic of the second generation of a cross. Only by breeding within relatively narrow limits can one be reasonably sure that he is mating animals which both look alike and have the same heredity.

Inbreeding

Next in importance to selection as a means of improvement in breeding animals, the most effective process at the command of the breeder is the judicious mating of related animals. This process is known as inbreeding and various terms, such as line breeding, close breeding, and incestuous breeding, have been used to define varying degrees of intensity of the process.

Inbreeding is one of the most discussed subjects in the whole field of genetics. All sorts of bad results are attributed to it. Lack of vigor, no resistance to disease, decline in size and fecundity, and even sterility are the fate of inbred animals, in the minds of many people. These ideas have a certain basis of fact, and often extend to farmers, who sometimes refuse to buy males which have inbred pedigrees. Breeds and families which have been intensely inbred for several generations develop manifestations of constitutional weakness which, it seems, can be explained only on the grounds of their close relationship. Scientific data of exact and elaborate scope, worked out under controlled conditions, are not abundant on this point.

We have, on the other hand, the accepted fact that progress in animal breeding began only when breeders began to inbreed. The work of Bakewell, who experimented during the last half of the eighteenth century, which made the greatest impression was the methods he used, and the method that has been most far-reaching in its results was that he mated his animals with first regard to their individual suitability for the mating and with secondary importance placed on their relationship. Since the time of Blakewell every breeder who has made an impress of permanent importance on his breed has used inbreeding as his most useful working tool.

When we mate related animals we are bringing together animals with a more nearly uniform character in their hereditary material than when we mate those that are not related. We are, therefore, increasing the probability that the offspring will be like the parents. But there may be hidden in the hereditary material the factor of an undesirable character. In other words, we may not know all that we should know about the ancestors. Back somewhere, perhaps, was a bad one whose traits are being bred out by selection in each successive generation. If we mate two related ani-

carrying this defect, we greatly increase the chance of perpetuating it. Instead of having an even chance or better of keeping the defect under subjection by not inbreeding, we double the chance of its appearing when we do inbreed. It seems possible to inbreed some animals much more intensely than others, and certain strains of breeds in the same species exhibit similar traits. To cite specific instances, cattle which have a special susceptibility to tuberculosis, horses with a tendency to certain unsoundness, such as roaring or spavin, should not be inbred. The safe rule, therefore, is not to mate closely related animals which have the same defects, either themselves or in their immediate ancestors.

Inbreeding should be practiced only by the most skillful breeders, and by them only when they have definite knowledge of the ancestry. Judiciously used, inbreeding results in a rapid fixing of type and enables the breeder to obtain results much more rapidly than without its use. It is like any other high powered implement. Properly used, it is a wonderful adjunct to human efforts; in the hands of the ignorant and careless it is a source of danger.

The purchaser of inbred males, however, need have no fear of using them if they are creditable representatives of the breed. As a matter of fact, he should prefer inbred males to others, especially if they are not related to his females, because they are more nearly alike in their hereditary material, and for that reason more likely to reproduce themselves with uniformity. They are usually sold under a guarantee that they are breeders (or they should be so sold), and if they do not breed, any reputable breeder will replace them. It is a general rule that inbred animals, when mated to unrelated ones, even though the latter themselves are inbred, produce offspring larger and more vigorous than either parent. From every standpoint, therefore, an inbred sire should be desirable to use in a farmer's herd, provided the animal is a good individual. The farmer should make certain of this fact. Then he should ascertain that the strain itself is vigorous, and finally he should have a guarantee that the animal bought will prove to be a breeder. If these conditions are met, the farmer will find inbred males much more impressive and will have a much more rapid return in improving his stock than if he had used males which were not inbred.

Whether a breeder should or should not inbreed his stock is a matter which he must settle for himself. The successful use of inbreeding is one of the best tests of a breeder's skill, and no man should inbreed unless he is confident that he possesses the requisite skill to make such a step successful. Generally speaking, the inbreeding of market stock is unwise; but the use of inbred males on the females of such a stock may be of the highest value, provided the breeding establishment which produced the males has not been injured by inbreeding. Such a fact can be readily ascertained.

Inbreeding fixes characters which can be fixed, but one of its most valuable consequences is bringing clearly to light the relative merits of different strains in such characters as fecundity, resistance to disease, and the like, which are affected so much by factors other than heredity that they can not be fixed in individuals. In these cases progress is more likely to result from selection of strains than from the selection of individuals.

A real danger from inbreeding is not to be urged against the practice itself, but against the peculiar infatuation which breeders acquire for certain blood lines. Once let a given line of breeding demonstrate its excellence for the production of a certain valuable type, and every progressive breeder strives to acquire some of this valuable blood. The strain soon becomes "fashionable." From this stage to breeding for the pedigree rather than for the animal is an easy step which is taken much too often. The corrective for such methods is the show ring, with competent and fearless judges in authority.

Outcrossing

Quite the converse of inbreeding is the practice of outbreeding or outcrossing. Even in plants which are usually self-fertilized, nature has provided for an occasional outcross that materially increases the vigor, stamina and general well-being of the stock. In animals which have been intensely inbred, outcrossing has interesting and important results. Mating to stock which has not been inbred results in increases in size and vigor. A similar result also follows the mating of two strains, both of which have been inbred, but which are not closely related to each other.

Pure Breeding

Step by step we climb the ladder of the art of breeding until we finally reach the top in the breeding of pure breds, the most fascinating, the most inspiring and the most remunerative branch of animal breeding when successfully followed; the most difficult and the most disappointing when not successful. The successful breeder of this class of animal is far more than a business man or a farmer. He is an artist, and the artistic appeal is first in importance to him.

The basis of pure breeding in the United States, except in the case of poultry and pet stock, is pedigree registration. Animals must be not only pure bred, but they must be registered in the book of record established for the breed.

Standards in pure breeding are more exacting and more complicated than in breeding solely for the production of meat, wool, milk, or eggs, but they should be practical, because the proof of the practical value of a breeder's work is the demand which is sustained in the long run for his breeding animals. The surplus of the registered pure bred establishments goes to improve the native and unregistered grade herds and into pure bred herds of less merit. A high standard is therefore absolutely essential to maintain quality, average excellence, and the reputation of the herd. Practical ideals must have quite as much weight as purely commercial considerations in the determination of the standards.

(Continued next week.)

LIKE FEEDING COWS IN THE DARK

"When I bought my farm two years ago there was a herd of scrub cows on it," writes a Wisconsin farmer to a field agent of the dairy division, United States department of agriculture. "I joined the cow testing association and soon found that my scrub cows were a failure, so I disposed of them and bought some pure bred and grade Holstein cows. The cow testing association is a guide board on the way to better dairying and a big saving in feeds, as one can feed to so much better advantage where the production is known. Trying to feed without records of your cows is like feeding in the dark."

Burr Farm is having a number of repeat orders for bulls this spring. Last week Mr. Cocke of Hynes bought his second son of Sir Veeman Korndyke Pontiac out of a cow which made a record of 15,000 pounds of milk with three quarters. F. D. Hall of Palmdale, Sam Gunn and J. F. Grube of Huntington Beach took others.

Moneymakers For Dairymen

With an abundance of cheap feed on hand, the time is particularly favorable for the establishment of new herds of registered Holsteins. The great demand and consequent shortage of good grade Holstein cows has advanced the price to a point where many practical dairymen may well consider the purchase of registered purebreds, even though the initial investment may be larger per head.

In the public sale outlined below there will be a wonderful opportunity not only to secure splendidly bred registered Holstein cows, but to buy the sort that are just right to start paying for themselves right away, for the offering contains an unusual number of fresh cows and heavy springers. In addition to this especial attention is here directed to the fact that the owner is prepared to extend more liberal terms than found in the usual sale, and such arrangements should be made with him well in advance of sale day.

177--Registered Holsteins--177

167 Cows 10 Bulls

Willowmead Herd Owned by James McGillivray Sacramento, Cal.

Wednesday and Thursday, May 18-19, 1921

WILLOWMEAD HERD now contains over 500 registered Holsteins of which number approximately 475 are females. This sale will positively include every cow in the herd that is in salable condition, and every one of the 167 females to be sold is either milking or a heavy springer.

Consider also that in addition to the fact that the females in this herd represent some of the very greatest producing families of the breed, a very large percentage of them are bred to one or the other of the two Willowmead herd sires, both of which are backed by world's record production. These are the two bulls to which more than half of the females are bred:

COLONY ZARILDA NEWMAN, sired by Aaggie Cornucopia Newman, son of the former world's record milk producer, Margie Newman, and out of the famous Canadian cow Zarilda Clothilde 3d De Kol, 33,153.6 lbs. milk and 1,194.18 lbs. butter in one year, and at a previous freshening she made a strictly official record of 1,070.23 lbs. butter from 30,427 lbs. milk.

PRINCE ECHO SYLVIA SEGIS, sired by Champion Echo Sylvia Pontiac, son of May Echo Sylvia, the only cow that ever made over 1,000 lbs. milk in 7 days. His dam is a 29.89 lb. 4 year old daughter of King Pieter, second dam a 31.70 lb. daughter of King Segis. He is a beautiful individual, and his service adds value to every cow in calf to him.

Among the Females in the Offering Are:

85 FRESH COWS, splendidly bred and producing heavily right now.

93 TWO, THREE, AND FOUR YEAR OLD HEIFERS, out of the best foundation cows in the herd and sired by bulls of splendid breeding.

28 DAUGHTERS OF DUTCHLAND SIR KORNDYKE COLANTHA, a proven grandson of Colantha Johanna Lad.

18 DAUGHTERS OF KING PONTIAC RUBY BURKE, a proven son of King of the Pontiacs.

17 DAUGHTERS OF PRINCE BUTTER BOY WALKER, a proven yearly record son of Prince Gelsche Walker.

14 DAUGHTERS OF KORNDYKE COLANTHA PARTHENEA, son of Dutchland Sir Korndyke Colantha and the great foundation cow Minnewawa Louise.

10 DAUGHTERS OF KING MEAD OF RIVERSIDE, the famous sire of yearly record producers.

COWS AND HEIFERS with records up to over 32 lbs. butter in 7 days.

DAUGHTERS of cows with up to over 32 lbs. butter in 7 days and up to over 1,000 lbs. butter in one year.

THIS OFFERING CONTAINS THE LARGEST NUMBER OF REGISTERED HOLSTEIN FEMALES OF MILKING AGE THAT HAS EVER APPEARED IN A WESTERN SALE. IT IS A WONDERFUL OPPORTUNITY TO PURCHASE FEMALES THAT START TO PAY FOR THEMSELVES THE DAY YOU GET THEM HOME.

The owner is prepared to extend liberal terms to responsible parties. Applications for credit may now be made either in person or by letter to JAMES McGILLIVRAY, R. 1, Sacramento, California.

Every animal positively guaranteed to be a breeder. No tuberculin test certificates.

Catalog of Sale Free on Request

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

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"Lanterns are so often carried into barns where hay is stored or other dangerous places that they always should be carefully used. In the course of time, the safer and more convenient electric hand-light probably will take their places."—NATIONAL BOARD OF FIRE UNDERWRITERS.

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You Take No Risk

We hereby guarantee that should the purchaser of a Quick-Lite Electric Lantern, after having tried it for a period of ten days, decide for any reason to return the lantern, we will immediately refund the $7.50 purchase price, making no charge for the use of the Quick-Lite Electric Lantern. All that we ask is that notice be given at the end of ten days.

Remit $7.50 for Quick-Lite Electric Lantern complete with Quick-Lite Duplex Battery, and we will forward it, express paid.

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Department A9, Magnesite Bldg., 360 Kearny St., San Francisco, Cal.

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NUEVO, RIVERSIDE CO., CAL.

REGISTERED HOLSTEIN FEMALES

Tuberculin tested and sold on money-back guarantee.

Yearling and Two-year-old Heifers

bred to freshen during the summer and early fall to sons of

KING SEGIS PONTIAC

whose sons have sold for more money than those of any other bull of the breed
P.S.—Can also spare a few fresh cows of high production.

California Cultivator

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

May 18-19, James McGillivray, Sacramento.
June 9, Burr Farm and Agee Bros., Burr Farm, Los Angeles.

Shorthorns

May 25, Caledonia Farms, West Sacramento.
May 26, Howard Vaughn, Dixon.

Herefords

May 27, Finnell Stock Farms, Galt.

George W. Brown of the Burr Farm always has been an exponent of the long time test for dairy cattle, as his training has been largely in the production and sale of milk, and at sales when a good individual with a nice ten months or yearly record comes he is right on the job. It is the intention to give every cow in the Burr Farm herd a semi-official record and 40 are on test there now.

An extraordinary showing is being made by the first two year old daughters of King Segis Alcartra Abbekerk to finish their yearly work. This is the senior herd sire in the Bridgford Holstein Co. herd at Patterson, where all of these records have been made: Karlray Ormsby Alcartra, a junior two year old, after making the world's record for milk and butter for age in 305 days, finished the year with 915.77 pounds butter from 22,950.1 pounds milk. She is now owned by R. Stevens, Stockton, who purchased her in the 1921 Guaranty Sale. Mercedes Hengerveld Abbekerk, as a junior two year old, made 908.27 pounds butter from 18,160.2 pounds milk in one year; Miss Korndyke Mercedes Abbekerk, a junior two year old, made 758.27 pounds butter from 18,900.8 pounds milk in one year; Modesto Korndyke Abbekerk, a junior two year old, made 772.12 pounds butter from 16,215.4 pounds milk in one year; and Susie Segis Alcartra Abbekerk, a senior two year old, made 781.2 pounds butter from 15,921.3 pounds milk in one year. These five records establish the remarkable average of 827.13 pounds butter and 18,415.6 pounds milk, an average that has been equalled by the first daughters of very few bulls of the breed. The high producing daughters of the Bridgford junior herd sire, the famous three times grand champion King Segis Alcartra Prilly, are mostly out of daughters of King Segis Alcartra Abbekerk, and it appears certain that this herd has secured an exceedingly promising nick in the blood of these two bulls. The latest daughter of the Abbekerk bull to make a seven day record is Alcartra Sadie Vale Abbekerk, purchased by A. W. Morris & Sons, Woodland, in the December sale at Sacramento. She has recently made 20.15 pounds butter in seven days, adding one to the excellent list of two year old daughters of her sire with above 20 pounds in seven days.

A San Luis Obispo County Aberdeen-Angus

Proud Eric of Aberlour, winner of the first Highland and Agricultural Society prize in the exhibition of Aberdeen-Angus cattle at Aberdeen, Scotland, in August, 1920. Proud Eric's home is now on the ranch of F. F. Peabody, San Luis Obispo County. He weighs 1,850 pounds and is three years old.

Robert N. Clapp, owner of Sycamore Acres, Nuevo, has a foundation herd of which much may be expected, carrying a wonderfully rich percentage of the great King Segis blood, mainly through daughters and granddaughters of King Segis Pontiac and Johanna McKinley Segis. It will be remembered that Mr. Clapp secured the great cow Gerben Abbekerk Maid in the Stalder sale last fall. She recently dropped her tenth calf, a fine bull by Sir Skylark Ormsby Rauwerd, the 34 pound son of Sir Ormsby Skylark, now heading the Sierra Vista Ranch herd at Perris, and at freshening she was not yet ten years old. When the writer saw the grand old matron late in April she had apparently not reached her full flow of milk but was then up to over 100 pounds per day, and is in splendid physical condition.

Gotshall & Magruder, Ripon, recently acquired the C. A. Miller ranch at the same place, one of the good properties of that locality. They have had this ranch under lease for some time, carrying a part of their big herd of registered Holsteins on it. This ranch has one of the finest pastures in California, an asset that will figure largely in the growing out of the young cattle.

The strong position of the registered dairy cattle industry in California is apparent in the spring sales to date. The seven sales of registered Holsteins conducted by California Breeders Sales and Pedigree Co. during the first four months of the year contained 495 head which averaged within a few

DISPERSAL SALE

98 REGISTERED HEREFORDS

62 FEMALES—36 BULLS

Finnell Stock Farm Co., Galt, Sacramento County Cal.

Friday, May 27, at 10 A.M.

When Finnell Stock Farm Company purchased the entire herd of 180 registered Herefords from Kiesel Land & Cattle Co. early in 1920, the plan was to develop a large herd of high quality, but the owners have recently decided to make extensive planting of vineyards and orchards, making the sale of the cattle necessary.
Shortly after this herd was purchased, the owners prevailed upon Alex McDonald, the noted herdsman at University Farm, to visit the herd and select from the 180 head the females they should retain as breeding material in the number they wished to carry. This was done and afterward the tops of the remainder were sold at public auction in November, 1920. The offering in this sale thus represents the very tops of the entire original herd, and they are Herefords of unusual usefulness as breeding material.

29 COWS WITH CALVES AT FOOT

This group contains a most desirable lot of young cows, the calves at foot being sired by Beau Blanchard 37th, son of Engle's great Beau Blanchard, and by Sir Thomas, the numbers by each sire about equally divided.

33 BULLS FOR THE RANGE

These bulls are sired by Beau Blanchard 37th and Sir Thomas, out of some of the very best cows in the herd. Eight of them are 1920 calves, all except one past a year old, and the other 25 are of 1919 calving, practically all senior yearlings with a few 2 year olds. They have been raised on the range, which is true of the entire herd, and are ready to go right out into service.

33 BRED COWS AND BRED AND OPEN HEIFERS

This group presents a most attractive appearance for purchase, including young cows of real worth and a considerable number of heifers by Sir Thomas and Beau Blanchard 37th.

3 HERD BULLS

Beau Blanchard 37th and Sir Thomas have a large number of sons and daughters in the sale, which easily prove their worth as sires. The third herd bull to sell is without question one of the very best bred Hereford bulls ever sold in the west, the noted Gudgell & Simpson bred bull Cardinal, sired by the famous bull Domino and out of Capitola 34th, a daughter of Beau Modesto, second dam by Dandy Rex, third dam by Beau Brummel.

A STAR LOT The sale list includes a daughter of Cazier's Harris Standard 2nd, selling with a fine heifer calf at foot by Cazier's $10,000.00 Beau Blanchard 76th.

TERMS OF SALE: The owners are prepared to extend unusually liberal terms to responsible parties. Such arrangements must be made before sale, otherwise terms are cash. Applications for credit may now be made either in person or by letter to FINNELL STOCK FARM CO., Galt, Calif.

Every animal sold as a single lot, except range bulls, guaranteed breeders; everything over six months old tuberculin tested.

FINNELL STOCK FARM is about eight miles east of Galt, about 35 miles southeast of Sacramento.

SALE OPENS PROMPTLY AT 10 A.M.

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, 211 Ochsner Bldg., Sacramento, Calif.

dollars of $500 per head, and the total included an abnormal number of young heifers and a very large number of young bulls. With a grand averave of $455 per head on the 33 females and 18 bulls in the Hollow Hill Farm Guernsey dispersal, the strength of this breed is also apparent in California, for besides the large percentage of bulls in this sale it must also be considered that quite a number of the cows were from eight to 13 years old, and there were also a large number of hefer calves in proportion to the total number of females. All of the sales have been featured by large numbers of buyers, most of whom did not secure as many cattle as they wished to purchase.

In the census of registered Holstein cattle in California, recently completed by the Holstein-Friesian Association of America, Brattleboro, Vermont. Sacramento County leads the counties of the state with 1,154 head, Los Angeles County is second with 914 head, Fresno County is third with 844 head, while Stanislaus, Santa Clara and Tulare Counties follow in the order named with 742, 741 and 715 respectively. Tehama and Lake Counties are at the other end of the list, each being credited with a single registered Holstein.

Unusual interest is being manifested in the public sale of registered Holsteins from the Willowmead Herd, owned by James McGillivray, Sacramento, May 18-19, owing to the scarcity of Holstein cows and the fact that this sale contains the largest number of registered Holstein females of milking age that has ever appeared in a western sale. A total of 167 cows will be sold, after which Mr. McGillivray will still have approximately 300 head of registered females left, mostly heifers from two year olds down to calves. The herd is headed by two of the strongest bulls for milk producing blood in the West, Colony Zarilda Newman, being sired by a son of the former world's record milk cow Margie Newman, and out of the great Canadian cow Zarilda Clothilde 3d De Kol, that twice made over 30,000 pounds of milk in one year, her best record above 33,000 pounds, and the junior herd sire Prince Echo Sylvia Segis, by the best proven son of May Echo Sylvia, and out of a 29 pound four year old dam that combines closely the blood of King Pieter, King Hengerveld and King Segis.

The number of registered Hereford herds in California has increased rapidly during the past year, most of the foundations having been secured by new breeders in the various public sales. Another notable opportunity for purchase of foundation females will be presented in the dispersal of the Finnell Stock Farm Co. herd at Galt, Sacramento County, on Friday, May 27. It will be remembered that this company purchased the entire herd of 180 head owned by Kiesel Land and Cattle Co. in southern Oregon in the spring of 1920. After bringing the herd to California they secured the expert services of Alex McDonald, University Farm, to select from the entire herd the females to be kept for their breeding herd, and after this was done the tops of the remainder were sold at public auction in the fall of 1920, an offering that made a most favorable impression on all who saw it. The present dispersal includes the top animals picked by McDonald and can be regarded as a most substantial and useful group of breeding Herefords.

Superintendent Harriman in charge of the Los Angeles County farm writes: "I wish to report the sale to J. J. Rabai of La Mirada of the bull, Prince Gerben Abbekerk Mead, out of a young A. R. O. daughter of Beryl Luecke De Kol and sired by a 34 pound grandson of De Kol of Valley Mead 2d, former holder of the world's record for two successive years' butter production under full age. De Kol of Valley Mead 2d will also be remembered as the dam of Miss Valley Mead De Kol Walker, 36.8 pounds of butter in seven days and 1,113.57 pounds of butter in a year, at three years of age. This sale is of particular interest to us as Mr. Rebai bought another bull from this herd, August 3, 1917. This was King Clifton De Kol of Los Angeles County, the son of our former herd sire King Kines Homestead. Mr. Rebai is now milking about 55 cows, including 15 heifers sired by King Clifden which he says are the most persistent milkers he ever handled in 30 years' connection with the dairy business. This fact is directly responsible for the second purchase from the county farm."

Superintendent Neville of rodent control in Los Angeles County reports five squirrel crews treating 7,677 acres per month.

W. O. Ferris, a specialist in the growing of lettuce in the Salt River Valley of Arizona, has produced one head weighing 5½ pounds. Salt River Valley lettuce has attracted much attention for its exceptional qualities. The Fred Harvey Service used an average of 2,000 heads a day in the first four months of the year.

Extremely dry weather on the ranges in certain parts of Arizona has made the fire hazards greater. Sixteen fires have been reported so far this season. Ten of these were extinguished with very small damage and only one spread over an area as great as ten acres.

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A wonderful value in Hip or Knee Length Rubber Boots made of REAL gum Rubber with heavily reinforced seams. Made to order of the English Government for the British Army at actual COST OF MORE THAN WE ARE SELLING THEM FOR. Will stand all extremes of heat and cold and made to give extra long wear. Finest quality pure gum rubber with extra heavy soles. This is one of the very finest BARGAINS we have ever been able to offer our customers and the stock is limited so get your order in very early. Nothing better can be worn by ranchers or men who work in irrigated districts, rice fields, etc. This quality of Hip rubber boot would usually cost you $7.50 to $8.00. Remember you can get the full HIP boots for $3.98 or the shorter knee length boots for $3.29. Be sure to mark which kind you want on the coupon below. WE DO NOT WANT YOUR MONEY IN ADVANCE. We take all risk because these boots are such wonderful values. Fill out coupon NOW and mail at once if you want some of these boots before they are sold out.

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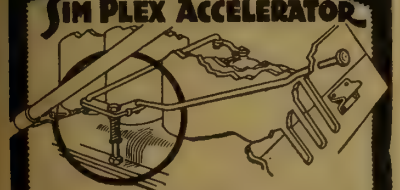

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SIM PLEX MFG. CO. SANDPOINT, IDA.

COMBINATION SALE
BURR FARM — AGEE BROS.

60—Registered Holsteins—60

Burr Farm, Los Angeles, Cal.

Thursday, June 9, 1921

This offering is made up largely of young cows, with a very large percentage of fresh cows in the list, and especial care has been exercised by both owners in selecting animals of good type and breeding, for it is planned to make this the first of regular public sale offerings from the great Burr Farm herd.

Many of the females are bred to one or the other of these splendid herd sires:

KING KORNDYKE PONTIAC 20TH, the famous $12,000.00 son of Miss Valley Mead De Kol Walker that sired the $41,000.00 bull King Korndyke Pontiac Acme.

SIR VEEMAN KORNDYKE PONTIAC, 30 pound proven son of Sir Veeman Hengerveld, whose daughters are making wonderful records both in short time and long time tests.

SIR MANUEL HENGERVELD, son of the 1,039.6 pound yearly record cow Iowana Witte.

BURR WALKER SADIE VALE, by a 31 pound son of King Korndyke Sadie Vale, out of a dam that made 618.04 lbs. butter in one year as a junior 2 year old.

KING PONTIAC TOLA ORMSBY, son of K. P. Tola, the noted 36 pound daughter of King of the Pontiacs.

The offering will also include a few choice bred heifers and a very limited number of young bulls.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

TERMS OF SALE: One-third cash, balance in twelve equal monthly payments, with approved note and live stock insurance to cover deferred payments. Arrangements for credit may now be made with the sale managers.

Auctioneers: Rhoades & Rhoades, Los Angeles

Management: California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

Rhodes Grass

A Good Pasture that will Grow on Alkali Soil

RHODES GRASS SHOWING RUNNERS AND METHODS OF SPREADING

Gus Nellen of Imperial Valley has about 8½ acres in Rhodes on which he has kept 20 milk cows, also some hogs, and has about 12 tons hay left from the last year. His place was covered with Bermuda so he just broadcasted the Rhodes Grass Seed and turned the water in slowly and kept the place moist and before long the Rhodes had the Bermuda choked out. Another advantage is that he can keep the cattle on it while irrigating, for it isn't hurt by being trampled on, for wherever the runners are trampled into the ground, they start to grow.

He also recommends it highly for hog pasture as they like it very much, and do well on it.

Aggeler & Musser Seed Co.

620 So. Spring Street Tel. 60875 Los Angeles, Cal.

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LENDORRIS RANCH
Big Type Polands

We are offering a number of fine gilts by Lendorris Liberty Bond bred to Lendorris Liberator—a half-brother to the grand champion of this year's National Swine Show—for March litters.

W. L. Haag and Son, Hanford, Cal.

As Long
as Grass Grows and Water Runs
Shorthorn Cattle are Profitable

Do you realize that there is a shortage of beef stocks in the Western states ranging from 25% to 60%? That California has the highest grass beef market in the United States? That there is an abundance of feed in this state? That cattle must be utilized to consume our grass and hay. That no section can surpass this state in the production of high class breeding stock? That there is a constant trend toward the use of better blood on our ranges? That as long as grass grows and water runs cattle will be grown on our hills and in our valleys? That because of the above facts there never was a better time to start a small herd of registered Shorthorns than now, and that no better opportunity will be found than in the

Caledonia Farms'
Third Public Sale of Shorthorns
at the Farms, West Sacramento, Cal.
Wednesday, May 25

50 SELECTED FEMALES AND BULLS 50

15 Scotch Cows The fifteen straight Scotch cows and heifers that have been listed were selected with the view of affording breeders a chance to add to their herds breeding material of the highest quality. There will be Acanthus, Orange Blossom, Rosa Hope, Campbell Ury, Roan Lady and other popular tribes. Such material carrying the services of the three great Caledonia herd bulls should be eagerly sought after by all breeders. Several of the cows sell with calves at foot.

25 Scotch Topped Cows The Scotch topped material represents a rare collection of big, thick fleshed, heavy milking cows that will return any man a handsome profit for their keep. Every one can boast of a most unusual list of sires in their pedigrees. No man can go wrong in purchasing such useful cattle. They too, carry the services of the three famous Caledonia herd bulls.

Imp. Caledonia Gainford Matchless
Pine Grove King

It is entirely conservative to state that no herd in America has three better bulls in service. Think what an opportunity this sale affords California breeders to add to their herd's bloodlines of the best. If you own Shorthorn cattle now, or expect to buy, you positively cannot afford to miss this event. Get to the top quick through the use of such blood.

10 Young Bulls The ten young bulls include six Scotch and four Scotch topped. They run in ages from 12 to 24 months. They are well grown, well bred and of good colors. Several are extra good prospects. Here is a chance to buy just the sort of bulls you need and at your own price. Remember the better the bull—the better the steers.

Terms: One-half cash, balance in six months on approved security. Arrangements must be made prior to sale with sale manager.

Every lot guaranteed a breeder.
All over six months old sell tuberculin tested.

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

The Catalog is Ready. Address
California Breeders Sales and Pedigree Co.
C. L. Hughes, Manager, Sacramento, Cal.

HOLSTEIN Fred Hartsook RANCH CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

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Venadera Herd
Offers some excellent young bulls ready for service. Sired by Japs Perfection Owl. Out of cows with Register of Merit records. Also a few heifer calves.
GUY H. MILLER
Route 1 - Modesto, Cal.

Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
W. J. Hackett
Modesto Cal.

We Announce the Purchase of Merci Lad Korndyke Burke
Grand Champion California State Fair—1920. Formerly head of the Santa Anita (Baldwin) herd. His oldest tested daughter, a junior 4 year old has 30.76 lbs. butter from 618.00 lbs. milk HIS DAM IS ONE OF FOUR COWS IN THE WORLD WITH 31,000 lbs. milk and 1,200 lbs. butter in 1 year.
Her sire, a son of the first 34 lb. cow, world record holder for eight years and head of three combinations of four direct generations of 30-lb. cows. Only one other such combination ever produced.
Los Angeles County Farm
Hondo, California

USE SHIRE HORSES
Breed your mares to Shire Stallions, good Shire Geldings are in demand. Get some registered Shire Mares.
Shire owners, record colts young, fees are double after one year old. Prepare Shires for fall shows, premiums are very liberal this year. For information on Shires write
W. G. Lynch, Secretary, American Shire Horse Association, Tonica, Illinois.

$35 to $600
2 and 4 Wheeled
Auto Trailer Co.
1320 Central Ave.
Los Angeles

Hollow-Hill Guernseys Sell Well

The increasing interest in Guernsey cattle in California was evidenced in the numerous inquiries for catalogs and the large crowd assembled to attend the dispersal of one of the good Guernsey herds of the state at Hollow-Hill Farm, Colton, on April 28.

The Hollow-Hill herd was established eight years ago and the foundation stock was among the best that could be obtained. During its existence it has been widely advertised through the wonderful quality of the milk it produced, through its show ring winnings and through the high records of production which have been made there.

The dispersal sale of these animals was the first real Guernsey sale ever held in the state. As in all dispersals there were a number of old cows which have done their duty by the breed, a lot of young calves which are not yet ready for business and 18 bulls. The strange feature was that the bulls were snapped up in short order and as many more could have been sold had they been available. The 18 bulls averaged $373 and a lot of them were not yet of service age. The lowest price was for a three weeks old calf who sold for $100. The older bulls did not bring their value but the yearlings sold well.

The 33 females averaged an even $500. The 20 cows averaged $515 and the 13 heifers $477. The top female and top of the sale was the great cow, Imp. Cherry III of the Effards with a four year old record of 15,567.6 pounds of milk and 735 pounds of butter fat in a year. She is also a show cow and has twice been grand champion of the Southern California Fair at Riverside. She was purchased by Mrs. Hulda Wessels for her ranch at Chino. Mrs. Wessels is the wife of a prominent doctor of San Diego and has purchased some very choice Guernseys in the past few months. D. O. Brant of Owensmouth was the runner-up on this cow but quit at $1,300 and allowed Mrs. Wessels to have her for $1,325.

The University of California was represented by Profs. Miller and Thomson who bid on all the good ones. They purchased the show cow Imp. Dene Jewel and the young bull Anger Langdon of Hollow-Hill Farm for use at the university farm. The professors were anxious to have the yearling heifers Jewel Langdon and Brittania E. King but their allowance could not beat the bid of Jas. Gannon of New York City who paid $1,000 and $900 respectively for the two.

San Diego County was represented by Walter H. Dupee who took seven animals, four of them heifer calves; Dr. J. A. Woodside who bought the state champion of the BB division, Rebecca of Sunnyview, and two others; B. F. Naylor, Dr. and Mrs. Wessels and Russell S. Cox of San Marcos, all purchasers. Imperial County was also there in force and a number of fine animals went to this rejuvenating dairy section.

The total for the 51 animals was $23,495. The sale was a fine tribute to the efficiency of Chas. L. Hughes and Col. Ben A. Rhoades of the California Sales and Pedigree Company, who handled it.

BULLS

1, Effie's King of Hollow-Hill Farm, Oct., 1916; Adamson Corporation, Los Angeles, $700.

4, Reuben Langdon 2d of Hollow-Hill Farm, Feb., 1921; James Harwick, Santa Barbara, $250.

5, Reuben King of Hollow-Hill Farm, Feb., 1919; Adamson Corp., $575.

8, Rosa's E. King of Hollow-Hill Farm, Aug., 1920; Raitt Dairy, Inc., Santa Ana, $260.

9, Anger Langdon of Hollow-Hill Farm, Mar., 1919; University of California, $710.

10, Angus King of Hollow-Hill Farm, Mar., 1920, Loring Farnum, Ojai, $610.

19, Topper Langdon of Hollow-Hill Farm, Apr., 1918; Graham & Paggi, San Fernando, $375.

24, Prime E. King of Hollow-Hill Farm, June, 1919; Hinkley Livestock and Dairy Association, Hinkley, $410.

26, Doult Langdon of H. H. F., Apr., 1920; A. Dinsmore, El Monte, $335.

28, Lyman E. King of Hollow-Hill Farm, Aug., 1919; W. J. Tench, Mentone, $275.

30, Mont Langdon of H. H. F., Dec., 1919; Albert von Deist, Redlands, $350.

40, Mathew Langdon of H. H. F., Dec., 1920; C. M. Kirkpatrick, Riverside, $160.

42, Riley Langdon of H. H. F., Dec., 1920; W. E. Edmundson, Puente, $225.

41, Rilma's May King, Nov., 1919; W. W. Cochran, Van Nuys, $235.

44, Ross Langdon of H. H. F., July, 1920; Geo. A. Jones, Sierra Madre, $325.

45, Azucena's Penrod, Nov., 1919; W. H. Dupee, Santee, $475.

47, Bert E. King of H. H. F., Aug., 1919; Adamson Corporation, $360.

FEMALES

2, Imp. Cherry III of the Effards, Mar., 1912, B., 735.3 lbs.; Andrew D. Wessels, San Diego, $1,325.

3, Rebecca of Sunnyview, July, 1914, BB., 647.86 lbs.; J. A. Woodside, Santee, $700.

6, Imp. Angerosa III, Apr., 1912, AA., 538.08 lbs.; W. H. Dupee, $600.

7, Rosa King of H. H. F., Feb., 1917; G., 478.51 lbs.; E. R. Burroughs, Van Nuys, $625.

11, Imp. Dene Jewel, Aug., 1912, A., 589.16 lbs.; University of California, $635.

12, Jewel Langdon of H. H. F., Apr., 1920; James Gannon, Great Neck, Long Island, N. Y., $1,000.

13, Dena Langdon of H. H. F., Aug., 1920; W. H. Dupee, $390.

14, Ledyard's Pansy, June, 1913; Geo. De Vries, East Highland, $500.

15, Princess Madora, Nov., 1910; George De Vries, $350.

17, Glen's Lady, Aug., 1914; Russell D. Cox, San Marcos, $275.

18, Lady Langdon of H. H. F., May, 1917; Raitt Dairy Co., $325.

20, Topsy Langdon of H. H. F., Apr., 1919; W. E. Bush, Corona, $410.

21, Twilight of Glenfields Springs, May, 1914; Italian Vineyard Co., Guasti, $300.

22, Twilight Langdon of H. H. F., June, 1920; F. B. Naylor, San Diego, $385.

23, Primrose of Neshannock, Sept., 1914; F. B. Naylor, $450.

25, Rosa's Pride of Neshannock, Oct., 1915; James Marwick, $475.

27, Lady's Diamond of Elmcourt, June, 1913; A. A. Cook, Brawley, $415.

29, Imp. Nora of Mont Val, Apr., 1911; George De Vries, $410.

31, Patrician Nelly II, May, 1907, AA., 376.88 lbs.; J. A. Woodside, $450.

34, Lady Rilma, J. A. Woodside, $400.

35, Iva of Belmath II, Nov., 1912, A., 495.71 lbs.; Howard Farnsworth, El Centro, $495.

36, Tritoma's Lady Ida, Mar., 1919; J. A. Hamner, Riverside, $650.

37, Selma E. King of H. H. F., Sept., 1920; W. H. Dupee, $350.

38, Nina of Belmath, Sept., 1912, C., 361.91 lbs.; A. A. Cook, $295.

43, Lolita of Fairview, Apr., 1915; W. H. Dupee, $550.

46, Fan Langdon of H. H. F., Oct., 1920; W. H. Dupee, $360.

48, Azucena Langdon of H. H. F., Oct., 1920; W. H. Dupee, $310.

49, Della T. Langdon of H. H. F., Oct., 1920; Pauline E. Tench, Mentone, $245.

50, Nesha E. King of H. H. F., Feb., 1919; Anselm Grieve, Inglewood, $475.

51, Carolina Langdon of H. H. F., July, 1917, G., 473.37 lbs.; E. R. Burroughs, $650.

52, Brittannia E. King of H. H. F., Apr., 1920; James Gannon, $900.

53, Violet of Locust Hill, July, 1909, A., 594.16 lbs.; Italian Vineyard Co., $400.

Santa Anita Holstein Sale

The first individual public sale by Santa Anita Rancho, owned by Anita M. Baldwin, Santa Anita, on April 26, resulted in a fair average of prices, and attracted a crowd of over 500 that taxed the capacity of the well arranged temporary sale pavilion.

The offering was characterized by the two extremes of the herd as regards ages, the oldest animals and many of the youngest. In a number of notable instances the matter of age on high record cows was reflected in the prices, and as a consequence many unusual bargains fell to various purchasers.

The offering was absorbed by 28 separate buyers, all in Southern California, and the distribution of these good cattle should have a most favorable influence on future drafts at public sale from this excellent herd.

Superintendent Charles McDonald had only been on the ground about 24 hours after winding up his duties at Toyon Farm, but had the arrangements planned so that everything was ready when the opening hour for the sale came around.

The 26 cows and bred heifers averaged $482, the 17 heifer calves averaged $251, and the nine bulls averaged $223, making a general average of $362 for 52 head.

The sale was managed by C. L. Hughes, California Breeders Sales and Pedigree Co., Sacramento, with Col. Ben A. Rhoades, Los Angeles, on the block.

Following is list of individual sales:

FEMALES

3, May Altoona Pontiac, Jan., 1914, 34185 lbs.; Fred Hartsook, Lankershim, $1,000.

GOMBAULT'S
CAUSTIC BALSAM
The Perfect Liniment
For External Use on
The Human Body

It is astonishing how quickly Caustic Balsam relieves Stiffness and Lameness, Rheumatism, Neuralgia, Strains, Sprains, Lumbago, Backache, Sore Throat, Chest Cold, Stiff Joints, etc.

Serious results through Blood Poisoning are liable from scratches, cuts or wounds from rusty nails or other metal. This great remedy applied at once will prove a preventive, is a perfect antiseptic, soothes while it heals. *What it has done for others it will do for you.*

Write us for any information desired. $1.75 per bottle at druggists or sent parcel post on receipt of price.

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WE CONDUCT SALES OF REG. DAIRY CATTLE GRADE CATTLE GEN. FARM SALES in all parts of Calif. and adjoining States.
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ANIMAL INDUSTRY DEPARTMENT OF
PARKE, DAVIS & COMPANY
DETROIT, MICH.

BREEDING DATE BOOK---FREE
We have issued a convenient little book for the keeping of breeding dates of cattle, hoping to aid the breeder and cattle owner in maintaining accurate records. We will gladly mail you a copy free if you request it. A postal will do.
CALIFORNIA BREEDERS SALES AND PEDIGREE CO.
C. L. Hughes, Sales Manager
Sacramento Cal.

TIM ANSPACH
Livestock Auctioneer
30th & R Streets. Sacramento, Cal
Write or Wire for Sales Dates

When writing advertisers, mention the Cultivator.

4, Molly Woodcrest Pontiac, Dec., 1913, 26.03, 2 yr.; Fred Hartsook, $1,000.
5, Marken Louise, Oct., 1914, 35.5 lbs., 6 yr.; M. P. Christensen, Norwalk, $625.
6, Sundrie Sunbeam Girl, Mar., 1911, 1,033.74 lbs., 10 yr.; Fred Hartsook, $700.
7, Anoakia Lyons Butter Boy, Sept., 1916, 22.10 lbs., 3 yr.; Fred Hartsook, $600.
8, Mutual De Kol Johanna, Jan., 1913, 27.95 lbs., 7 yr.; Fred Hartsook, $625.
9, Anoakia Princess Mutual, Nov., 1921; F. F. Pellisier, Whittier, $385.
10, Mutual Christmas De Kol, Dec., 1914, 24.34 lbs., 7 yr.; C. L. Ostergard, Hyde Park, $460.
11, Anoakia Princess Mutual Christmas, Feb., 1921; F. M. Schnabel, Artesia, $190.
12, Abbie Korndyke Segis, Dec., 1911, 27.16 lbs., 8 yr., Fred Hartsook, $400.
13, Anoakia Alcartra Segis, June, 1916, 22.20 lbs. 4 yr.; Burr Farm, Los Angeles, $385.
14, Anoakia Segis Butter Boy, Feb., 1919; M. P. Christensen, $325.
15, Anoakia Segis Mead, Jan., 1916, 16.62 lbs., 4 yr.; C. C. Stafford, El Monte, $350.
16, Anoakia Walker Korndyke, Feb., 1919; J. C. Broady, Palm City, $435.
17, Anoakia Princess Walker, Jan., 1920; Fred Hartsook, $500.
18, Anoakia Korndyke Cornucopia, Mar., 1919; Herbert J. McDade, Altadena, $375.
19, Anoakia Merci Creetia, May, 1920.; N. G. Helm, Arcadia, $285.
20, Anoakia Hiske Cornucopia, April. 1920; J. D. Jackman, Artesia, $350.
21, Mabel Aouda, Dec., 1911, 29.78 lbs., 9 yr.; Dr. Verdo B. Gregory, Hemet, $700.
22, Lily of Bloom 2d, Dec., 1911, 27.64 lbs., 4 yr.; C. L. Ostergard, $275.
23, Anoakia Princess Lily; Carl Ray, Lankershim, $150.
24, Day Beauty De Kol of Windsor, Aug., 1910, 28.40, 8½ yr.; Dr. Verdo B. Gregory, $310.
25, Anoakia of Riverside, Apr., 1918, 19.00 lbs., 2 yr.; L. S. Pratt, Long Beach, $525.
26, Anoakia Pontiac Beets, Nov., 1915, 25.15 lbs., 4 yr.; J. C. Broady, $500.
27, Anoakia Pontiac, Oct., 1916, 19.15 lbs., 3 yr.; Carl Ray, $500.
29, Anoakia Princess Pontiac Walker, Mar., 1920; Carl Ray, $235.
30, Anoakia Alcartra Johanna De Kol, July, 1916, 22.29 lbs., 4 yr.; J. C. Broady, $310.
31, Anoakia Alcartra Walker, Nov., 1919, H. J. McDade, $285.
34, Anoakia Pontiac Burke Segis, Feb., 1917; R. Zangle, Bellflower, $460.
35, Anoakia Princess Pontiac Segis, Feb., 1920; F. F. Pellisier, $255.
36, Anoakia Moorland Creamelle, July, 1919; P. R. Penrose, Pomona, $440.
37, Anoakia Princess Cedarside, Jan., 1920; Fred Hartsook, $285.
39, Anoakia Princess De Kol Burke, Mar., 1920; V. R. Barlow, El Monte, $180.
40, Anoakia Princess Korndyke, Jan., 1921; Fred Hartsook, $325.
41, Anoakia Princess Mead, Feb., 1920; V. R. Barlow, $205.
42, Anoakia Terpstra Korndyke, Mar., 1917, 14.30 lbs., 3 yr.; R. Zangle, $335.
43, Anoakia Terpstra Walker, April, 1919; Josh L. Wilson, Lamanda Park, $310.
44, Anoakia Princess Terpstra, April, 1920; R. Zangle, $180.
45, Arcadia Hillview De Kol, Mar., 1920; L. G. Helm, $210.
47, Anoakia Queen Beets, Feb., 1920; Carl Ray, $275.
48, Mechtilde Louise of Riverside 2d, June, 1912, 22.92 lbs., 4½ yr.; L. S. Pratt, $225.

BULLS

1, Merci Lad Korndyke Burke, Dec., 1913; Los Angeles County Farm, $425.
2, Prince Walker Cornucopia, Feb., 1917; F. F. Pellisier, $425.
57, Prince Walker Cornucopia 32d, Nov., 1920; G. Gustafson, Hynes, $250.

PROTECT RANGE ANIMALS FROM POISONOUS PLANTS

Estimates made in many localities indicate that the average loss of range animals as a result of feeding on poisonous plants is as great as three to five per cent, while in some range states the percentage is much higher. In Colorado it is estimated the losses amount to $1,000,000 annually, while sheep raisers in Wyoming have placed their annual loss as high as 14.6 per cent of their flocks. Specialists of the United States department of agriculture point out that these losses, to a large extent, are of mature animals ready or nearly ready for market, and for the rearing of which large sums have been spent.

It is especially important for stockmen in range states to become familiar with poisonous plants, particularly in the spring when the stock crave green food and when in some cases poisonous plants offer the only green forage that is available. Department Bulletin 575 of the United States department of agriculture, Washington, D. C., tells how to identify many of the plants that have caused thousands of animals to sicken and die. This bulletin contains numerous colored pictures of the plants and is obtained from Superintendent of Documents, Government Printing Office, at 50 cents each. It also gives methods of treatment for animals poisoned through eating such plants. The bulletin aims to give help of such a nature that scientific knowledge will not be necessary in making use of the information contained.

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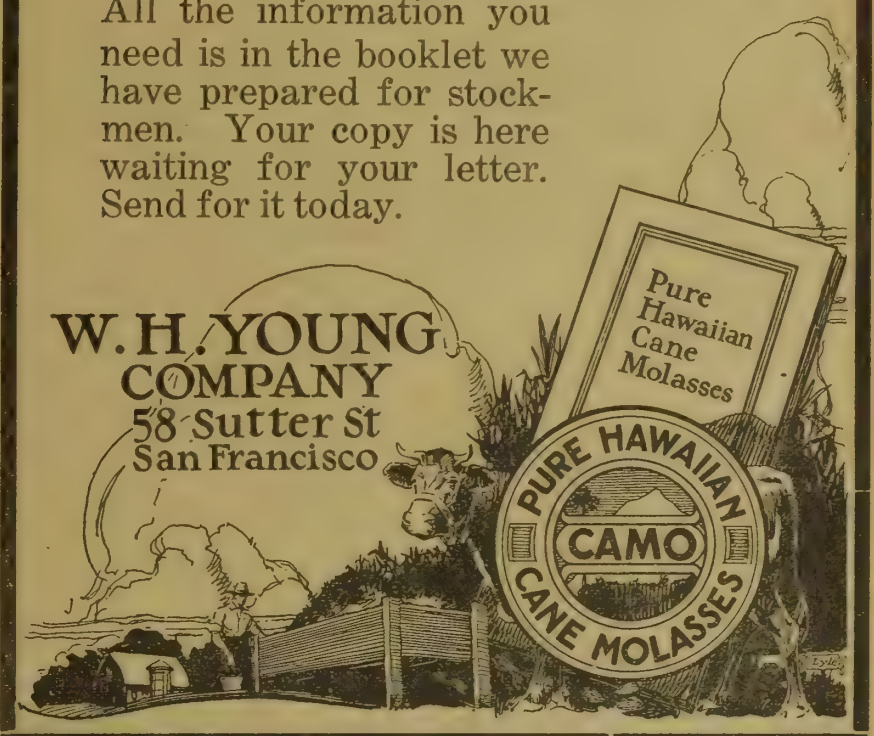

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and get started in the hog business. A few extra good yearling gilts, either open or can be bred to California Orion King or King Cherry Orion, a pair of proven herd boars that are unequaled in any herd in the West. Satisfaction or your money back. BETTER DUROCS AT REASONABLE PRICES
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POULTRY

Baby Chicks—You are looking for the largest returns for your "Baby Chick Money." To get this you want chicks that will live, have vitality and will produce. Our Anconas are all from first class Hoganized stock. The White Leghorns are all mated to roosters from trapnested stock of 229 eggs or better. Now we also have especially good layers in the R. I. Reds, Fancy Dark Reds, Fancy Anconas and Barred Rocks. Our stock will produce the eggs. We have as well an equipped hatchery as there is, and know how to hatch strong sturdy chicks. May and June prices on White Leghorns are $16.00 hundred, $150.00 thousand. Anconas, R. I. Reds, Barred Rocks, $19.00 hundred, $180.00 thousand. Fancy Dark Reds and Fancy Anconas, $24.00 hundred. All chicks are sent Prepaid by Special Delivery Parcel Post. Can give immediate delivery, or will return your money at once. ORANGE COUNTY HATCHERY, Santa Ana, California.

Petaluma Hatchery. Established 1902. Capacity 30,000 chicks a week. White Leghorn chicks from heavy laying free range stock after May 15th, 15c each, $13.00 per 100, $120.00 per 1,000. Brown Leghorns one cent more than White Leghorns. We positively guarantee safe arrival and full count of good strong chicks and no questions asked. L. W. Clark, Proprietor, 615 Main Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from heaviest laying (hoganized) stock. Safe delivery; live vigorous chicks guaranteed. No money in advance; pay on delivery. Price from May 15 to June 30 $3.50 per 25, $7.00 per 50, $12.50 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh St., Petaluma, California.

Hillview Buff Plymouth Rocks — An American bird for Americans. Splendid layers, fine broilers and fryers, beautiful in color, the ideal for the farm, city lot or show room. Blue ribbon winners 1920 in Oakland, Riverside and San Diego shows. **Eggs for hatching from our best matings** $5.00 per setting of 15, commercial eggs $3.00 per setting. Hillview Poultry Ranch, Chatsworth, California.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

White Leghorn Baby Chix for May and June delivery from heavy laying, Hoganized stock. Safe arrival of full count, live, strong chix guaranteed. $12.50 per hundred; $120 per thousand. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks—"Only the best," May and June delivery. White and Brown Leghorn, R. I. Reds, Barred Rocks. Safe arrival guaranteed. All vigorous chicks from good layers. Send for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67-D, Palo Alto, California.

Baby Chicks from My Hoganized, heavy laying strain of pure bred S. C. White Leghorns. May and June delivery, at the very reasonable price of $13.00 per 100, $60.00 per 500. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. Eggs from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

Baby Chicks hatched to order from Black, White and Buff Minorcas. Eggs for sale. Also 4 White Minorca Cockerels $5.00 and $10.00 each. Black Cochin Bantam Eggs. Horace W. Crowell, 58 N. Craig Avenue, Pasadena, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Exhibition Quality Reds, Hatching Eggs, half price. Pen one, exceptional layers and plumage now $5; pen two, $2.50. Orders filled in rotation. T. S. Caldwell, 335-B West Broadway, Glendale, Calif.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California.

Hoganized Rhode Island Red Eggs for hatching, $2.00 for 15 or $10.00 per hundred. Maud Beeching, 1578 W. 46th St., Los Angeles, California.

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

For Sale—White Wyandotte eggs, $2.50 per 15, $9.00 per 100. Mrs. Flora Cox, Anaheim, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

POULTRY

THE MISSION HATCHERY
Reduced Prices May-June Chicks

Utility White Leghorns 11c, select stock heavy laying strains White and Brown Leghorns 13c, Buff Leghorns 14c, R. I. Reds 16c, Black Minorcas, Barred Rocks, White Rocks 17c each; by hundred or more. One cent extra in smaller lots. Insured, parcel post shipments 50c per hundred extra. Quality Chicks from first class breeding stock. Send your orders at once for prompt delivery. THE MISSION HATCHERY, Box 27, Campbell, California.

Annual Sale — Chicks, Eggs, Pullets, Breeders. Most profitable season for buying, everything reduced. Chicks grow quickest into layers; eggs hatch best; time yet breeders clear their low cost. Get Best for Less! Our early maturing, heavy winter laying 180-290 egg Leghorns, Reds, Anconas, Rocks, Minorcas, Wyandottes, Andalusians, Ducks (turkeys) often clear customers $5. 140,000 electrically hatched. Write, Profitable Poultry, 19 North Fair Oaks, Pasadena.

Booking Orders For Eggs from our wonderful utility and prize stock of Bronze turkeys, geese, Pekin ducks, Muscovy ducks, White King pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, guineas. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

Chicks — Eggs — Hoganized White Leghorns, Brown and Buff Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks, Anconas, Blue Andalusians. Free circular. Order early. McDonald Poultry Ranch, King Road, San Jose, Calif.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

"Watch Us Grow" Baby chicks. We are now booking orders for May and June at reduced prices: White and Brown Leghorns, R. I. Reds, Barred Rocks, Anconas and White Wyandottes. E. W. Ohlen, Campbell, California.

For Sale—Baby chicks every week. Barred Rocks, R. I. Red, Black Minorcas, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jesch, Fallon, Nevada.

MISCELLANEOUS

For Sale—Used Fumigating Tents
13-62 and 64 ft.
15-54 ft.
18-46 ft.
We have contracted to have our fumigating done by another party, so have no further use for these tents. Prices very reasonable. Charles C. Chapman Ranch Fullerton, California.

For Sale—Orchard Heaters at a Bargain. 6,000 6-gallon Huntoon orchard heaters complete. 500 Hislop orchard heaters complete. These heaters are as good as new never having been lighted. Will sell all or any part of same at greatly reduced prices. Write or call. Charles C. Chapman Ranch, Fullerton, California.

Ship Your Hay to Us and receive cash when car is unloaded. Pacific Growers Exchange, Central Bldg., 6th & Main Sts., Los Angeles. Pico 3384. Alex. Thornton—Gordon Davidson.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

WANTED

Herdsman — Made world records. Life long experience with Holstein cattle. Open for position where A. R. O. work is done. Best of reference. Give full particulars in first letter. Address Box G, California Cultivator, 112 Market Street, San Francisco, California.

Want To Hear from party having farm for sale. Give particulars and lowest price. John J. Black, 116th St., Chippewa Falls, Winconsin.

Agents Wanted—Benedict Nursery Company, 185 East 87th St., N. Portland, Oregon.

Wanted Poultry and Eggs. Shippers write for our cash prices. C. W. Bedford, Santa Barbara, California.

Milking Machine Operator, years experience open for engagement. Dane, City Hotel, Los Angeles.

SEEDS AND PLANTS

For Sale—Celery, Golden Self Blanching from seed bed $1.00 per 100; Stone tomato, 80 cents per 100; Anaheim, Pimento and Bell Peppers $1.50 per 100; Egg Plants $2.00 per 100; Dry Weather Cauliflower $1.00 per 100; Winningstadt Cabbage 70 cents per 100. Reduced prices in larger quantities. Strong and healthy stock. J. M. Chacon, 4431 Hawthorne Street, Los Angeles.

Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch —767 S. Central Avenue, Los Angeles, Cal.

R*O*S*E*S—$1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue KAVAN NURSERIES, San Bernardino, California.

For Sale — Loganberry plants, 30,000 tips, 10,000 2 year old plants. Immediate delivery. W. E. Archambeau, Sutherlin, Oregon.

Napier Grass Rooted Plants postpaid. Second zone 35, third and fourth 30 $1.00. Tinel, Yucaipa, California.

For Sale—Sweet potato plants, $4.00 a thousand f. o. b. Santa Ana. H. Beatty, Rd. 3, Santa Ana.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination. 25c per lb. Aurora Seed Mill, Stockton, California.

FARM LAND FOR SALE

FOR SALE
Seven Acres and a Bungalow. Hardwood Floors, Electric Range, Kewanee Water System

$16,500—Located 3 minutes' walk from the station in a high-class neighborhood, we have for sale 7 acres in bearing orchard, 4 acres Blenheim apricots, 10 to 12 years old, 2½ acres French prunes, 4 and 5 years old; has a fine modern bungalow of 5 rooms, modern plumbing, hardwood floors, open fireplace, electric lights, also an electric range; there is a domestic Kewanee water supply with high pressure storage tank; complete set of outbuildings, garage, room for help, stable and a new modern poultry plant with capacity for from 1,200 to 1,500 chickens, tools, incubators, farming implements, etc., go with the place.

$30,000—100-acre dairy ranch located near Mountain View. The place is all fenced and cross-fenced, and divided into several fields. There is a good modern dairy barn with stanchions for 60 cows, also milk house, garage, hay barn, and other outbuildings. There is a 7-room dwelling which is now vacant and ready for occupancy. Terms of payment can be arranged, and a purchaser can get immediate possession.

$20,000—17 acres of creek bank sediment soil, planted as follows: 9 acres in bearing peaches, 6 acres in bearing apricots, and 2 acres dry ground and building site. This is a remarkably good producing orchard — it paid net and clear of all expenses the last 3 years: in 1918, $2,099.01; in 1919, $3,153.33; in 1920, $3,351.83. The income for 1918 and 1919 represents the peach crop only, as the apricots were not in bearing until 1920. 400 fruit boxes, 500 drying trays, and 4,000 tree props go with the place. This property is owned by non-resident partners who have interests in other parts of the state that need their attention; hence this low price. Terms of payment can be arranged.

$25,000—20 acres, located near Mountain View, in a good neighborhood. 10 acres in bearing orchard and 10 acres in four-year old French prunes. Has a good residence of 7 rooms with the modern conveniences, good plumbing, electric lights, etc. Complete set of outbuildings, barn, garage, cottage for help; poultry, horses, farming implements and equipment go with the property. Can be bought on terms.

A HIGH-CLASS DAIRY PAYING NOW OVER $1,200 A MONTH

We have for sale a fully equipped modern dairy now stocked and running and producing over $1,200 a month from the sales of milk alone. Consists of 80 milch cows, 15 heifers and springers, 3 pure bred Holstein bulls and 6 calves. The dairy is on a 160 acre leased ranch. The lease has 5 years to run, and the ranch is equipped with a complete set of buildings, including a 7-room dwelling, cottage for help, modern dairy barn with milking machines, separators, etc. There are 40 acres in alfalfa. Complete set of farming implements, four work horses, two driving horses, etc., go with the place. Price $17,000. Rigid investigation invited. This property is offered for sale for the reason that it is owned by partners who wish to dissolve the partnership.

WILLIAM P. WRIGHT
Mountain View, Santa Clara County California

For Sale—110 acre foothill ranch in Mariposa County, 15 miles from county seat, 3 miles from store and postoffice and 1 mile from good school. This land is situated 1 mile from the main road to Yosemite Valley. Good road to place. 17 acres under cultivation, 4 of which is fine black loam suitable for garden truck, and can be irrigated from spring which runs the year round. Sixty acres more can be cultivated by some clearing. Balance fine grazing land with free range on forest reserve adjoining property. 100,000 feet good yellow pine saw timber, 5 living springs on place. An excellent place for a man who wants to go in the hog, cattle or sheep business. $1,650 cash or half cash down and balance on terms to suit. Jim Fulmer, Wawona, California.

CALIFORNIA IRRIGATED LANDS
Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

For Sale—20 acres, Hemet, in bearing apricots, peaches, 2½ acres alfalfa, modern 5 room bungalow, gravity water, on boulevard. Special price $19,000, terms third cash, balance 3½ years, 6 per cent. Address Box 284, Hemet, California.

Akey & Skaggs, San Jose, California, Minute Men Realtors. Santa Clara Valley ranches a specialty. See us for anything.

For Sale — 60 acres, King County delta land. Good for alfalfa, corn or general farming. Fine for dairy and hogs. $110.00 per acre. H. M. Nelson, Armona, Calif.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

LIVESTOCK

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

For Sale—5 Toggenburg does—all registered—six and eight quart milking stock. $35.00 and up. Must be sold at once. 823 West Avenue 64, Los Angeles.

Milk Goats, some registered, prices $15 to $30. Francis Rudkin, Fillmore, Calif.

White Rats—fifty cents pair. Smith, Route 1, Box 139, Pasadena.

RABBITS

Pedigreed Fleming Giants — Also Utility stock. No fancy prices. MAUD BEECHING, 1578 W. 46th Street, Los Angeles, California

Guinea Pigs Wanted, highest price paid. Smith, Route 1 Box 139, Pasadena.

PHEASANTS

Chinese Ringneck Pheasant Eggs. Orders filled immediately $3.00 per setting. El Nido Pheasantry, Fairoaks, California.

TREES

Avocados—I have a limited number of fine trees nicely balled and well established from two to six feet in height which I am offering for from two to three and a half dollars each. Fuerte, Linda, Puebla, Sharpless, Ganter and No. 2. Yearling Valencia trees 75c balled and guaranteed. A. R. Rideout, Rideout Heights, Whittier, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California, Phone 572W

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225

5,000 Valencias; 2,000 Eureka lemons; 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

It's Not Too Late for Planting Vines—4 kinds cheap. 5000 No. 1 Muscats, Trees, Plants, Farm and Garden Seeds. Sudan, Cane, Egyptian Seed Corn. Hay in carloads. Box 501, Fowler, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Budded Avocado Trees. Write for special prices for orchard planting. S. & S. AVOCADO NURSERY CO., 15 North Raymond Ave., Room 6, Pasadena, Calif.

200 Late Valencia Orange Trees balled certified buds—inspector's certificate—to close out at $75.00 per 100. Los Nietos Valley Nursery, Downey, California.

Florida Sour Seed Bed Trees, six to sixteen inches high, straight roots, stocky trees. L. A. Tuttle Nurseries. Route 1, Pasadena.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

MACHINERY

Owing to Illness Have Had to Give Up my farming interests and will dispose of my equipment, consisting of a Trundaar tractor, ¾ gauge Moline engine disc plow, 6 ft. Moline double disc harrow, 4 row Ventura bean planter, 2 row Planet Jr. bean cultivator, No. 26 American bean thresher, 2 100-gal. gasoline tanks and 2 50-gal. oil tanks. No reasonable offer refused. J. B. Reeve, 429 West Amerige Ave., Fullerton, California. Phone Pacific 523-W.

For Sale 50 rebuilt windmills,
50 new and used tanks,
50 brass cylinders, rods, plunger pumps 1-in. to 30-in. capacity.
Why pay more? When you can save so much these times. Send for bargain sheet. Demmitt Co.'s. Office 120 North Main, Los Angeles. 15191.

Sorghum Syrup Mill For Sale. Three roller. Fully equipped. Also one or two copper evaporating pans. Priced right. We are enlarging plant and have no further use for same. HUGHSON SORGHUM SYRUP COMPANY, Hughson, California, Stanislaus County.

For Sale—Six ton ice machine. Complete with tank and cans for freezing 75 pounds. Also bottle washer, Chilly King cooler, stanchions and other dairy supplies. Priced right. Hollow-Hill Farm Colton, California.

For Sale—24 inch Acme ensilage cutter good condition, and 40 feet blower pipe Arden Dairy, El Monte. Phone El Monte 42.

For Sale—Byron Jackson No. 6 vertical centrifugal pump complete with frame, shafting, suction and discharge pipes. J. F. Roe, Anaheim. Phone 37J3.

For Sale—Pomona pump, 28 head, nearly new. Clarence Wagner, Terra Bella, California.

For Sale—Brand new Spry Wheel garden cultivator and equipment. R. G. Nichols, Arcadia.

For Sale—Killefer double disc 8 foot in very good condition. Price reasonable Helena Orchards, Fullerton, California.

TURKEYS

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St., Pomona, California.

Mammoth Bronze Turkey Eggs, 30 cents. W. L. Duvall, Pomona, California.

ROOFING MATERIAL

Roofing Paper Firsts. Complete
1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35.
Outside Bungalow Paint, $2.25 a gal.
Roof Paint Special, 40c a gal.
Prompt deliveries on Mail Orders.
ANGELUS ROOFING & PAPER CO.
764-766-768 So. San Pedro Street.
Phone Bdwy. 5401 Los Angeles, Calif.

DUCKS

Caldwell's White Muscovy (quackless) ducks. Win, weight, lay and pay. Egg ducklings. Free circular. Caldwell Duck Ranch, Box 274, Los Angeles.

Mammoth White Pekin Duck Eggs for hatching. $1.00 per dozen. A. Surtman, Petaluma, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

CATTLE

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome. Information cheerfully given. T. T. Miller, Hollister, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

For Sale—50 head of Hereford steers, one year old, and 10 head of Hereford bulls coming 3 years old. H. F. Bergman, Aguanga, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

BERKSHIRES

ANCHORAGE FARM BERKSHIRES

Orland, California.

BRED GILTS FOR SALE.

Grape Wild Farm—Berkshires, Guernseys, Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

POLAND-CHINAS

Registered Poland Chinas. 40 tried brood sows; 40 gilts. Some choice young boars all at reduced prices to move at once. These Polands are as good as can be had anywhere at any price. W. D. Trewhitt, Route B Box 47, Hanford, Calif.

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California

Big Type Poland Chinas—Breeding stock of both sexes for sale at all times. Prices reasonable. J. N. Cook, Orland.

HAMPSHIRES

Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

FRUITS AND NUTS

(Continued from Page 647.)

than there was at the beginning of the century. The necessity therefore, of the daily food containing a generous proportion of fresh fruits is emphasized, if for no other reason than to prevent a one sided diet. This alone should class fruits as a food essential and not a luxury.

The high nutritive value of fruits is further emphasized by the very recent work of Osborne and Mendel on the vitamine content of fresh fruits, the summary of which studies is given herewith:

Water-Soluible Vitamine in Fruits

"The fresh juices of the edible parts of the orange, lemon and grapefruit contain water-soluble (B) vitamine. Their potency in this respect is quite similar to that of comparable volumes of cow's milk. The efficiency of these fruit juices is not lost by suitable modes of desiccation. A sample of grape juice tested was less potent than equal volumes of the fruit juices just mentioned.

"The edible portions of apples and pears furnish some water-soluble vitamine; the quantity of these fruits necessary to supply this dietary essential is relatively very large so that from a comparative standpoint they cannot be regarded as rich in this food factor. Prunes apparently are richer in the water-soluble vitamine.

"From preliminary experiments it seems doubtful whether the juices of the lemon or grapefruit contain more than traces, if any, of the fat-soluble vitamine. Our preliminary observations upon orange juice are indicative of some potency in this vitamine.

"The experiments with fruits place the dietary value of these foods, hitherto recommended because of their salt content, their laxative properties, or their anti-scorbutic potency, in a new light as sources of water-soluble vitamine."

The citrus fruits, especially the orange and lemon, have been administered as anti-scorbutics for about three centuries. The reason, however, for this property of the fruit was not known until the work of Funk, Osborne and Mendel and others disclosed the fact that the vitamines in these fruit juices were responsible for their therapeutic value. It may be of interest in passing to note that preserved lime juice, however, has practically no anti-scorbutic effect whatever and that fresh lime juice is relatively ineffective. It is the lemon which is so valuable as an anti-scorbutic and has at least four times the value of fresh lime juice as an anti-scorbutic. Oranges and lemons rank equally in this respect. Late investigations have also conclusively shown that the juice of citrus fruits may be dried quickly at low temperatures under reduced pressure, and the dried product be administered in a very effective way as a cure for scurvy, etc. The dried product retains its anti-scorbutic property for upwards of three months.

The practical bearing of the foregoing is that it should be possible to save a large amount of fruit juice hitherto wasted through the inability to profitably dispose of culls and other non-marketable citrus fruits.

Another addition to our knowledge of fruits and their composition is the work in 1917 of the bureau of chemistry, U. S. D. A., on the acid content of fruit. A summary of this study is given in the following statement:

Apple, malic only. Banana, probably malic only. Cantaloupe, malic, none—probably all citric. Cherry, malic only. Cranberry, citric probably predominates—malic also present. Currant, citric probably predominates — malic sometimes present. Gooseberry, malic and citric. Peach, probably malic only. Pear, malic only in some varieties; citric probably predominates in others with small amounts of malic. Persimmon, probably malic only. Plum, malic only. Pomegranate, probably all citric—no malic or tartaric. Quince, malic only—no citric. Raspberry (red), probably citric only—malic, if present, in traces only. Watermelon, malic, no citric.

It will be noticed from the above that malic acid is the predominating acid. The citrus fruits are not listed for the reason that it has long been recognized that citric acid is the acid of the orange, lemon, grapefruit, etc.

Nutritional studies on nuts carried on during the past three and a half years confirm the statements made in the opening paragraphs regarding the digestibility of nuts and, furthermore, greatly add to our knowledge of the value of this food. Three of these studies are specially worthy of mention: The investigations by Hoebler on problems in connection with collection and production of human milk. The investigations by Cajori on the nut protein and vitamine contents of nuts. The study by Holmes on the digestibility, by man, of protein supplied by soy bean and peanut press cake flours.

(Continued next week.)

The California Olive Association has awarded prizes for the best Olive Day window displays, $50 being given for the photograph of the best windows in Southern California and north of Tehachapi. The judges found considerable difficulty in picking the winner in the south owing to the close competition between the window of Hamilton's Grocery in San Diego and that of Albert Cohn, Los Angeles. The prize, however, was finally awarded to the latter. In the north, the window of Hochheimer and Company of Bakersfield easily carried away the honors.

Vocational education in Arizona is to be placed under the direction of state superintendent of public instruction, in line with the present tendency to economize in all matters of public interest wherever this may be accomplished without detrimental results.

OilPull Performance Proved by University of California

In 1913, the Kearney Vineyard, (The University of California Farm) of Kearney Park, Fresno County, California, bought a Rumely OilPull tractor. And for eight years this old OilPull has been in almost continuous operation on this 5,000 acre farm.

The OilPull has been called upon to do many different kinds of work, both on the belt and drawbar, on this highly diversified farm, producing 22 different commercial crops.

It works over irrigation checks causing exceptionally heavy strains. Any tractor must have sturdy construction to stand such extremely hard service continuously.

But the OilPull has the strength and endurance that gives an unequaled degree of dependability for many years of constant operation.

It has unparalleled economy in fuel, repairs and upkeep.

In December, 1919, this farm ordered another OilPull which has been in continuous operation ever since.

Ask the manager of Kearney Vineyard or the owner of any other of the many OilPulls in California whether, in the years they have used their OilPulls, they have ever had occasion to be other than proud of the tractor's performance.

Have the nearest Advance-Rumely dealer direct you to OilPull owners and give you additional data—or write us.

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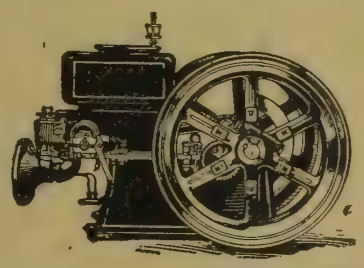

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We Are Prepared to Sign Five Year Contract for
LEMONS
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The International Dealers will give you full particulars

BALED HAY is better hay. It has a higher food value. It is more economical to handle, haul, and feed. It occupies only one-fifth the space of loose hay, therefore can be stored and protected more economically. Each of these advantages represents added profits on your hay crop.

An International hay press, horse or power, will yield you full returns for your power and labor. And after you have multiplied the profits on your own hay crop, you can fill in the late summer and fall months profitably baling hay and straw for others. Some farmers say they have paid for their presses in thirty days, baling for their neighbors.

International horse hay presses are made in four sizes, with capacities of from six to fifteen tons a day; power presses in three sizes, with fifteen to thirty-ton capacities.

Write for catalog, and see your International dealer without fail.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
CHICAGO USA

In the Weaning Coop

By Jean A. Koethen

THE change from brooder to weaning coop or cold brooder is often a difficult and painful one for the chick if not for the caretaker. To make it easy has been the study of commercial poultry keepers, and nearly everyone has worked out a system for himself, not all alike, but all designed to accomplish results.

One of the best methods of weaning is that which begins in the brooder house. Many of the most up to date brooder houses are fitted with narrow roosts of lath or battens as well as with stoves. These roosts are built into rhomboidal frames, widening from bottom to top and fastened to the wall at a height of perhaps three feet from the floor. When a new hatch is placed in the house these roosting frames are fastened up to the wall out of the way. After a month they are let down so that the chicks may roost on them in the daytime while they still sleep on the floor. In a short time the little fellows begin to find their way onto the roosts at night, and by the end of the second month they are all roosting. On some ranches the pullets continue to roost in the brooder house till they are ready for the laying house, the marketing of the cockerels having left abundant room. On others, where it is necessary to make room for another hatch, both pullets and cockerels are transferred at two months of age to small coops holding from 25 to 50 birds apiece.

Range for Pullets

The sexes are separated at this time because they require different treatment. Cockerels should be penned in a small yard and fed a fattening ration till they weigh from 1½ to 2½ pounds, when they are sent to market. Pullets should have as much range as can be given them. One very successful breeder keeps the pullet coops in a walnut grove which is planted to alfalfa between the trees, allowing each 50 pullets a space the size of a city lot. Another has a small yard for each coop but plants each yard to grain early in the winter, so that the birds will have growing greens at the start.

Clean ground and green range are of tremendous importance to pullets as well as to little chicks. A writer in a current periodical calls the question of range "the poultryman's big problem." "It can be done," he says, "this thing of growing chicks upon limited areas—for men have done it and still do it—but undeniably the attempt to restrict the range of the growing chick is one of the principal causes, if not the most important, of failure that menace the poultryman." This seems like strong language, but from the reports that come in every spring of deaths of chicks from coccidiosis and other diseases due to overcrowding and contaminated ground I doubt if it is too strong.

When chicks are moved from brooder house to weaning coop without having had a chance to learn to roost, it is a good plan to have a clean wood floor or droppings board under the roosts. A little ingenuity and plenty of straw will make a comfortable nest for them till they are ready to roost, and an old quilt or blanket or burlap sack laid on the roosts to simulate a hover helps to break the shock of sudden change and chill. Chicks are stupid creatures and have to be given time to learn any new thing. Their minds run in a single groove and cannot be sidetracked with a jerk. When only a few chicks are to be handled, an ordinary lug box covered with a burlap sack and placed under the roosts at first serves as temporary brooder and makes transition easy.

The coops used for weaning are usually from three to four feet square, with open fronts. Sometimes the roosts are placed so far from the ground that there is room for scratching under the droppings board. This plan furnishes protection from sun and rain as well as sleeping quarters.

More Economical Handling of Eggs

Poultry Producers of Southern California find it is necessary to extend their quarters in order to handle their increasing business. The first step is a campaign for new members, which is on at this time. In his appeal for new members Cornele G. Ross writes: "We, as an organization of cooperative producers, are rendering a service to the poultry industry of this section, without which the industry as a whole would face a serious setback, and we feel that there should be some way to bring outsiders who are profiting by our efforts to realize their obligations and accord us their support. Nonmembers who boast that they can obtain one or two cents per dozen more for their eggs than we can pay to our members know that this is entirely due to our ability to market the surplus, and such of them as are fair minded should be willing to share with us in this work. We believe many of them would do so if our present membership do their full duty as missionaries to put the facts before these nonmembers in such a manner as would result in securing their support."

As to the new quarters:

"Our manager estimates that a material saving in operating costs would be possible with adequate and proper handling facilities, while with a suitably designed building we might be able to still further cut our costs by the use of daylight instead of electricity for lighting, to say nothing of the better results which could be secured in that manner. With plans and estimates before us, our next move would be to find a way in which we could finance such a proposition, and it is possible that a stockholders meeting to discuss ways and means, and, if thought best, authorize going ahead with it, would be desirable. Many other organizations of producers in Southern California are now erecting buildings of their own, and we should not lag too far behind in a movement which makes possible better service to the membership and a consequent ultimate saving to the consumer."

STORRS EGG LAYING CONTEST

Storrs, Connecticut, May 2, 1921. Report for week ending May 1:

The hens at Storrs are celebrating the tenth anniversary of the establishment of laying competitions in America. The average of previous years at the end of April has been approximately 68,000 eggs, but in the tenth contest, now running, the 1,000 hens have laid over 74,000 eggs. This means, then, that these hens have laid over 8,000 eggs more than the man-

WESTERN SURFACE IRRIGATION PIPE

Made in one piece with strong riveted seam of full gauge, heavily galvanized steel—insuring durability.

We also manufacture Well Casing, riveted Steel Water Pipe, Tanks, and Corrugated Culverts.

Western Pipe and Steel Co. of California
1758 N. Spring St., Los Angeles 424 Market St., San Francisco
Fresno, Bakersfield, Taft

40 Cords a Day

Easily Sawed by One Man with new OTTAWA. Greatest work saver and money maker ever invented. Outsaws them all Does work of 10 men. Made in world's largest log saw factory. Only sold direct from factory to user.

OTTAWA LOG SAW

Over 4 H-P. 310 strokes a minute. Wheel-mounted. Easy to move, cheap and easy to run. Engine runs other machinery when not sawing. New clutch lever starts and stops saw while engine runs. Cash or Easy Payments. 30 Days' Trial. 10-Year Guarantee. Send for Big FREE BOOK and Special Low Factory Price NOW. Write to

Ottawa Mfg. Co.
2749 Wood St.
Ottawa, Kansas.

Baby Chicks
All the Popular Breeds
Every Day
Baby Ducks, Baby Turkeys

We can supply Baby Chicks in any quantity. Best quality. Place your order now to insure prompt delivery. Can ship to any point within seventy-two hours' ride from Los Angeles.

Hatching Eggs, Fireless Brooders, Poultry Supplies, Remedies, Feed, Seed, Feeders, Fountains for sale.

We are the SOLE AGENTS of this County for the Pioneer Incubators and Brooders. Send for Price List.

Visitors Welcome.

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320 So. Spring St., Los Angeles, Calif.
"Wor'd's Largest Hatchery" Established 1905

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Baby Chicks

Largest assortment of baby chicks in the West. Hatched in the RIGHT way Can ship Express or Parcel Post. We carry a complete line of poultry supplies. Fireless brooders that are made to care for chicks properly. Chicks shipped safely in these brooders. Breeding and Pet stock of all kinds. Write us your wants. Send for price list Dogs, cats and rabbits.

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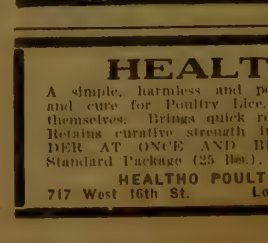
640 S. Main St., Los Angeles, Cal. Bdwy. 282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Our freebook Chickens from shell to market gives full particulars
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HEALTHO

A simple, harmless and positive preventive and cure for Poultry Lice. Chickens dust themselves. Brings quick relief to chickens. Retains curative strength indefinitely. ORDER AT ONCE AND BE CONVINCED. Standard Package (25 lbs.). $3.00.

HEALTHO POULTRY CO.
717 West 16th St. Los Angeles, Calif.

gement of the contest expected, all f which is of course very gratifying o the owners who have sent their irds to Storrs for the ostensible pur-ose of making high records. In gen-ral, a mixed poultry population in a aying contest will produce in the first ix months 43 per cent of the number f eggs they will lay for the entire ear. On this basis it is predicted hat the hens now at Storrs will lay, y the end of next October, more than 72,000 eggs.

With this high average yield it nat-rally follows that the race is fast and urious. In the closing week of the irst half year a pen of Buff Wyan-lottes owned by Hollis P. Cloyes, Sil-er Lane, Connectict, tied for first lace with two pens of White Leg-iorns entered by Mrs. J. L. Theusen f New Haven, Connecticut, and Em-ry H. Bartlett, Enfield, Massachu-etts. The score was 61 eggs each.

The four leading pens in each of the rincipal varieties are as follows:

Barred Plymouth Rocks

W. H. B. Kent, 1,011; Rock Rose Farm, 914; Ernest W. Picker, 842; Jules F. Francais, 796.

Rhode Island Reds

Charles H. Lane, 1,085; H. S. Bick-ford, 1,000; F. S. Chapin, 992; Henry P. Walker, 939.

White Leghorns

James O. Le Fevre, 991; L. E. In-goldsby, 974; Hollywood Farm, 954; Ernest H. Scott (White Leghorns), 939.

Other Varieties

Obed G. Knight (White Wyan-lottes), 1,109; H. P. Cloyes (Buff Wy-andottes), 932; A. E. Hampton (Black Leghorns), 763; Harry D. Emmons (White Wyandottes), 686.

Poultry Queries

Conducted by Jean A. Koethen

Cholera

My chickens sat on the ground with heads bent almost under their crops and at intervals of 25 or 30 minutes seemed to have severe spasms or con-vulsions. They lingered this way for about two days, then died. Their drop-pings were white and watery and their heads became black. What had they eaten?—Subscriber, Palo Cedro.

The symptoms are those of cholera rather than of ptomaine or mineral poisoning. In cholera the bowel dis-charge is generally bright yellow or greenish yellow, but sometimes it is white. The convulsions, I take it, in-cluded a stretching or twisting of the neck. which is also characteristic of cholera. Last summer at Van Nuys Professor Dougherty reported similar cases which a bacterial examination proved to be cholera, and stated that a thorough cleaning up of the prem-ises seemed to be the most effective cure. It might be well for you to write Dr. Beach, Poultry Department, Agricultural Experiment Station, Davis, California, describing the symp-toms in detail.

BETTER PACKING NEEDED

Vice-President Robert E. M. Cowie of the American Railway Express Com-pany, New York, talks on egg break-age in transit:

Eggs are perhaps the most fragile articles of food which travel by ex-press. In shipping eggs, the Chinese are really ahead of us in providing safe methods for getting them to mar-ket. Their cases are made of heavier wood and while it is true they use the honeycomb filler, it is of superior material, doubled, each partition con-sisting of two strips, and, most im-portant of all, each egg is held in a bed of soft rice hulls, which prevents it from touching the filler at the top, bottom or sides. This supports our contention that the fragile, oval shaped egg should not be shipped in a square container, but in one the shape of the egg itself.

There are other contributory causes in the preparation of eggs for ship-ment that make it almost impossible under the circumstances to move an egg case without substantial breakage. A frequent one is the use of news-papers in place of cushions with honey-comb fillers. In our opinion, based on actual experience, newspapers of-fer no protection at all. For cush-ioning material we urge the use of excelsior pads at both the bottom and top of the crate and between the first and second layers. This serves to break any shocks incurred from ordi-nary handling and thus gives addi-tional protection to the eggs. About 90 per cent of egg breakage occurs in the top layer.

There are many points regarding good packing which are good busi-ness principles for the producer. For instance, eggs should be packed in fillers with the little end down. The reason for this is that the air cell is at the big end and the eggs look much better and naturally bring better prices. Likewise, the small eggs should be packed together and the large ones by themselves. All of these practices not only make the eggs more marketable, but add to the security of the shipment and reduce the pos-sibilities of egg breakage.

New A-1 cases, carefully strength-ened with large headed, cement coat-ed, four penny wire nails, with cup fillers, or if new honeycomb fillers are used, six excelsior cushions, is the cheapest insurance the egg shipper can buy.

RAISE LOAN LIMIT

Congressman Horace M. Towner of Iowa, chairman on the committee of insular affairs, introduced a bill (H. R. 4131) last week which will increase the amount that the federal farm loan banks may lend to individuals from $10,000 to $25,000. The American Farm Bureau Federation has been in favor of this change for some time and expressed itself again regarding it at the recent Washington meeting of the executive committe and state delegates.

Carl S. Vrooman, director of the American Farm Bureau Federation gift corn project, has issued the fol-lowing statement of thanks to the various agencies that contributed to the success of the enterprise: "Four hundred thirty-one cars of the farmers' gift corn now rolling across the conti-nent in 11 solid trainloads will, during the next few months, save the lives of at least 100,000 of the famished peo-ples of Europe. This large consign-ment could have been multiplied ten-fold if the farmers' generous offer had been accepted and acted upon."

Boys studying vocational agriculture in the Pleasant Valley district of Gila County, Arizona, have had shipped in some pure bred swine. This is said to be the first importation of pure bred swine into this particular district.

The state land settlement at Delhi, Merced County, now has 820 acres under irrigation from electric pumping plants.

Men who KNOW your truck engine

Your truck engine was designed to stand up and give full service. It's an investment that must show returns.

To give full service your truck engine must be correctly lubricated.

Our Board of Lubrication Engineers recommends the correct grade of Zerolene for the lubrication of your truck engine. These lubrication experts *know* your truck engine, know what it should do to give you a fair return on your investment.

Follow their recommendations as given in the Zerolene Correct Lubrication Chart. Ask for one. Use Zerolene for Correct Lubrication.

STANDARD OIL COMPANY
(California)

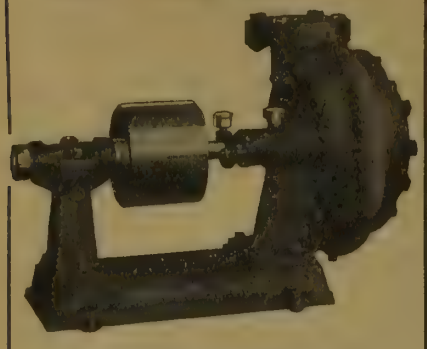
A grade for each type of engine

ARISTO MOTOR OIL

Insures a cool smooth running motor and maximum compression

UNION OIL COMPANY
OF CALIFORNIA

—Real Pump Economy—



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(Closed Runner)

Cost less than any other style of pump—cost less to maintain. No end thrust trouble — nothing to make trouble. Only 15 parts including ring-oiling bearings and base plate.

Belted or Motor Driven.

Write for Bulletin No. 24

Let us know your water needs. We are also Agents for Kewanee Water Supply Systems; Luitwieler Deep Well Pumps; Hill Deep Well Pumps.

Simonds Machinery Company
117-121 New Montgomery St.
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Dealers—If we are not represented in your locality, write for our profit-making proposition.

"RED TOP"

STEEL FENCE POST

Drives Like a Stake Anchors Like Rock

It is gratifying to note by the constantly increasing demand for

"RED TOP" STEEL FENCE POSTS

that the ranchers on the Pacific Coast are taking advantage of the present period of readjustment to put their ranches in order for a resumption of normal business.

Obtain detailed information about these economical fence supports from your local hardware, implement or lumber dealer or write direct to

Harry L. Baylies
431 Pacific Finance Bldg.,
Cor. Sixth & Olive Sts.,
Los Angeles, Cal.
Phone 66297.

Mathers' Avocado Nursery

"Home of Field Grown Avocado Trees"

Nursery:
Ventura and Rose Ave., Altadena

Address
P.O. Box 585, Pasadena, Cal.

Extra parts are always available without delay for standard advertised machinery. This class always found in the California Cultivator.

Los Angeles Markets

Los Angeles, May 11, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price 35 cents.

	4	5	6	7	9	10
May '21 ...	37	37	35	35	..	35

CHEESE

Brokers' prices:
California flats, 16@18.

EGGS

Fresh extras (case included): Produce Exchange closing price 26 per dozen. Case count Produce Exchange closing price 24. Pullets, closing price 20 per dozen.

Dairy Exchange price last week on extras:

	4	5	6	7	9	10
May '21 ...	24	24	24	24	..	26

A slight strengthening of Eastern markets is to be noted. New York is now quoting California Whites at 31 to 35 which is not very satisfactory but the general condition promises improvement.

POULTRY

Price to producers: Hens, lt., 23; heavy 23; colored, 33; broilers, 22@27; roasters, 40; old roosters, 10; fryers, 45; ducks, old, 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live, 50; dr., 54; squabs, 45@47.

Belgian hares, live, 12@16½; old, 8.

LIVESTOCK

Los Angeles, May 10. — Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 8.50; 175 to 225 lbs., 9.00.

Cattle (on foot, gross weight): Steers, good, 8.00@8.50; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Bulls and stags, 4.00@4.50. Calves, 125 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 4.00@5.00; lambs, 8.00@10.00.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered to their warehouse at 1960 Santa Fe Avenue. Receipts from the interior for 24 hours ended at 10 a. m. Tuesday were: 237 hides, 114 pelts.

Green and green salted hides: No. 1 heavy hides, 50 lbs. and up, 4 per lb.; No. 1 light hides, 25 to 50 lbs., 4 per lb.; No. 1 kips, 15 to 25 lbs. 6 per lb.; No. 1 calfskins, under 15 lbs., 10½ per lb.; No. 1 slunks, 20@40 each; No. 1 bull hides, 3½ per lb.; No. 1 horse hides, over 50 lbs., 1.75 each; No. 1 horse hides, 40 to 50 lbs., 1.25 each; No. 1 horse hides, 30 to 40 lbs., 75 each; ponies, 30 each; No. 1 grubby hides and skins, 1½ less; No. 2 hides and skins, 2 less; glue hides and skins, 1 per lb.

Dry flint hides—No. 1 hides, 16 lbs. and up, 9 per lb.; No. 1 kips, 6 to 16 lbs., 10 per lb.; No. 1 calf skins, under 6 lbs., 11 per lb.; No. 2 hides and skins, 6 lbs., 10 per lb.; No. 2 hides and skins, 2 less; glue hides and skins, 2 per lb.

Pelts: Large, long wool, 40@70 each; medium, 20@40 each; short wool and shearlings, 10@20.

shearlings, 10@20. Lambs, 10@30 each; badly damaged and very small lambs, worthless.

Goat skins: No. 1 common, 10@30 each; No. 2, 5@10 each; badly damaged and small kids, worthless.

Tallow: No. 1, white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool: According to quality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock May 10, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market firm. Idahos: Russets mostly 2.25@2.50, Rurals 1.90 @ 2.00. Oregons: Burbanks, 2.25@2.35; few 2.50. New potatoes: Supplies liberal, market steady, best 1.75@2.00, small 75@1.00 per lug. Sweet potatoes: Supplies liberal, market firm. Mostly 2.25@2.50 per lug. Oklahomas: 7@8½ per lb.; jobbing sales 7½ per lb.

Onions: Supplies heavy, market dull. Stocktons: White Globes and Browns, cold storage stock best 1.00, poorer 60@75 per cwt. Local: Per bunch green mostly 12½. Imperial Valley: Bushel crate, Yellows, 1.25@1.35.

Wax, 1.40@1.50.

Garlic: Supplies liberal, market dull. Wide range in quality and condition. Best mostly 10@13, poorer 7@9 per lb. New 12@15 lb.; few higher.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock May 10, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Supplies heavy, market weak, 50@75; few fancy 1.00 doz.

Asparagus: Market steady, supplies

Asparagus: Market firm; supplies liberal. Local: Mostly 12@15 per lb. Northern, 11@14 per lb.

Beans: Supplies liberal. Per lb., Green Kentucky Wonders, 11@14 per lb., green pods 10@12 per lb., Wax 10@13 per lb.

Beets: Doz., 30@40.

Cabbage: Field crate best mostly 2.25@2.75; poorer 1.50@2.00.

Carrots: Doz., 35@40.

Cucumbers: Local best, 2.75@3.00 doz.; Hothouse, mostly 1.50@2.00.

Lettuce: Local field crate quality poor, 90@1.10; best, 1.50@1.75.

Peas: Local: best 7½@8½; poorer low as 6 per lb.

Radishes: 25@30 doz.

Rhubarb: Local strawberry 1.10@1.25 bx.; jobbing 1.00@1.15; Crimson Winter, 80@90.

Spinach: Mostly 25@30 doz.

Squash: Summer, best, 1.25@1.40; jobbing, 1.10@1.25; per flat 1.00@1.25.

Tomatoes: Supplies heavy, market dull. Mexicans: per lug, repacked, best 2.25@3.00, poorer low as 1.50@1.75. Imperial Valley: per crate, best 1.25@1.50, small 50@1.00; jobbing Mexicans, repacked, 1.75@2.25, original 1.00@1.50, Imperial Valley best, 1.10@1.35.

Turnips: Doz., 45@50.

FRESH FRUITS

Cherries: Supplies light, best, 25@28 lb.

Strawberries: Supplies moderate, market weaker. Per crate, 30 pints, best 3.50@4.00; poorer 2.00@3.00.

CITRUS FRUITS

Grapefruit: Supplies liberal, market firm on good stock. Local: per box, market pack 2.00@2.50, special packed brands 2.75@3.00.

Lemons: Supplies heavy, market dull, wide range in prices. Local: packed box 1.50@2.25, few high as 2.75, loose 75@1.00 per box, per lug mostly 40@50.

Oranges: Supplies firm, market firm. Navels, market pack, large sizes 3.00@3.50, small low as 1.75, special brands, large sizes 4.00@4.75, small sizes 3.00@3.50. Valencias, best brands, all sizes 3.75@4.00, packing house culls 50@75, few best 1.00@1.75 per box.

HONEY

Supplies of White Sage and White Orange Blossom extremely light. Supplies of other varieties heavy. Very limited wire inquiry. Very slow movement, market dull. Carloads f. o. b. usual terms: per lb. nominal quotations, very few sales White Orange Blossom 11@12; White Sage 12; Light Amber Alfalfa 6@7; Light Amber Sage 8½ White Alfalfa 8@8½. Hawaiian White 7; Light Amber 6; Honey Dew 4½. Account unfavorable weather condition, prospect for orange and sage crops are poor. Too early to obtain indications of crop prospects for other varieties.

GRAIN AND FEEDS

Grain Exch. price bid May 10:

Corn: Bulk, No. 1, Yellow 1.70; No. 2, Yellow, 1.62½.

Bran: Kansas, 30@50.

Kaffir: Eastern, 1.57½@1.67½.

Milo: No. 2, Eastern bulk 1.78¾.

Barley: Carlots 1.36¾.

HAY

Alfalfa Growers of California report under date of May 9:

There were 320 tons received on the Los Angeles tracks the week ending May 7 with 60 tons held over as against 330 tons the week before.

Rabbit Alfalfa	25.00
No. 1 Dairy	21.00
Standard	18.00
Stock	15.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@28.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@16.00
Straw	10.00@13.00

San Francisco Markets

San Francisco, May 10, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras	34

Dairy Exchange prices extras this week and year ago:

	3	4	5	6	7	9
May '21 ...	33½	33	32	32½	..	34
'20 ...	56½	55	..	55	..	55½

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	14½@16
Oregon Trips	22
Cal. Y. A.	17½
Cal. Flats	15

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	34
Extra Firsts	26
Dirties No. 1	23½
Extra Pullets	22½
Undersized	20

	3	4	5	6	7	9
May '21 ...	25½	25	25	26	...	34
'20 ...	46	46½	..	46½	..	55½

POULTRY

Wholesale prices are:

Hens: Colored, 37@39; White Leghorns, 23@30; strictly young roosters, 42@45; old roosters, 12@18; fryers, 45@50; broilers, small, 28@30; large, 35@42.

Squabs: 50@55 per lb.

Belgian Hares: Alive, 23@25 per lb.

Pigeons: Old, 3.00@3.50 per dozen.

Jackrabbits: 3.00@3.50 per dozen.

LIVESTOCK

Western Meat Company prices are:

Cattle: Steers, No. 1, 7¼@7¾; do, second quality, 6¼@6¾; thin, 3¾@4¼.

Cows and Heifers: No. 1, 5½@6; do, second quality, 5@5½; thin, 3@4.

Calves: Light weight, 8@9; medium, 7½@8; heavy, 6½@7½.

Sheep: Wethers, 4½@5½; ewes, 2½@3½.

Lambs: Milk, 5½@6½.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 9½; 200 to 250 lbs., 9; 250 to 300 lbs., 8.

HIDES AND PELTS

No. 1 heavy hides, 60 lbs. up, 3; do, medium, 45 to 60 lbs., 3; do, light, 30 to 45 lbs., 5; do, native bulls, 2; No. 1 center branded hides, in all grades, 2 less than base price, and No. 2 center brand, 3 less. No. 1 wet salt kip, 15 to 30 lbs., 3; No. 2 wet salt kip, 15 to 30 lbs., 3; No. 1 wet salt calf, trimmed, 7½; No. 2 calf, 2 per lb. less.

Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Pickled hides and skins, 3 less than dry flint. Dry salted hides and skins, 6 less than dry flint.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good, 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20; milk lambs, 5@10.

California Farm Bureau Marketing Association reports:

No. Hogs	Ave. Wt.	Dock	Price
Modesto, May 3			
94	164	20	$9.30
77	172	...	9.00
67	212	...	8.50
21	265	...	7.50
5	392	210	6.00
Three cars, 35 consignors, $4,366.18.			
Hilmar, April 4			
75	230	...	8.15
80	179	...	8.15
10	165	...	7.50
6	265	...	6.15
Two cars, 25 consignors, $2,790.41.			
Chowchilla, April 5			
97	168	...	8.55
102	153	...	8.35
81	206	...	7.55
28	165	...	7.50
6	120	...	6.50
27	259	...	6.00
14	306	170	5.00
Four cars, 29 consignors, $4,990.49.			
Wasco, April 7			
77	178	...	8.30
7	118	...	8.00
60	224	...	7.00
1	290	...	6.00
2	515	...	3.00
Two cars, 29 consignors, $2,325.97.			

Total for the week, 11 cars, 118 consignors, $14,473.05.

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, nominal; do, Oregon Burbanks, 2.25@2.60. Idaho Gems, 2.50@2.60. Sweet potatoes: Nancy Hall, 5.00@6.00 per 100 pounds.

New: 2½@4.

Onions: Australian brown, 35@50 per bag. Green 2.00@2.25.

Garlic: New, 6@8 lb.

VEGETABLES

Wholesale selling price:

Asparagus: Culls, 4@5 per lb.; field run, 6@7; fancy graded, 10@12½; green, 5@8.

Beets: 1.00@1.50 sk.

Beans: String, 10@15; Wonder, 15@17½; Wax, 12½@14.

Carrots: 75@1.00 sk.

Cucumbers: Hothouse, small, 4.00@4.25 box of 2½ dozen; large, 2.50@3.00 per dozen; English, 2.00@2.50 per dozen.

Cabbage: Lb., 1.

Eggplant: Lb., 10@15.

Lettuce: Sacramento, 1.00@1.75 small crate.

Onions: Green, per lug, 1.50@1.75.

Peas: 5@6 lb.; Bay, 6@8.

Parsnips: Sk., 2.00@2.25.

Peppers: Bells, large, 20@25; small, 10@12½.

Rhubarb: Alameda, 1.40@1.75.

Squash: Imperial Valley Summer, 1.50@1.65 cr., Italian, 1.25@1.50; Merced, 2.50.

Spinach: Lb., 2½@3.

Tomatoes: Mex., L. A. lug, 1.00@2.00. Imp., 1.50@2.00.

Turnips: Sk., 50@1.00.

FRESH FRUITS

Apricots: 2.00@3.00 per four basket crate.

Avocado: California, doz., 2.00@5.00.

Bananas: Lb., 8½@10.

Cherries: Flat box, 1.25@1.75; bulk, 10@12½ lb.

Pineapples: 4.50@6.00.

Raspberries: Dr., 2.50.

Strawberries: Dr., 50@75; some 1.00 dr.; Salinas, 1.50@1.75; Watsonville, 1.20@1.50 per crate, according to quality.

Loquats: Lb., 8@15.

CITRUS

Navel oranges, 100s to 126s, 4.50@5.00 per box.. 150s, 4.25@4.50; 176s, 4.00@4.25; 200s, 3.75@4.00; 216s, 3.25@3.50; 250s, 3.00@3.25; 288s and smaller, 2.75@3.00; Valencias, 3.50@3.75. Lemons, 2.25@3.75 per box. Lemonettes, 2.00@2.50. Grapefruit 1.50@3.50. Limes, nominal. Tangerines, 3.00@3.50 per half orange box.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb boxes, 16½ lb.; Sunmaid, seeded, 36 15oz pkgs. 22½ lb.; seedless Sultanas, 25 lb bxs., 20 lb.; Thompson Seedless, 25 lb bxs., 21½ lb.; do, 48 15-oz. bxs. 23½ lb. 3-cr. L. M., 25 lb. bxs., 18 lb.; 2-cr., do 17 lb. 1 lb. clusters, 20 lb. bxs., 5.40 box

Figs: Fancy black, 25 lb. boxes, 12½ lb. extra choice, do, 10 lb.; choice, do, lb.; fancy white, do, 14 lb.; extra choice white, do, 11 lb.; choice white, do, 8 lb.; extra choice, do, 10 lb.; choice, do, 4 oz. white, $1.25 bx.; 20 oz. white, $1.75 bx.; fancy 4 layer, 10 lb. bxs., $2 bx.

Prunes: 30-40s, 25-lb. bxs., 15 per lb. 40-50s, do, 12 lb.; 50-60s, 9½ lb.; 60-70s do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do 5½ lb.; 90-100s, do, 5 lb.; Persian dates 14 lb.; Dromedary dates, 6.25 case; fancy silver prunes, 15 lb.

Apples: Fancy, 50-lb. bxs., 10 lb. extra choice, do, 9 lb.; choice, do, 8 lb.

Peaches: Blue Ribbon brand, 48 11-oz to cs., 7.00 cs.; do, 24 2-lb. to cs, 8.00 cs. fancy peaches, 25-lb. bxs., 15 lb.; extra choice, do, 12 lb.; choice, do, 11½ lb.

Apricots: Fancy, 25-lb. bxs., 29 lb.; extra choice, do, 22; choice, do, 20; standard, do, 18.

Pears: Fancy, 25-lb. bxs., 15 lb.; extra choice, do, 12; choice, do, 10.

BEANS

Below California Bean Growers Association shippers prices choice recleaned

Large Whites	3.3
Small Whites	3.2
Pinks	5.7
Mexican Reds	7.7
Red Kidneys	8.7

Henderson Bush 5.00
Cranberries 6.95
Bayos 9.80
Blackeyes 7.25

GRAIN

Sales grain exchange, May 10:

Corn: Cal. Yellow, 1.35@1.45; White Egyptian, 2.10@2.25.

Oats: Red feed, new crop, 1.45@1.60.

Barley: Feed, 1.20@1.21; off grades lower; shipping, 1.35@1.55.

Milo: Cal. Red, 1.75@1.85; Eastern Red, 1.60@1.65.

Kafir: Eastern, 1.50@1.55.

HAY AND FEED

Alfalfa Growers of California report under date of May 9:

No. 1 Dairy.....16.00
Standard Dairy 14.00

Under date of May 7, A. W. Scott Co. says:

Receipts past week 931 tons, as compared with last week's arrivals of 749 tons. The San Francisco market situation is without any new feature and prices are being maintained with considerable difficulty. The demand is extremely light and if the receipts had been any heavier probably prices would have declined. A large proportion of the hay coming in has been off grade and difficult to move. The better qualities of hay sell fairly well but anything that is below standard can only be marketed by some concession in price or by some extra effort. The labor interference with shipping has greatly affected export trade while impending labor troubles in the building line have caused a hesitation and uncertainty that has reacted against the hay consumption locally. Reports of the new crop are of abundance in almost every locality. Apparently the low price of barley will cause a great acreage to be cut for hay. The general report of quality seems to be that we will have an unusually abundant crop with volunteer and alfalfa predominating. Alfalfa is extremely depressed. First cutting is being cut up in many localities and consumers are only buying from hand to mouth now, waiting lower prices on new crop hay.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy .....20.00@21.00
Wheat Hay, light 5-wire bales.17.00@20.00
Tame Oat Hay, fair to choice..17.00@19.00
Wild Oat Hay .....12.00@15.00
Barley Hay .....12.00@15.00
Alfalfa Hay .....17.00@20.00
Stock Hay .....10.00@14.00
Straw .....10.00@15.00
Barley, ground .....30.00@34.00
Barley, rolled .....27.00@30.00
Oats, Rolled Feed .....33.00@35.00
Bran, Red .....34.00@35.00
Bran, White .....36.00@38.00
Millrun .....35.00@40.00
Middlings .....47.00@50.00
Linseed Meal .....45.00@50.00
Cocoanut Meal .....25.00@27.00
Alfalfa Meal .....26.00@28.00
Cottonseed Meal .....35.00@40.00
Sugar Beet Pulp.....32.00
Molasses, Tanks 23.00
Molasses, Barrels 26.50
Milo .....35.00@40.00
Corn Meal .....35.00@40.00

Citrus Markets

Los Angeles, May 11, 1921.

Navels are being rushed to the market and a cleanup will be effected within a few days. The market at the present moment is exceptionally good. F. o. b. prices are ranging between $3 and $4, with auction prices frequently showing close up to the $6 mark. Valencias are going freely and being well received, in fact, Valencias are commanding slightly higher averages than the Navels.

Lemons, on the other hand, are unchanged, and are given entirely unsatisfactory reception. Fruit on docks and in transit aprpoximately 50,000 boxes.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 20,986 cars; lemons, 4.409; total, 25,395. To same date last season: Oranges, 17,132; lemons, 3,385; total, 20,517. From Central California to date this season: Oranges, 5,340; lemons, 135; total, 5,475. To same date last season: Oranges, 4,858; lemons, 287; total, 5,145. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

AT THE AUCTIONS

May 4

Boston: 17 or., 2 lem. Nav. 3.55-4.60, Val. 3.25-3.70, Seeds. 3.05-3.15, lem. 1.70-2.35.

New York: 20 or., 2 mixed, 2 lem. Nav. 4.35-5.50, Val. 3.80-5.75, Seeds. 4.10-4.20, Bloods 4.80, halves 2.30-2.50, lem. 2.90-3.05.

Cincinnati: 5 or., 2 lem. Nav. 2.75-3.25, Val. 4.10-4.45, Sweets 3.95-4.10, lem. 2.95-3.65.

May 5

New York: 47 or., 4 mixed, 3 lem. Nav. 3.95-5.95, Val. 3.50-5.60, Grapefruit 3.00, Bloods 4.30-4.65, Sweets 3.95-4.55, Mikes. 4.60, lem. 2.45-3.75.

Philadelphia: 9 or., 4 lem. Nav. 3.50-4.80, Val. 3.30-4.45, Bloods 3.65, lem. 1.95-3.20.

Pittsburg: 5 or., 2 lem. Nav. 4.40-5.00, Sweets 3.95-4.30, lem. 2.85-3.65.

May 6

New York: 26 or., 1 mixed, 2 lem. Nov. 4.05-5.50, Val. 2.80-5.50, Mikes. 4.55-4.95, Seeds. 4.25-4.50, lem. 3.00-3.70.

Boston: 10 or., 1 lem. Nav. 3.80-5.30, Val. 4.15-4.65, lem. 2.10-3.80.

St. Louis: 10 or. Nav. 3.20-4.85, Val. 3.20-4.35, Seeds. 3.50-4.40, lem. 2.60.

Baltimore: 2 or., 1 lem. Nav. 4.10, Val. 4.20, lem. 3.05-3.30.

May 9

New York: 60 or., 4 mixed, 3 lem. Nav. 3.25-5.65, Val. 2.25-5.55, Navelencias 3.65, Bloods 4.85, Mikes. 5.20, Sweets. 3.90-4.65, grapefruit halves 1.50, Seeds. 3.95-4.60.

Philadelphia: 16 or., 3 lem. Nav. 3.70-5.20, Val. 2.05-5.05, Mikes. 3.80-4.45, Bloods 3.75, Sweets 3.60-4.00, lem. 2.30-3.15.

St. Louis: 10 or., 1 lem. Nav. 4.25-4.75, Val. 3.00-4.43, Homasassas 3.63-3.98, lem. 2.20-2.45.

May 10

Boston: 16 or., 3 lem. Nav. 3.90-5.45, Val. 3.40-5.25, lem. 2.35-3.45.

New York: 45 or., 2 mixed, 2 lem. Nav. 3.75-5.45, Val. 3.15-5.75, Mikes. 4.20-5.05, Sweets 4.35-4.65, lem. 3.60-4.45.

Pittsburg: 8 or., 2 lem. Nav. 3.70-5.00, Val. 3.45-4.35, Seeds. 4.25-4.60, Sweets 4.10-4.50, lem. 2.45-3.20.

LEGAL QUERIES

(Continued from Page 651.)

It would depend undoubtedly upon certain things which are not mentioned. First, the terms of the respective reservations across the roadway must hold. Unless there was a dedication to the general public by reason of a recorded deed, the right of way would be presumed to be merely a private right of way, and by the agreements between the subsequent grantees this right of way would be discharged. Clearly a party who is not concerned in such grant could acquire no rights thereby unless it might be that he was also a grantee of the original owner of the property and that his land was so situated that such right of way was necessary for his use and that he purchased his property in reliance upon the continuance of such right of way. In such event, he might be entitled to have the road maintained.

Garbage Collection

There is a city garbage ordinance appointing a garbage collector and entitling him to receive a fee for each month for the collection of garbage from residences. I paid the garbage collector for three months in advance. Before the expiration of the time he was released from his position and another collector appointed. The successor insists that I pay him and that I get my money from the first party. I hold the official receipt. What are my rights?—Subscriber.

In order to accurately give an opinion on this matter it would be necessary to see the ordinance itself, but it would seem that if the garbage collector was appointed by the city and you hold receipt of the city, then your contract is not with the individual who may be filling the position, but with the city itself, and having paid fees required you can require the city or its proper collectors to perform the duties for which the fees were paid.

Water from Private Company

A private water company furnishes water at a monthly rate. The pressure is persistently so low that the water will not run into the house pipes. I have refused to pay my monthly water rate for some time on account of poor and inadequate service. Could I enjoin the water company from shutting off my water on the ground that they have failed to live up to their contract?—Subscriber.

It would seem from the legal proposition that when a party makes a contract to furnish water in a certain manner, at a certain pressure, and fails to comply with said contract that he is no more entitled to receive pay based upon complete performance than is any other party. It has been many times held that where the service of water under pressure by a water company was so inadequate that it was impossible to put out fires that they were liable for any damage caused. Of course, if they are not serving the water it would seem rather ridiculous to enjoin them from refusing to do that which they do not do anyway The question of public utilities such as this cannot be segregated from the authority of the railroad commission. While you may be perfectly right in refusing to pay your bill, it would seem that your proper procedure would be to file complaint with the railroad commission rather than to atempt proceeding by way of injunction in the courts.

The Florence diversion dam which will furnish water to the Pima Indian reservation in Arizona and for about 27,000 acres owned by white settlers, will be completed about July 1.

REDUCTION IN PRICE OF GAS

We have communication from a power farming bureau in Chicago calling attention to a radical reduction in kerosene and gasoline. Manager Fuller writes:

"The immediate effect of these new low prices will be to stimulate power farming. We cannot give too much publicity to these radical reductions in fuel costs, affecting, as they do, every owner of an automobile, truck, tractor, gas engine, or other farm power machine. Please use your good offices to see that this news goes out to every farm home you reach."

We Californians fail to see where this concerns us. There has been no noise anything like falling prices. California is still paying its top-notch prices.

The reduction in the East amounts to from 4 to 10.6 cents. For instance, Kansas City gasoline on March 1, 1920, was 23.2 cents; May 25, 26.2, and August 26, 26.5, after which it began to decline and it is now down to 18.7. At Des Moines prices ranged like this: 24, 26, 26, 27.1, 28.5, and now down to 21.6. In Indianapolis the high point was 28.3 and is now down to 21.6. Wichita's range was from 27.1 down to 16.5.

MINIATURE GRAIN ELEVATOR

That bulk handling of grain is by far the most economical method is the contention of Andrew Kaiser, a large ranch operator at Artois. Mr. Kaiser recently said:

"My elevator at Artois paid for itself the first year in the saving of the sack bill. I believe I have spent enough money for sacks, warehouse charges and handling to have paid for a dozen elevators. We cut the grain, thresh it and haul it direct to the elevator. At night the grain is safely stored. When I think of the time I had 16,000 sacks in the field at the mercy of the weather, I do not want to quit bulk handling."

Since it is now possible for ranchers to build and own their own miniature elevators and loading stations, the handling of grain in bulk will unquestionably increase.

A BEAVER DAM FABLE

"Beaver," said the Blue Jay, "the Muskrats have decided that the last Dam you built was a mighty poor one."

"Don't bother me," puffed the Beaver, "I'm building Another!"

"Beaver," said the Blue Jay, "the Muskrats have approved your New Dam as Quite Creditable."

"What's the Difference?" said the Beaver. "I'm building Another One."

"Beaver," said the Blue Jay, "the Muskrats wish to discuss your Theories of Dam Building. When will you talk with them?"

"When I am through Building Dams," said the Beaver.

Moral: Talk is of Prime Importance only to Those Whose Work is Not.—Life.

YOUNG VINES DYING

The Associated Grower reports from various sections where extensive planting has been carried on this season an unusual percentage of loss of young vines. Part of the loss is from the usual causes, such as careless handling, and a certain percentage of them are believed by certain observers to have died from the warm dip employed against phylloxera. Just how severe the loss is and how far the hot water may be to blame cannot be determined for some weeks.

Shall he who cannot do much be for that reason excused if he do nothing? —Abraham Lincoln.

WEATHER REPORT

San Francisco, Cal., April 30, 1921.

Stations	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.06	44.91	42.45	58	42
Red Bluff	.00	25.80	23.25	90	42
Sacramento	.00	15.99	18.96	88	42
San Francisco	.00	22.64	21.29	86	46
San Jose	.00	14.18	16.03	90	36
Fresno	.00	7.48	8.95	90	40
San Luis Obispo	.00	17.93	19.54	94	40
Los Angeles	.00	10.05	15.09	94	46
San Diego	.00	4.54	9.57	88	48

WEATHER REPORT

San Francisco, Cal., May 7, 1921.

Stations	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	1.35	46.32	43.14	54	40
Red Bluff	.86	26.67	23.67	74	40
Sacramento	.13	16.13	19.35	72	40
San Francisco	.29	22.93	21.55	61	44
San Jose	.31	14.50	16.22	70	34
Fresno	.20	7.09	9.16	84	43
San Luis Obispo	.71	18.66	19.85	66	40
Los Angeles	1.32	11.39	15.30	68	46
San Diego	1.30	5.84	9.72	64	49

KROGH PUMP AND MACHINERY COMPANY

147-159 Beale St., San Francisco, Cal.

Los Angeles Agent, J. B. Van Horn Co.

Krogh Pumps are Absolutely Water Balanced

No End Thrust Possible — No Set Collars Used

The No Trouble Pump

Krogh Direct Motor Driven Pumps

Fitted With Ring Oiling Bearings

Renewable Babbitted Bushings

Ring Oiling Gland

We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

La Habra Heights

Higher and Adjoining East Whittier and La Habra Districts

3,600 acres pronounced by experts the ideal location for avocado and citrus planting. Protected from frost and wind in combination with good soil. Nearly $250,000 spent on irrigation plant, roads and other improvements. The Hacienda Country Club will soon have their golf course and club house finished in this property.

Ideal conditions for avocado and citrus growing. Fine country club for recreation; beautiful homesites.

Any acreage desired. Low prices. Reasonable terms.

Edwin G. Hart

Developer and Exclusive Agent for North Whittier Heights

727-31 Van Nuys Building — Main 2606 — Los Angeles

CITRUS TREES

Order your One and Two Year Old ORANGE, LEMON and GRAPEFRUIT Budded Stock from the

YAMAMOTO CITRUS NURSERY

ESTABLISHED 14 YEARS

Selected Buds From Fruit Growers Supply Co.

Florida Sour Seed Bed Stock at Big Reductions

Trees, delivered by truck, and planted by us under contract, are Guaranteed. Two Year Old Sour Roots and One Year Old from Bud. A-1 Trees, Strong, Big Stock. Ranch—Huntington Drive, San Marino, Cal.

Phone, Alhambra 731-W Mail Address, R. F. D. 1, Box 666, San Gabriel, Cal.

The Insurance Man

sells a policy planned to give the insured an income later in life. His figuring is done on a basis of 5 or 6 per cent interest on money paid by the insured.

California orchards and vineyards, properly planted and cared for, are safe investments and cannot only be relied on to return satisfactory interest on invested capital, but can also be made to build up a fortune in reserve.

These peach trees were propagated and planted by the Kirkman organization in Merced County thirty-two years ago.

In conjunction with the nursery business we have developed and sold many orchards. These are all profitable investments for the purchasers, and if held by them will continue to yield good average profits for many years.

We have confidence in the future of California horticulture and wish to contract to plant and grow orchards on good size tracts, under a satisfactory guarantee that the investor will not sustain a loss; that we will relieve him of his investment wth interest at the expiration of our contract if he so elects.

W. T. Kirkman, Sr., Pasadena, Cal., retired? Guess again. He's been at it for fifty years.

¶ ¶ ¶ ¶ ¶

The fruit trees in our several nursery plants give evidence of fine stock for next winter's planting.

We are making reservations for customers now.

¶ ¶ ¶ ¶ ¶

Fresno, Apr. 30, 1921.

Wm. T. Kirkman, Jr.,
Pres. Kirkman Nurseries, Inc.,
Fresno, Cal.

Dear Sir: It gives me great satisfaction to state that the quarter section of peach orchard you grew for me under contract is a good investment and I plan to hold it permanently, notwithstanding an offer I have had to buy the property at a net profit of $200 per acre to me.

Yours sincerely,

B. LARGE,
Branch Manager Swift & Co.

Kirkman Nurseries, Inc.

O and Tulare Streets Fresno, Cal.

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — May 21, 1921 — No. 21

History of a Citrus Tree

All the details of the production of a citrus tree would fill a book. Several of the steps which fit the tree for planting in the orchard are shown in these illustrations taken by the Cultivator camera. Upper left hand photo shows the condition of the "trees" after one year's growth in the seed bed. There are literally hundreds of thousands of trees under this one lath house. The next lower photo, No. 2, is a view over the nursery after the trees have been taken from the lath house and have spent two or three years in the nursery row. Photo No. 3 is a view down the rows. The white stake at the end of the row contains the life history of every tree in the row. From the records on those little posts the prospective orchardist may secure information which will permit him to go to the parent tree and learn its exact production of each grade of fruit for a period of years while it has been under supervision of an expert of the federal department of agriculture. Top center, No. 4, shows the row after trenching has been done. The man with the spade is cutting out the "ball" which is retained around the roots. Photo No. 5 shows the ball cut out, lifted out of the trench, with assistant and shears ready to clip tap and straggling roots. Photo No. 6 shows the completion of the balling operation, the burlap wrap in place with the final tie being made around the stem of the tree. The man standing behind the tree is R. M. Teague. These trees are brought to the end of the row, placed in auto trucks and delivered to the establishing lath house. They may remain here from a week to possibly several months. From this lath house the trees are shipped to all parts of the world. If they are balled photo No. 8 shows the method in which small shipments may be made. In such a package they reach their destination and are planted in the orchard without the tenderest growth ever stopping. Lower photo, No. 9, shows another method of packing in which the balling method is not followed. These trees have bare roots which are protected by a packing of sphagnum.

KIRKMAN NURSERIES

Established in California 1888

A Paying Commercial Orchard from Kirkman Nursery Stock

Growing High Grade Nursery Stock Is a Science

Kirkman Trees are the production of two generations of experience in Nursery Craft. Our trees and vines are grown in twenty-one separate propagating plants in California. Customers are certain of Delivery and from our nearest nursery plant. *We are making reservations now for next season's planting.*

Kirkman Nurseries Main Office: Fresno, Cal.

California Cultivator

Vol. LVI, No. 21 | Los Angeles, May 21, 1921 | One Dollar Yearly

Agriculture Wins Out at Capitol

By R. P. Royce

THE agricultural industry of California came into its own during the session of the state legislature just closed and for the first time in the history of the industry was accorded the measure of respect it should have been receiving years ago. This new order of things as they should be is due primarily to the official functioning of the Agricultural Legislative Committee and to the efficient activities of the capable secretary, R. N. Wilson. To those who in past years have stood on the side lines and watched the legislative mill in this and other states grind merrily on with little or no attention paid to the needs or wishes of agriculture; or who have watched the poorly organized and practically futile efforts of a few valiant farmers directed toward getting through a useful and needed piece of legislation or an appropriation, and noted with chagrin and almost pity the whipped-dog attitude of these same interests when some especially vicious bill went sailing by in spite of their protests—to one who has watched and wondered in the past, the last session was distinct departure and holds forth reasonable hope that once having tasted of power and victory agriculture will never again be made "the goat."

The accomplishments of the last session were simply made possible through organized effort properly directed.

Taken as a whole it can be said that practically every piece of important legislation that was sponsored by the Legislative Committee was passed. True, nearly all the bills must yet receive the approval of the governor, but with the same influence that saw to the passage of the bills still watching over them it is not unreasonable to expect that they will become laws.

Not the least gratifying feature of the work of the committee is the fact that its work was accomplished with such tact, dignity, determination and frankness as to win the open appreciation of the members of the legislature and the administration leaders.

Unquestionably, the most signal accomplishment on the part of the farm interests was the obtaining of increased appropriations for the college of agriculture and the state department of agriculture. The college needs were thoroughly investigated by representatives of the committee and with few exceptions the requested appropriations were granted. The committee even succeeded in getting the $450,000 that had been eliminated by the board of control. In all, $2,500,000 will be made available to the college of agriculture if the governor signs the various bills.

In connection with the college of agriculture the committee played an important role in the legislative investigation of the college which resulted in a report recommending that a commission of seven members be appointed to make a thorough study of the problem of agricultural education in this and other states. It is expected that this report, which will be made to the next legislature, will result in the adoption of a definite and constructive plan for the development of the college of agriculture.

Largely through the support and activities of the committee the state department of agriculture was granted a large increase in appropriations — in fact, the department got nearly 100 per cent increase and about everything asked for.

A fundamental piece of legislation, calculated to make clear the provisions and limits of the law regulating cooperative associations, sponsored by all the cooperative organizations of the state, was passed. Prior to passage the bills were amended to provide certain supervision by the commissioner of corporations. The net result of the amendments will be to prevent malicious persecution of cooperative organizations.

It being quite impossible to give even a brief digest of all the measures of interest to our readers, the more important follow:

Senate Bill No. 6, by Senator Rigdon, is the "Pure Seed Bill" to prevent the adulteration and mislabeling of agricultural seeds. A companion bill carries an appropriation of $15,000 for enforcement. S. B. 98 by the same author is a tuberculosis eradication bill based on the "free area" theory. As finally amended before passage the bill provides that upon the request of the board of supervisors of any county the director of agriculture may cause a survey to be made to determine the prevalence of tuberculosis and if 90 per cent of the cattle of a county are found to be free from the disease, the county may be declared an eradication area. Considerable opposition has developed on this measure. The opposition is not opposed to the eradication of tuberculosis but is based on the fact that there still exists considerable ambiguity as to what the bill means and what the department intends to do. Not a little opposiion is due to the feeling that the state veterinarian and the author of the bill proceeded without consulting the cattle owners themselves. At this writing a meeting is scheduled to protest the signing of the measure. Assemblyman Cummings, chairman of the agricultural committee of the assembly, is the author of A. B. 38 which provides the machinery for breeders of this state to avail themselves of the opportunity to place their herds on the accredited list. All but three states in the Union are working under this plan, but for some reason it has been impossible to date to get the officials of this state interested to the point of supporting the plan. As the bill finally passed it was shorn of the appropriation to cover indemnity.

A. B. 443 by Broughton gives official recognition to the Mallien test for glanders and provides further that once a bovine has reacted to the tuberculin test and the owner so notified, permission must be obtained from the director of agriculture before selling said animal.

A. B. 1302 by Cummings requires that butter milk, skim milk and whey sold at creameries and destined for feeding must be pasteurized.

S. B. 234 by Rigdon amends the present Hide and Brand law. S. B. 236 by same author requires that notice be given the director of agriculture before the sale of estray animals.

S. B. 119 by Rush regulates the running at large of dogs. This bill has appeared at every session of the legislature since the beginning of time and it is now thought that all objections raised in the past have been eliminated.

S. B. 275 re-enacts the present dairy products standardization law, makes certain definitions and gives the state director of agriculture power to determine the moisture content in cheese.

S. B. 277 by Rush is one of the most important bills introduced. In brief this bill provides for the inspection of slaughter houses. At present only the larger cities and a few retailers using government inspected meats have inspection. Under the bill this inspection will be extended to the smaller communities and will be under the regulation of the director of agriculture.

S. B. 498 by Harris is of vital interest to creamery patrons as it requires that all butterfat tests must be recorded indelibly. It is expected that the law will operate to prevent tests being changed.

S. B. 382 by Rush appropriates $50,000 to be used by the management of the proposed San Francisco Livestock Show.

Of general interest may be mentioned the following bills:

A. B. 910 appropriates $200,000 for the investigation of the storage, control and diversion of water. The bill will provide for part of the Marshall plan.

A. B. 1126 by Bernard is the important "warehouse act." This bill had the support of nearly all agricultural organizations. In brief it provides for the licensing of warehouses and that warehouse receipts for certain products must be based on established grades. S. B. 153 provides for the establishment of grades and standards for grains.

S. B. 201 re-enacts the fruit and vegetables standardization law with certain amendments.

S. B. 202 places the county horticultural commissioners under the authority and direction of the director of agriculture and S. B. 203 fixes the minimum salary of the commissioners. S. B. 204 provides for state wide examinations of the commissioners and that passage of said examinations makes one eligible in any county.

S. B. 247 by Harris relating to the control of the grape mealybug and requiring that picking boxes be sterilized was passed after the request for an appropriation of $30,000 to carry out the intent of the measure was eliminated.

A. B. 392 provides for the continuation of the study and research of beneficial insects. A. B. 380 relates to license fees for nurseries. A. B. 1293 re-enacts the apple standardization law. S. B. 273 regulates the sale of economic poisons and requires such poisons to be labeled. S. B. 231 proposes to restrict the propagation of noxious weeds. S. B. 274 continues the present regulations regarding the control of the walnut codling moth. A. B. 1183 amends the present fertilizer law to provide for certain penalties for violation.

The above list does not include all measures passed by the legislature relating to or of interest to agriculture, but includes the more important. As the various measures are signed by the governor a more detailed digest of them will appear.

Nicotine Dust for Grape Leaf Hopper

By Fred K. Howard

IN THE past the most satisfactory method employed to control the grape leaf hopper was the use of the so-called nicotine soap sprays. These mixtures carried as a killing agent nicotine sulphate or Black Leaf "40," at the rate of one pint to each 200 gallons of water and approximately 5 pounds of whale oil soap, which acted as a spreader for the material. This material is only effective in the control of the nymph and wingless hopper.

The difficulties incident to its use were that it was almost impossible to get a satisfactory coverage except when experienced and conscientious men were handling the spray nozzles. Then, too, the material and the cost of application was sufficiently expensive that many growers hesitated to spend the required amount of money except when the crop was threatened with destruction; consequently, the damage to the grape industry of the state ran into thousands of dollars annually, due to the ravages of this pest which by its feeding habits lowers the vitality of the vines and affects the quality of the crop.

Among the other methods which were used to a limited extent were the so-called hopper cages and suction apparatus which had for its object the collection of the small winged adults in much the same manner as the electric vacuum cleaner. These methods after a few trials have generally been considered both unsatisfactory and expensive.

The grape leaf hopper belongs to that great class of insects which are known as sucking insects because they obtain their food by inserting

(Continued on Page 678)

Agricultural News Notes of the Pacific Coast

Northern California

Colusa, Colusa County, shipped 3,600 lambs the first week of May.

Last month (April) Petaluma shipped 107 carloads of eggs.

The first carload of cherries shipped this year left Sacramento May 3.

The state land colony at Durham began irrigation with the month of May.

The California Pear Growers Association has begun a membership campaign.

The Livermore Valley shipped east more than 25,000 lambs the first week of May.

Northern field estimates show the state will have 140,000 acres of rice this year.

The official opening of the General Grant and Sequoia national parks will occur on May 24.

The Modern Woodmen of America will hold a state picnic in Bidwell Park, Chico, July 4.

The Orland district of Butte County reports farmers wish to purchase large numbers of dairy cows.

Eggs to the number of 50,000 dozen were shipped from San Francisco to Hawaii the first week of May.

Sacramento Valley grain growers claim their grain elevators paid for themselves in 1920, the first year.

The celery acreage in the Sacramento district is one-half that of 1920, as growers are shipping at a loss.

Unharvested rice of 1920 was burned over large areas of Colusa and Glenn Counties, to allow sowing new crop.

The California Real Estate Association states that less than 40 per cent of the state's farm lands are improved.

Berry growers in that section met at Paradise, Butte County, and organized the Paradise Berry Growers Association.

The large amount of rice laid flat by early 1920 rains has caused an early planting in the Sacramento Valley this year.

A new variety of rice, known as Caloro, is being distributed in the Sacramento Valley by the Sacramento grain association.

Warden Johnston of San Quentin Penitentiary announces 2,000,000 grain bags ready at seven cents, the lowest price in ten years.

Employees of the Southern Pacific to the number of 2,000 will picnic at Bidwell Park, Chico, Butte County, at a near date yet to be set.

One acre of beets of high sugar content harvested near Sacramento amounted to 26 tons and the acreage will now be heavily increased.

Tuolumne County has 713 acres of apples, 124 of pears, 94 of peaches, 65 of walnuts, 257 of clover, 373 of alfalfa, 72 of potatoes and 36 of berries.

Eight counties of the Sacramento Valley report arrests and fines of Japanese berry growers with not one white man violating the standardization law.

Geo. Husmann, in charge of viticultural investigations, U. S. department of agriculture, is now at the Napa experiment station where he will take up work of survey of the viticultural conditions in the valley "with a view to making effective the legislation already put through congress."

Central California

The traveling fig school in the San Joaquin Valley closes May 21.

Coalinga has just shipped a full trainload of sheep to Chicago.

The Stanislaus County Calf Club will hold an exhibit at Turlock, May 24.

Kern County farm bureau says: "Back to diversified farming and prosperity."

Colma, San Mateo County, is shipping new potatoes at the rate of five cars per day.

Fresno announces both routes from there to the Yosemite Valley as being in tip-top shape.

The Valley Fruit Growers Association has new headquarters at 717 South Broadway, Fresno.

Two and a quarter million grape vines were planted in Stanislaus County during the past spring.

Of 3,000 tons of figs on hand in the Fresno district, February 1, but 600 tons remain in warehouses.

Watsonville apple growers now anticipate but 1,500 carloads as against the 3,000 anticipated early in this year.

Stanislaus County has enjoyed the heaviest orchard planting during this year of any since fruit tree planting began.

The Santa Cruz County supervisors have yielded to the women's clubs and will have a farm bureau home demonstrator.

A packing plant will be established at San Jose to place in cold storage strawberries for later use at soda fountains.

Tulare County leads the state in olives, with 5,460 acres. Butte County has 5,210, Tehama 3,074, and Los Angeles 3,047 acres.

A rabbit drive held in Hammill Valley, Inyo County, May 15, netted several thousand bunnies lately engaged in destroying crops.

A Watsonville, Santa Cruz County, man has perfected a new berry crate that is meeting with general approval. It is known as the Eaton.

The Pajaro Valley farm centers have been having tractor adjustment demonstrations conducted by Mr. Fletcher of the engineering division of the state university.

The Salinas farm center has adopted a schedule of wages. General farm labor is to be paid $2 per day, team of horses $1, experienced tractor driver $4, irrigators 30 cents per hour.

The Caruthers farm bureau center of Fresno County will entertain the traveling farm bureau conference with a dinner May 25. The conference will be the guests of the Sanger bureau May 26.

Fruit and vegetable growers of the San Joaquin and Sacramento Valleys sent representatives to San Francisco last week to register complaint with the interstate commerce commission against the present high freight rates.

Horticultural Commissioner Rutherford of Stanislaus County says: "If your grapevines are frosted to a point below the cluster of grapes break the entire new growth away to last year's wood. The dormant bud on the old wood at the base of the cane removed will start growth and bear fruit."

Southern California

The Valencia orange show at Anaheim closes May 22.

Orange County Valencia packing houses are now running full handed.

The California Association of Bankers will convene at San Diego, May 26-28.

Los Angeles County announces a normal acreage of bean planting, about 64,000 acres.

Coachella Valley put the first apricots of the season on the San Francisco market.

Escondido Progressive Poultry Club met last week and discussed marketing questions.

Santa Barbara County Fair Association has purchased a new site at a cost of $200,000.

The California Walnut Growers Association handled in 1920 80 1/5 per cent of the state's crop.

The summer meeting of the Citrus Institute will be held at Whittier during the latter half of June.

The Los Angeles County farm bureau potato department will hold its next field meet about June 1.

Cotton growers of Coachella Valley, under name of Acala Cotton Growers, held annual meeting last week.

Lettuce shipments from the Imperial Valley have been one-sixth heavier than for same period of 1920.

The Ventura County farm adviser is distributing black wattle (acacia) seed to induce planting for tanbark.

The Colorado River at Yuma is now four feet higher than same date in 1918, and Imperial Valley ranchers are rejoicing over the news.

The Saticoy, Ventura County, Walnut Growers Association led the world in walnut shipments in 1921, the record being 5,270,500 pounds of nuts.

Prof. Quayle of the citrus experiment station reports possibility of a saving of nearly 50 per cent in cost of gas under the new gas-tight tents.

Farm Adviser Hodgson of Los Angeles County says much rot of seed potatoes after planting this year was due to too long baths in formaldehyde.

Sugar beets that are immune from ravages of leaf hoppers are being selected in Riverside County by agents of the United States department of agriculture.

Walnut growers departments are to be organized in the Los Angeles farm bureau. Part of the program is the holding of a walnut growers institute in the winter.

Investigations by Horticultural Commissioner Ryan's office show that in the city of Los Angeles last year there were sold 228,506 crates of strawberries. The average price was $3.75 per crate.

A Los Angeles County lumber dealer has announced that he will test the constitutionality of the law limiting weight of loads on trucks. Two of his drivers have been found guilty of driving overloads.

Delegates from Palo Verde Valley to the Southern National Highway Conference in New Mexico returned with claim that their efforts were successful in having the Blythe route adopted as part of the National Highway.

The Coast and General

The second cutting of alfalfa is progressing in the Southwest.

A few lots of No. 2 Pima cotton sold for 33 cents. This is the highest price so far this season in the Salt River Valley.

Chandler, Arizona, celebrated its ninth birthday May 17. A big basket picnic, dance and other features on the program.

Sugar factory representatives estimate California's 1921 planting of sugar beets at 130,000 acres, practically the same as in 1920.

A branch of the state university experiment station to be devoted to study of citrus problems has been established near Lake Alfred in Polk County, Florida.

R. C. Paulus was elected general manager of the Oregon Growers Cooperative Association at the recent annual meeting. C. I. Lewis was made assistant manager.

The rumor that the new concrete highway in Maricopa County, Arizona, was buckling seriously in certain places has been declared by the engineers to be erroneous.

The secretary of the livestock sanitary board reports there is a healthy demand for pasture and that many cattle are being brought into the Salt River and Yuma Valleys for pasture.

The Lyman dam, which is being built largely with state capital in northern Arizona, was completed May 7. This will irrigate 15,000 acres. It is possible that 5,000 acres will be added soon.

Senator Ashurst of Arizona has proposed a duty of 20 cents per pound on long staple cotton and Senator Jones of New Mexico a tariff of 15 per cent ad valorem on all importations of hides.

About 750 cubic yards of earth daily is being moved in the construction of the Williamson Valley irrigation dam in Yavapai County, Arizona. It is expected that this dam will be completed during the summer.

Permanent organization of the Kittitas County, Washington, Wool Growers Association has been effected. Among other more general work for the benefit of wool growers the association has for its object the pooling of Kittitas County wool.

Crop reports from Arizona: "Oranges have set better than normal in Yuma County, the grapefruit hardly so well, while citrus fruit are normally good and olives better in Maricopa County. Fruits have been damaged somewhat by frost in parts of Yavapai and Coconino Counties."

The forest service regulation recently put in force declares that any injury done to roads or trails in U. S. national forests will be regarded as an act of trespass. The driving of sheep or cattle over roads or trails which results in injuring the roads will come under the ruling.

The first shipment of Yakima (Washington) wool ever routed through the Panama Canal to the eastern seaboard was reccently shipped by H. S. Coffin, who sent three carloads to Boston by rail and water, thus saving $1.10 per hundred in freight charges. It is expected that much of the 1921 clip will follow the same line of least resistance.

The History of a Citrus Tree

By C. B. Messenger

SOME two score years ago when the total output of California citrus orchards was under 1,000 carloads, William A. Spalding, admirer of the orange, wrote on "The Orange: Its Culture in California." His opening sentences are:

"There is that about the cultivation of the orange which attracts people. Call it a glamour or what you will, the fact remains that many who have hardly given a second thought to horticulture their lives long, seeing the orange tree, fall beneath its spell and become henceforth its most ardent devotees—toiling for it, spending their money for it, and even undergoing privations that they may possess it. I do not know that this subtle influence is capable of analysis; I only know that it exists. But sometimes in thinking upon this subject the fancy has struck me that the orange tree knows very well how to gauge a man—has the faculty, so to speak, of approaching him on every side at once."

The mutual interest between orange tree and human has even increased in these 40 years, and we can still wonder what the orange tree is thinking of some of us who are humans and are supposed to give to this favorite of fruits proper care and environment. Sure it is that some citrus orchards show their inhabitants in heartbreaking condition. Writers in the horticultural press, investigators of the university and fruit growers generally have aided in the study of these trees and their requirements, and some of the growers have utilized the results of these investigations and the spreading of the information, and wonderfully beautiful and productive citrus trees have resulted.

From a purely financial standpoint, when one considers the cost of land, of its preparation for irrigation, of the tree, and of its planting and subsequent care until of bearing age, tragedy appears in the condition of many orchards.

But this page this week is not to be given to a discussion of orchard care or moralizing on the economic loss from lack of that care, but to a bit of observation as to producing from the tiny seed the tree ready for the orchard.

Again quoting from Spalding: "The man who contemplates planting an orange orchard, especially the man of limited means, ought to stop and think twice. He should consider that it is a great undertaking to raise orange trees, and he should also bear in mind that during the long period in which they are attaining maturity his family and himself must have a living. If, after weighing the matter carefully, he comes to the conclusion that he is possessed of the requisite courage, perseverence, energy and thrift for the undertaking, with a natural taste for it which will make his labors and trials endurable, and if he thinks he can see his way clear to keep the pot boiling through several non-producing years, why, let him go ahead, and God speed him! He is embarking in a good enterprise and one that will surely bring its reward if intelligently carried through."

To carry through intelligently he must needs begin with the right tree. And this making of the tree which has been used as a foundation for California's great citrus industry has resulted in the upbuilding of a great business. One of the greatest representatives of this business of producing trees is the Teague Nurseries at San Dimas. Not only have trees been supplied from these nurseries for the making of California orchards but hardly a country in the semi-tropic world but has drawn upon them. Some half dozen years ago the Cultivator received inquiry from a subscriber in the highlands of India. He had received a consignment of orange trees from these nurseries which had been a few days over three months in transit. All but two of the trees had started and were in full growth. These two remained green of bark but refused to send out new leaves. Ability to ship trees half way round the world indicates intensive specializing in growing and handling such stuff. So it's a bit interesting to know the steps necessary in the production of these trees.

The planting of the seed, some in lath house, some in open ground, the care of those seed for an entire year, the pricking out or the replanting of the young trees in nursery row, their care, the securing of budwood, the placing of buds, the cutting of the twine or the waxed cloth—the latter being the more generally used today—the driving of stakes, the patient tying week by week of the young bud as it continues to grow, the pinching or topping so that the branches make a perfectly balanced young orchard tree, the trenching, cutting the taproot, balling, or lifting of bare roots, the curing or establishing and placing in the orchard, all are matters of most intense interest, and the understanding of these various steps will help us to have better appreciation in real dollars of what the tree ready for the orchard represents. So we asked one of the most practical growers, William R. Wood, to give outline of the practical steps taken in tree production.

By William R. Wood

HOW few of us stop to think when we see a beautiful citrus grove just how much work was necessary to bring it to its present mature condition. We may consider it from the time the young trees were first set out in orchard form, but few of us allow our thoughts to go back to the starting of the trees from the seed.

Not long since the writer, with a friend, was passing through a section of well cared for groves, the trees having responded to the care by producing bountiful crops of the golden fruits that weighted the limbs and made them appear like Christmas trees loaded with Yuletide greetings. My friend remarked, "What a beautiful sight and how interesting it must be to work among such surroudings." "Yes," I replied, "and I helped grow the trees in this particular grove from the seed to the time they were planted in orchard form." My thoughts wandered back to the time when, as a boy, I helped extract the seed from cull oranges that formed the root stocks for this orchard.

It was customary in those days to buy the seedling orange culls either from the orchardists or packing house and extract the seed for the root stocks. There were a good many seedling orchards grown from Tahiti seed which was considered about the best for this purpose. These were known as sweet orange seedlings, the use of Florida sour orange seed for root stocks being almost unknown in California at that time.

We cut the oranges in halves and with an arrangement something like the old fashioned lemon squeezer pressed out the seed, cleaning out the pulp by washing it through screens for a number of days. In this way we managed to get the seed fairly well cleaned, and it was then kept in water which was changed daily until ready to plant. At the present time very little of this seed is used, practically all of the root stocks being grown from sour orange seed shipped in from Florida, the sour orange seedlings being hardier and more resistant to root diseases.

The seed is usually planted in April or May, either in beds or drills, and covered with sand to prevent the soil from baking or crusting over, and these are kept watered just enough to hold the moisture around the seed which will start to grow in from two to four weeks, depending on condition at time of planting. If planted in good soil the seedlings will be from 8 to 16 inches in height by the following spring and are ready to transplant in the nursery row. The former practice was to wet the beds thoroughly and loosen the soil around the plants with spading forks and pull up the largest for transplanting, leaving the remainder to grow another year, but the present mode of procedure, as recommended by those having made a study of root stocks, is to dig up the entire bed, using only the strongest and best plants for root stocks and discarding the remainder. By this method from 40 to 60 per cent of the plants are discarded.

As the plants are taken up they are packed in wet moss and transplanted to the field where they are lined out in rows four feet apart and about 15 inches in the row, the water closely following the planters so that only a few minutes elapses from the time the seedling is placed in the ground until the water settles the earth around it. As soon as dry enough the soil is carefully hoed around the plants to prevent their drying out, and water is again applied within a week or ten days, depending on the weather. Hoeing, cultivating and irrigating constitute the principal part of the first year's work on the seedlings, but this must be properly attended to if maximum growth is to be expected. Beginning the second year the seedlings are pruned up to one straight stalk to a height of eight to ten inches from the ground, and this stem is kept free from sprouts so as to form a smooth stock for budding the following fall or spring. The irrigation, cultivating and hoeing is continued as in the first year, care being taken to see that the plants do not suffer for want of moisture, a condition that is detrimental to the root system and often times accounts for trees not doing well after they are transplanted to the orchard.

Budding is usually done in the fall or spring, September and October being the fall months and April and May the spring months.

The former practice was to select budwood from bearing orchards of the variety desired, but with the advent of what is known as "bud selection" it is now considered impracticable to use any budwood excepting from trees with a known performance record for productivity and quality. The Fruit Growers Supply Company (a subsidiary corporation of the California Fruit Growers Exchange) maintains a bud selection department and furnishes budwood from record bearing trees, and the bulk of the nursery stock is now being budded from this class of buds.

Budding is usually done by professional budders at so much per thousand trees, the contractor putting in the buds, wrapping them and taking off the wraps at the proper time. With spring budding the tops are cut off about six to eight inches above the buds very soon after the wraps are taken off. This forces the buds to start out at once. With fall budding, however, the tops are not cut off until the following spring after the danger of frost is over, the buds lying dormant through the winter.

As soon as the seedling tops are cut off the buds are staked, that is a stake, usually a four foot lath sharpened at one end so as to facilitate driving, is driven in the ground as close to the seedling as possible and on the same side of the bud. This causes the buds to grow straight up with very little crook. Some nurserymen prefer to let the buds get out six or eight inches before staking and tie them up to the stump first. Either way is good provided the work is done properly and at the right time.

As the buds grow they are kept tied to the lath so as to keep them straight. All sprouts or suckers are kept off the seedling stump and any side limbs or shoots that may come out on the buds are taken off. This work is important as it gives the buds more vigor and makes a much better appearing tree. When the buds reach a height of 30 inches or more and the wood is well rounded out they are topped at a uniform height of 28 or 30 inches from the ground and limbs are allowed to grow to form a crown or head. These limbs should be as evenly distributed as possible so as to form a uniform head, all limbs being kept from the top down about eight inches. All limbs coming out lower than this are kept pruned off the same as when the buds are first started.

The buds usually reach the proper height for topping in July or August and are sufficiently hardened up so that it is safe at this time to cut off the seedling stump just above where the bud started. This is called "stumping" and is done with a hack saw, the cut being made at an angle of about 30 degrees and close enough to the bud so that it will heal over readily and at the same time not weaken the bud. The cut is immediately painted over with shellac or paint of sufficient body so that all moisture is kept out. This prevents decay, a condition that may weaken the tree in after years.

At one year of age, or the following spring after the buds have started, they should caliper ⅜ to ¾ inch at the bud, although a certain percentage will not reach this size, depending on the soil and care they have had. It is safe to say that under normal conditions 50 to 75 per cent will be large enough to transplant for those desiring one year stock. The remainder must stay in the nursery another year.

(Continued on Page 676.)

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard — D. F. Reichard
J. W. Mills — J. B. Neff
Fred M. Reed — Louis B. Stanton
G. E. Gordon — M. E. Bemis
A. R. Gould — E. L. Koethen

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If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

Only a part of the story of the orange trees is told by the illustrations on the cover, but that portion makes most vivid some of the steps through which the tree must pass. One picture there shows the seedbed, another the trees in nursery row, another gives something of an idea of the extent of the nursery and, perhaps more interesting, the method of "balling" or taking the tree out of the ground with sufficient soil about the roots that it may even continue its growth started so favorably in nursery row.

* * *

Another scene shows the method of establishing or getting the tree ready for its new conditions in the orchard. They are delivered from the nursery by truck, placed in the lath house, and the balls kept well moistened for a time until required for the orchard. By that time perhaps new growth is coming along on the trunk of the new tree. It is placed in the orchard, thoroughly irrigated and scarcely realizes its changed conditions but continues its new growth until in seemingly but a few days it takes up the business of producing food for human beings.

* * *

It costs money to produce a nursery tree. Especially is this the case where the tree is grown as it should be. One point we will mention, perhaps seldom thought of in connection with cost of production, is the selection of the bud. We recently stood looking down between two long rows of orange trees ready for orchard planting. We asked the nurseryman what kind of a record he was keeping on the little white stakes at the end and often at intervals through the entire row, and he was quick with the information that the record on those little stakes meant everything to him in selling the tree and to the grower in planting it.

* * *

In the first place the federal department of agriculture sent Mr. Shamel to California to study the problem of the grower in securing a more uniformly productive orchard, more uniformly productive and more productive of uniform fruit. Year after year this study was continued and the little white stake in the nursery row is a history of that work. The buyer of the tree is given information which will enable him to go direct to the parent tree from which the bud was selected. From the tree he goes to the owner or to records which tell him the production year by year of the parent tree. Still more, he will be told that that particular bud was taken from wood of known bearing performance. The tree may be at Riverside; it may be at Redlands, or it may be in Tulare County, but its number and all about it may be determined from these little stakes.

* * *

This matter of bud selection and the care which California nurserymen are giving to the making of trees has resulted in still greater California horticulture. In years to come we believe the pilgrimage of European, East Indian, South African, South American and Australian fruit growers to learn how California does it will greatly increase.

* * *

Another popular priced automobile has announced material decline in its price. Farm implements generally are more reasonable in price than they were a year ago, and while it takes considerable nerve on the part of a farmer to buy farm implements on a reducing market, there is opportunity for consideration of many points in this restoration to normalcy. It is probable the old before-war prices will never return. One large implement manufacturer in announcing a ten per cent reduction in plows, cultivators, harrows, planters, binders, mowers, etc., says that raw materials have been purchased at the higher prices and that in its 1921 production it consequently receives no benefit of the recent reduction in the price of steel. The steel reduction, however, does furnish a new basis of replacement cost, and even though this reduction in price means a tremendous loss to the company, nevertheless it is willing to take the consequent loss in the hope that it will benefit the farmer in enabling him to buy more economically the implements he needs and at the same time increase the market for his products by giving employment to factory workers.

We think it an especially fine omen in that this number of the California Cultivator is issued May 21, 1921 and is No. 21. It sounds at least as if we were reaching our majority. In any case it is a fine number for our contributors have done exceptionally well in sending in some remarkably good copy. And the copy is not all "reading matter." As we have reminded our readers before some of the most instructive, most inspiring and sure the most optimistic reading in an up to date farm magazine is that which is within the advertising columns. The modern day farmer who fails to read advertisments soon ceases to be a modern day farmer.

* * *

There are a lot of funny folks in this world. Some of them are in California. The Pacific fleet has been sent to the Pacific Coast . The Pacific Coast has no station with proper equipment, which is able to keep the ships fit for fighting. Congress is expected to make such appropriations, appropriations which common sense dictates are needed for the protection of the coast and the entire country. Instead of encouraging this movement on the part of congress we Californians proceed to engage in a petty, even nasty, scrap, which is disgusting the powers that be and working for a condition which now makes it appear that the appropriation will be entirely withheld.

* * *

The state highway commission is confronted by a similar manifestation of petty selfishness. It is suggested that a certain strip of road in a certain county is to receive exact location. The first question uppermost in the minds of those to be benefited is "Does the proposed road go by my door or that of my neighbor?" In the hair pulling and face scratching which ensues the one big fact of public benefit is entirely lost sight of, and there have been occasions when such scraps have caused the loss of the improvement to the entire community. Too bad we can't be a little bit bigger.

"CALIFORNIA"

We are glad that the promotion interests that are working for the development of the interior valley of California have decided that there is no word like "California." For it's a grand old word.

And it is a very useable word. The modifications that have been made upon it do not vary its character. And there is enough of it to go around, in reputation, to provide every foot in the state with a golden glow. From Mount Shasta to Fort Tejon, all this interior valley of the state breathes "California." It is California.

It is all California in esse and in posse alike. It is California as it is and California as it can be and will be. Not only can people be here and "live" California, but they can work California. They do not need to talk Northern California or Southern California, or Superior California or Central California. In fact, any of these directional phrases can be properly used as occasional indications of local relationship, but they should be avoided as symbols of exclusive kinship.

The use of any prefix to the name of California has, we are convinced, arisen from a misunderstanding of the needs of advertising. Whatever any misguided person may do about this, we hope that no other persons will imitate his example. It is not good business for the state nor for any part of the state. Mount Lassen is not in Northern California, but in California. Nor are the great waters of the Sacramento Valley anywhere but in California. Nor are the rich fields of Glenn and Yuba and adjoining counties anywhere but in California. Let us say so, and nothing else except for the mere purpose of directing the incoming settler or tourists.

We are paying a lot for our state highways. But they have been worth a lot for this alone: That they have made it easier for us to rub shoulders with our fellow citizens of California. God bless them! — Fresno Republican.

A BETTER COLLEGE

The governor has not yet signed S. B. 981, appropriating $450,000, a special above the budget fund for the college of agriculture,, but there is still a full week before the enactments of the legislature will die if the governor does not sign. All friends of the college are hoping that the governor will make this appropriation effective.

VALENCIA WEEK

This is orange show week at Anaheim. It is Valencia week. The late orange is not demanding absolute exclusion of other varieties but naturally Orange County, being a Valencia county, it's presenting a Valencia show and Valencia is queen. Its importance to the citrus industry is more appreciated by a look in at Anaheim, whose latchstring is out.

HOME CANNERS

Since the first suggestions several years ago of the home canner as a means of saving of orchard wastes the Cultivator has persisted in urging the use of this food saving devise. All too often abnormal crop or marketing conditions make for loss to the producer, and sometimes a loss so serious as to jeopardize the investment and even the home of the orchardist. The best insurance against such loss may be through cooperation, especially a cooperative cannery or a cooperative dry yard. This insurance is not always possible. And even some times where it is possible the added insurance which comes from the possession of the home canner makes most profitable the investment of that institution. These canners are now put up so that the producer who is willing to follow instructions may produce a pack the equal of the professional canner. His perishable product is then almost imperishable and he may wait the turn of the market which permits profitable disposal. It pays to be sure and insured.

FIRE PREVENTION WEEK

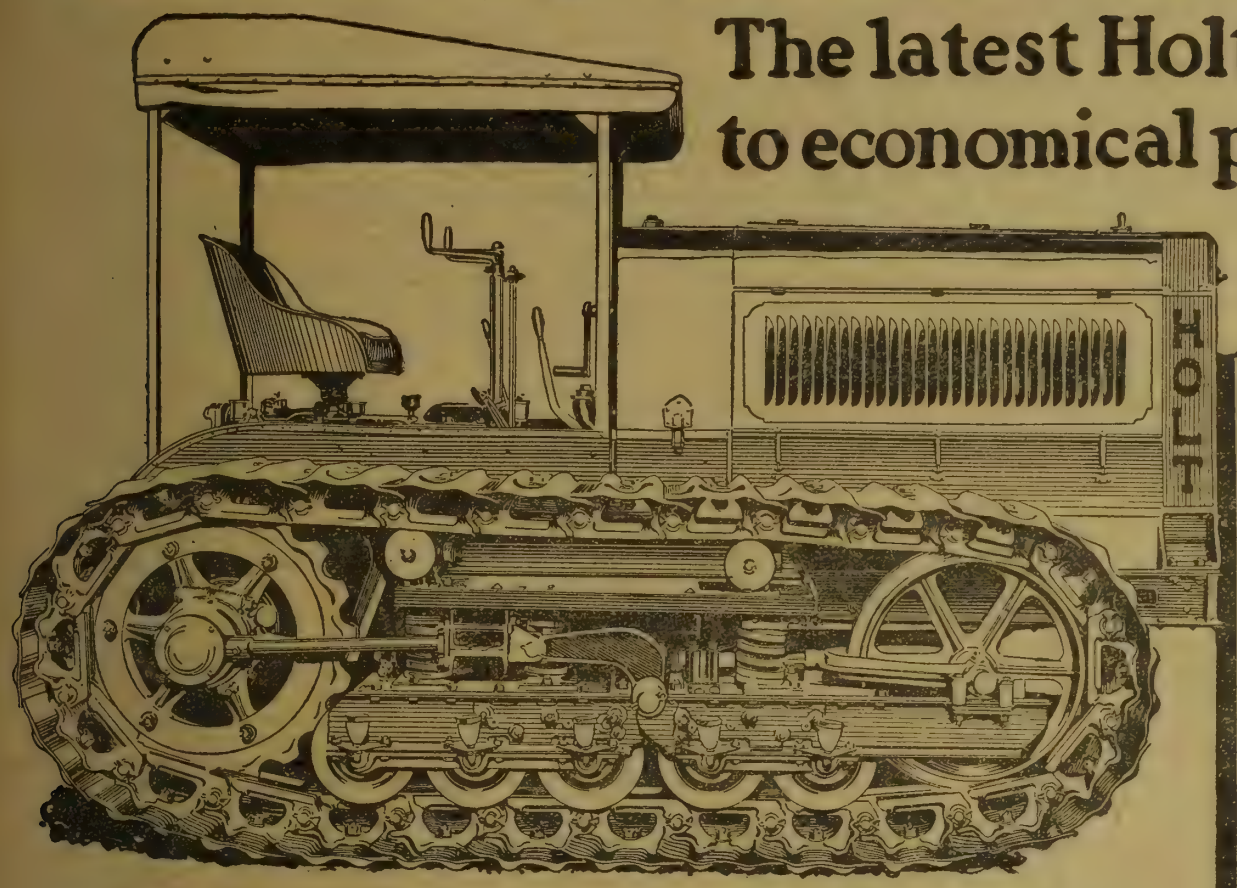
Two weeks ago the place-of honor editorial in the center of the page was written by Governor Stephens. It had to do with a proclamation issued from the executive department of the state of California, naming the week of May 22-28 as "Forest Protection and Fire Prevention Week." It is noted that it begins on Sunday and that Governor Stephens suggested "Let ministers instruct their congregations," and others who have opportunity like teachers, farm bureaus, boy scouts, women's clubs, chambers of commerce, railroads, lumbermen, fishermen—All who use the forest or even who live in California, instruct in true patriotic effort to lessen fires and fire destruction in our homes, on our farms, along the roadside, from our campfires—everywhere "Prevent Fires."

Nor is the one week sufficient. May it be the inspiration of "Forest Protection and Fire Prevention Year."

And, too, it is well to bear in mind that in planning for building construction or for storage of valuable equipment proper construction may mean as much in fire prevention as does personal care and attention. The carelessly constructed flue or an outbuilding with weeds permitted to dry and remain as possible fire carriers may endanger our property, even our own existence. California's dry summers make for special attention in this matter of construction plans and water systems.

New Western 10-Ton "Caterpillar" Tractor

The latest Holt contribution to economical power-farming



More years of tractor-building experience than can be found in any other tractor are summed up in this newest Holt product—the Western model, specially designed to meet Pacific Coast conditions, of the world-famous "Caterpillar" 10-Ton Tractor.

The Holt Line

The Holt line includes, besides the Western 10-Ton, the 75 horsepower model of the "Caterpillar" Tractor, unequalled for power and ability to handle the biggest jobs efficiently and economically; "Caterpillar" 45 Tractor, for the medium power requirements; "Caterpillar" 5-Ton Tractor, the most versatile, powerful and dependable small tractor for farm, orchard or highway work. Holt line of combined harvesters includes a size and type for every condition of ground, grade or grain—from the big Standard model to the new little one-man four-horse harvester. "Caterpillar" Disc Plows offer plowing equipment of the same high grade of construction and dependable service as the "Caterpillar" Tractor. For leveling work, there is the "Caterpillar" Land Leveler built in three sizes. Write for detailed information on any or all of these Holt products.

Power, economy, dependability, flexibility, long-life—every advantage you look for in a tractor is in this one—in greatest measure. It has scores of valuable new features.

It develops more than 60 horsepower. Its operating cost is less than that of other tractors of equal or even higher power-rating. The Western 10-Ton "Caterpillar" Tractor is built along commonsense engineering lines. No other tractor can approach it in long life and low upkeep costs. Here is a tractor that will do your work *when* and *how* you want it done—at lowest cost per horsepower hour.

Get full information at once about this latest and greatest Holt achievement in the tractor line. Write us or ask the nearest Holt representative.

The Holt Manufacturing Company

Stockton, California Peoria, Illinois

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There's only one Caterpillar Holt builds it

For Vineyard Economy

These features in the American Beauty Dust Sprayer are reasons for its economy:

1. Low purchase price and no need for repairs.
2. Operated by one man.
3. Simple construction—few moving parts.
4. Material applied only where needed—none wasted.
5. Its powerful blast penetrates all parts of plant, giving perfect protection.
6. One man covers great acreages in vineyard work.

A very small quantity of the dust well distributed and covering every part of the infested plant is by far the most economical method of controlling Aphis, Thrips, Leaf Hopper, Mildew and other pests.

Destroy the Vine Leaf Hopper

Recent exhaustive tests at Fresno under the supervision of the California Raisin Growers Association have demonstrated the efficiency of our Nicotine-Sulphur Dusts, showing the greatest precentage of kill in the control of Vine Leaf Hopper of any dusts obtainable. For best results use "Calispray" dusts made in our own factory—a brand ready prepared, for every insect pest.

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Fruits and Nuts: Then and Low

Conclusion of Address Made by Prof. M. E. Jaffa Before Claremont Pomological Club

The summary of Hoebler's conclusions in re the nut diet is as follows:

"In attempting to determine the efficiency of any diet fed, factors which must be considered are: quantity of the milk produced; caloric value of the milk produced, and loss or gain of tissue of the mother producing the milk.

"In Table 1 are submitted the details of the observations which cover these points. From the standpoint of quantity of milk, Diet 10, made up of nut protein supplemented by vegetable protein only, produced an average of 1,234 calories, over 100 calories above any other diet; also an average of 1,689 cubic centimeters of milk in 24 hours. From the standpoint of protection of material tissues one of the mothers showed a nitrogen efficiency of 5.3 per cent and the other of 13.8 per cent. Thus in the three essential standards Diet 10 produced the best results. It is not intended to convey the impression that this diet would always accomplish the same good results, for while it produced the same general results in each of the mothers under observation a much wider application of such a diet must be undertaken before a definite decision can be reached; but such were the findings in this observation, and it is for those interested to test it clinically.

"The actual ingredients of the diet are given in Table 2. The diet contained approximately 2,670 calories. The ratio of protein to fat and carbohydrate (all reduced to basis of calories) was 1:5. The actual grams of protein ingested was 104.68, yielding 16.75 grams of nitrogen. Of this intake 89 per cent was absorbed. The mothers took the diet readily, and in fact enjoyed it.

"Table 2. Ingredients (in grams) of Diet 10 (Nut Diet): Malted nuts 100, protose (nut products) 150, pecans 25, almonds 25, walnuts 25, peanut butter 50, cocoa 8, chocolate 8, bread 200, potatoes 200, lima beans 100, peas 200, bananas 100, apple sauce 50.

"This diet demonstrates that the biologic character of vegetable protein, particularly if composed largely of nut protein, is not incompatible with a production of milk protein whose biologic character is entirely different.

"This does not hold true when a pure vegetable diet from cereals, vegetables and fruits, is given."

Cajori states as result of his investigation: "Satisfactory growth was observed in young rats on diets in which the almond, English walnut, filbert and pine nut, respectively, furnished the essential source of protein in the ration.

"Normal growth can be secured when rats are fed upon otherwise adequate diets containing the almond, English walnut, black walnut, Brazil nut, chestnut, or pecan as the sole source of water-soluble vitamine. Animals which have declined on a diet devoid of water-soluble vitamine promptly recover when the almond, English walnut, filbert, hickory, pine nut, chestnut, or pecan is introduced in the diet. These observations indicate that nuts are sources of abundant quantities of water-soluble vitamine.

"The proteins of the almond, English walnut, pine nut or filbert furnish the necessary nitrogenous complexes for the elaboration of milk in rats."

The important conclusion from Holmes' paper is that peanut protein is a valuable source of some of the most important amino acids, particularly lysine, so necessary for growth. Furthermore, it is shown that the digestion coefficient of such protein averages 86 per cent. This is a higher figure than that recorded for the protein of any of the whole cereal meals, such as graham flour, oatmeal, corn meal, etc.

Summarizing the foregoing presentation of the subject it would appear:

That the nutritional knowledge 25 years ago of fruits and nuts was practically limited to the results of approximate chemical analysis indicating the percentages of protein, fat, carbohydrates, acid and mineral matter. The fat of the fruit and nuts in, and their value to, the body was little understood.

That during recent years there has been aroused a much fuller appreciation of fruits and nuts based on: Nutritional studies and metabolism experiments showing conclusively that the availability to the body of the nutrients in fruits and nuts compares very favorably with that of other foods. Nutrition investigations on the function of mineral elements in nutrition have made it clear that the mineral ingredients of fruits are highly essential for maintaining the mineral equilibrium of the body. Most recent studes on vitamines show that fruits and nuts are to be considered as sources of the anti-neuritic vitamine, water-soluble B; and the anti-scorbutic vitamine, watersoluble C.

Fruits and nuts should be considered as dietary essentials, not as food accessories or luxuries. They therefore should be classed, nutritionally, as important as other staples ordinarily found in the menu.

HISTORY OF A CITRUS TREE

(Continued from Page 673.)

and of these possibly 50 per cent will make marketable trees and the remainder must be dug up and thrown away.

In taking up trees two methods are used, viz: balled and open roots. In balling the roots are cut out with 40 to 60 pounds of the soil they are grown in so that the roots contained therein are undisturbed. A trench 16 to 18 inches deep is dug along one side of the tree and the tap root cut at the desired depth, usually about 14 inches from the surface, and with a sharp spade a ball of earth is cut out about eight to ten inches in diameter, care being taken to keep about the same distance from the tree all around. The ball is then lifted out and placed in a burlap sack. For this purpose a grain or other sack of about that size is cut in two, each one making two balling sacks. The ball being placed in the center of this sack, the four corners are brought up tightly and tied around the trunk of the tree just above the ball, with balling twine, the twine being long enough so that it is brought down the side of the ball and two or three loops taken around the ball. The twine is then passed under the ball and up the opposite side, fastened to each of the loops and then again looped around the trunk of the tree. The twine must be kept tight at all times and fastened firmly so that in handling the roots will not be shaken loose in the ball.

With the open root method the trees are taken up without any soil on the roots and immediately packed in moss to prevent them drying out. When the trees are to be shipped any distance they are carefully packed in boxes with sufficient damp moss to prevent them from either drying out or heating. If properly packed they will keep in perfect condition for two or three months provided just a little water is applied every month or six weeks.

For local planting it is not necessary to be so particular with the packing but sufficient material must be used to prevent the roots from being exposed to either the sun or wind or the tree is very apt to die.

The trees being either balled or packed open roots they are ready for delivery to the planter and the work of the nurseryman is completed. It will be seen, however, that several years have passed since the seed was first taken from the oranges, as well as a lot of hard and painstaking work, all of which is absolutely necessary in growing first class stock.

If the planter will now use the same care in planting and caring for his orchard he will be assured a first class orchard, provided of course he has selected a location where soil and climatic conditions are proper for citrus culture.

* * *

The high spots on the History and Botany of the orance tree are:

By Ernest Braunton

Historians are seemingly well

agreed that the orange and lemon are natives to southern Asia and the East Indies. The Arabs, then under the leadership of the great Mohammed, are thought to have first introduced the fruits to Europe. They were first planted in Sicily early in the ninth century. We know there were flourishing orchards in Italy long before the discovery of America.

The Spanish Catholic missionaries first distributed the seeds of the sour orange in Florida long before any were brought to California, and they soon ran wild over large areas. Shortly after the sweet orange followed the sour, or Seville. The date of the entry of the orange to California is obscure; it was some years before 1800 and was established at the San Gabriel Mission. The first orchard of seedlings was planted near the mission about 1804. The first of our named varieties to reach California was the Mediterranean Sweet, imported by Thos. A. Garey about 1870, and it was followed by the sending of the Washington Navel to Riverside in 1873, the trees having reached Washington, D. C., from Bahia, Brazil. But it was not until 1879 that its superior value was recognized and large quantities of seedlings budded to Navels.

Botanically the orange, lemon, citron, lime, etc., belong to the genus citrus, an ancient name of a fragrant African wood, afterward transferred to the citron. It has become an English word used to designate the entire cultivated family group. All are native to tropical and subtropical parts of Asia and the Malayan Archipelago. The species that are the parents of all cultivated citrus fruits are six in number: Citrus Medica, the citron; Citrus Limonia, the lemon; Citrus aurantifolia, the lime; Citrus grandis, pomelo and shaddock; Citrus Aurantium, the sour or Seville orange; Citrus Sinensis, the sweet or common orange. All named varieties have sprung from these and in turn these named varieties have been further crossed to produce such fruits as the citrange, a cross between the sweet orange and the deciduous hardy Citrus trifoliata: the limequat, a cross between the lime and kumquat; the tangelo, a cross between the tangerine and the pomelo; and numerous others, some freaks of doubtful value. New named varieties of merit are constantly being bred or discovered as chance crosses. The last meritorious claimant for popular favor is the Temple, originated in Florida, where it promises to be a leader. R. M. Teague has made arrangements with the United States department of agriculture whereby this variety will be introduced to California, and it is expected budded trees will be obtainable in 1922.

AVOCADO OIL CONTENT

In his paper on maturity work on avocados before the Pasadena meeting of Avocado Growers, E. M. Chace, chemist United States department of agriculture, gave a list of varieties with their fat content, as follows: Fuerte, 29.6 per cent; Lyon, 26.9; Puebla, 26.5; Blakeman, 21.6; Taft, 18.9; Spinks, 18.5; Sharpless, 18.4; Dickinson, 14.4. The smallest per cent of seed was in the Fuerte and Lyon. The lowest per cent of fiber was in the Taft; second lowest in Spinks and Sharpless. All these figures will no doubt vary with season and location.

The amount of edible material was found to be highest in the Fuerte, closely followed by the Sharpless and the others in the order named: Lyon, Blakeman, Taft, Spinks, Puebla, Dickinson. The Blakeman has the smallest per cent of skin and the others, in order, are: Fuerte, Puebla, Spinks, Sharpless, Taft, Lyon, Dickinson. The per cent of seed was lowest in the Lyon and Fuerte to the same amount, with Sharpless a close third. Then followed Blakeman, Taft, Dickinson, Spinks and Puebla.

The protein content of avocados is remarkably high among fruits, and the eight varieties stand as follows: Lyon, Spinks, Blakeman, Puebla, Fuerte, Taft, Sharpless, Dickinson. The month in which the greatest content was found, which is the time at which they are surely mature, is here given, but this time may vary with the seasons and locality, climate being the deciding factor. Fuerte in December, Puebla in January and February, Lyon in May, Blakeman in May and June, Spinks in March and April, Taft in May, Sharpless in May and Dickinson in June. Mr. Chace explained that some of these fat determinations were slightly but unavoidably interfered with and may be somewhat modified in one or two varieties before the close of another season.

An analysis of Mr. Chace's tables shows the Dickinson to be sixth in weight, eighth or lowest in per cent of pulp, highest in per cent of skin, third heaviest in seed, sixth in amount of protein and far the lowest in fat, having but 14.45 per cent as against 29.93 per cent in the Fuerte.

The first four cars of Valencia oranges of the season left the San Dimas-Charter Oak section on May 13, bound for England and Holland on the steamer Noerdyck.

Australia has prohibited importation of "pip" fruits, including apples, pears and quinces.

PREVENT SPREAD OF PHYLLOXERA

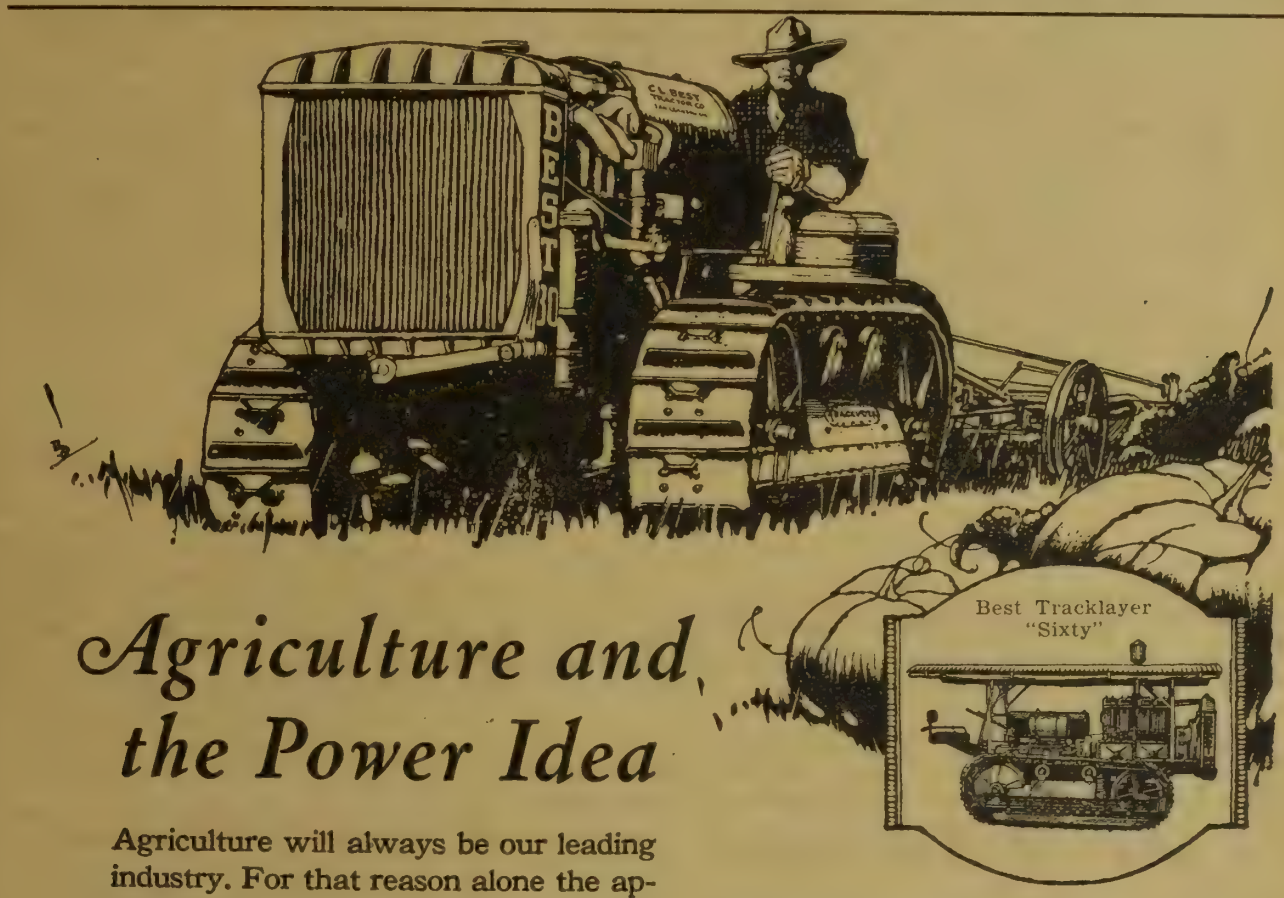
QUARANTINE against the importation of grape vines and protective measures for their inspection and fumigation are recommended by specialists of the United States department of agriculture as means of preventing the spread of the grape phylloxera in California. An extensive study of the life history of the insect has been made by specialists of the department, a report of which was recently published in Department Bulletin 903, "The Grape Phylloxera in California."

The methods recommended are in force in a number of sections in the California grape district. The grape phylloxera, according to the bulletin, is a native of the Mississippi Valley and made its appearance on the Pacific Coast among cultivated grapes planted about the missions as early as 1858. It has spread throughout most of the grape districts in the state and has caused such serious damage that many vineyards have had to be replanted two and three times. Though it is difficult to determine the loss caused by this pest estimates place the destruction at about 75,000 acres of grapes during the last 60 years.

First Appears in Spots

Phylloxera may be present in a vineyard several years before it causes the death of the vines. It first appears in spots, one or two vines showing a slight shortening of the canes and premature yellowing of the leaves, although the latter symptom may be caused by red spider or by alkali in the soil. The spot increases in size, the vines in the center become stunted and die, and finally the vineyard may be totally destroyed. Vineyards frequently have phylloxera spots of more than 20 years standing, but some vines still live.

The insect is destructive principally to the roots. More than 99 per cent of them pass the winter as small brownish, unmolted larvae, all parts of the root system being used for hibernating quarters. Coincident with the first sap flow in early spring is the growth of the hibernants, but the earliest individuals begin to grow fully



Agriculture and the Power Idea

Agriculture will always be our leading industry. For that reason alone the application of mechanical power to its operations in greater degree, is inevitable. Economic changes are forcing it.

All other industries have been forced to adopt the mechanical-power idea, and advancement has been in proportion to the development of machinery to speed up operations, multiply productive effort, lower costs and relieve man and beast of their burdens.

Agriculture itself must advance as other industries advance, because all industries are dependent on agriculture.

It is now clearly evident that lowering of crop-production costs is the prime essential. Greater application of mechanical power is the answer here as in other industries.

One of the greatest aids in lowering costs in a GOOD tractor—the right kind of tractor. A tractor cuts many corners in crop costs. Plowing and other field work can be done rapidly—24 hours per day if necessary—and done more thoroughly and efficiently. Every advantage of weather can be utilized for better yields, there is a saving in time, labor and hired help.

The right tractor will perform faithfully and economically. Such a machine should have more power than is required; should be more than ordinarily well built; should be just a little better and more substantial than seems necessary. Such a machine is the right one. It represents the true idea of all successful industrial mechanical power—real worth, built to meet fully all the requirements in its field.

Best Tracklayer Tractors have earned a splendid reputation for faithful service at low cost, for dependability, for power, for stamina. For years farmers have been depending on Best Tracklayer Tractors for better farming at lower costs.

Let us help you in applying mechanical power to your farming operations. Write for catalogs and full information and the name of our nearest dealer.

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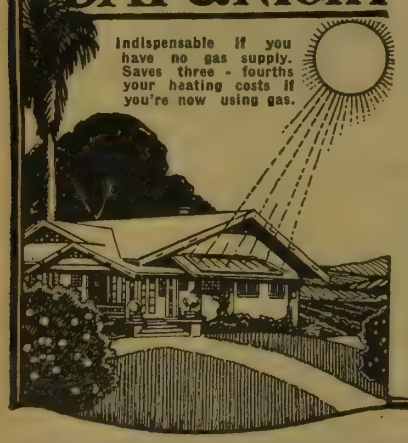

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201-233 North Avenue 18, Los Angeles, Calif.

six weeks before the most tardy ones, so that after the foliage has opened hibernating larvae are still to be found on the roots. The first generation are matured in from four to seven weeks after the eggs have been deposited, and they in turn deposit eggs which produce other generations throughout the summer and autumn.

Vines growing in a well drained, very loose, and friable, sandy soil, or one with a surface of blow sand several inches in depth, seem to be almost immune to the attack of phylloxera. As the soil becomes heavier in texture and of poorer drainage, the vine succumbs more readily to the attack of the insect. Vines live longer in rich, deep, well drained soil. They diminish in quantity and quality when drainage is poor or on hillside soils lacking moisture. Excessive moisture instead of benefiting injured roots causes them to rot and hastens the death of the vine. Vines attacked when young and before their root systems have been established will succumb more rapidly than will those infested at a greater age.

The pest is easily introduced by planting infested rooted vines. It is also carried and spread by wind, running water, implements and picking boxes.

NICOTINE DUST FOR GRAPE LEAF HOPPER

(Continued from page 671.)

their beaks, or probosces, into the tissues of the plant and extracting the juices. For this reason the use of poison sprays is not an effective method of controlling this particular insect since it is possible for it to get its food from the vine without taking a particle of any poisonous substance into its stomach.

The insect is usually very plentiful during the early fall as the grapes are reaching maturity, when they appear in such numbers that they sometimes cause almost complete defoliation of the vines. At least a part of these insects winter over on grass, weeds, etc., which can usually be found along fence rows, ditch banks and waste places about the ranch. These overwintering adults transfer their attention to the new shoots on the vines as soon as the green appears in spring and after a short period of feeding eggs are deposited on the leaves and give rise to what is known as the first brood. These do some damage and soon give way to the second brood, which is the brood first mentioned as appearing in the early fall.

It has been considered impossible to effectively control the over-wintering adult winged hoppers before egg laying starts in the spring because of the failure of sprays used coming in actual contact with these active insects, but with the development of the nicotine dust preparations, which are effective in the control of aphids and other soft bodied insects, it was felt that here was a possible solution to the leaf hopper problem.

Due to weather conditions during the past winter, which seems to have been particularly favorable to the overwintering adults, considerable damage was done to the new tender growth in all parts of the San Joaquin Valley, and the indications were that the attacks of this insect would be more severe than ever before in the history of grape growing in California. Recognizing that something must be done to perfect a cheap, efficient method of combating this pest, the growers service department of the California Associated Raisin Company planned a series of tests with various dusting materials for the control of the adult hopper. Professor Ralph E. Smith, formerly of the University of California, who has had probably more experience than any other one man in the state in making and using dusting materials, was secured to assist in this work. Dusts carrying as high as ten per cent Black Leaf "40" in various combinations were used, but in all cases it was found that the insects were so active as to prevent satisfactory contact by these materials. Where the proper contact could be secured dusts containing five per cent and more Black Leaf "40" were found to actually kill the insect. For this reason it is believed that the commercial application of dusting materials for the control of the adult hoppers would be both expensive and ineffective.

The control of the wingless nymph hoppers is an entirely different question and the grape growers can use the proper dust mixtures with every assurance that they can kill a satisfactory percentage cheaply and effectively. The recommended materials for this purpose should contain at least five per cent Black Leaf "40," and, since the dust is to be used, the addition of from 60 to 75 per cent sublimed sulphur will also help to solve the mildew problem. This material when properly made can be used in the ordinary sulphur dusting machines. The application should be made in such a manner that the dust is directed upward into the vines because the young insects are found on the under surfaces of the leaves. The young hoppers began hatching the first of May in the Fresno district, so the growers should begin careful observation of their vines at once and determine for themselves whether or not the majority of the insects have hatched and when as few as possible have reached the winged stage. It is possible in the worst infestations that two dustings will be necessary to catch all of the individuals of this first brood. The success of dusting, like spraying, depends on the thoroughness of the application, and as labor costs more than material sufficient should be used to insure the desired results.

Dusting 'em Good and Plenty

A group of growers watching dust experiments with both hand and power machines for the control of grape leaf hopper.

PROCESSING FRUITS FOR EXHIBITION

THE beautiful fruits in glass jars seen in exhibit rooms and at fairs and expositions are remarkably natural and are definite proof of the producing power of any section. We are often asked for information as to this process and hesitate somewhat to give formulas for the big factor is experience. However, here are suggestions originally given out by the Ventura County farm bureau and printed in the California Cultivator Vol LIII, page 199:

Where it is desired to keep fresh fruit and vegetables for exhibit purposes, they are sometimes coated with a thin transparent water proof layer, which prevents evaporation of the moisture inside. A successful casing for this purpose can be made by mixing, while heated, one part of tallow, two parts beeswax and two parts paraffin oil. Apply in liquid state with brush or cloth or by immersing the sample in the liquid.

When coating pumpkins, squashes and other products with rough, thick rinds, add one-half ounce of gum arabic to the quart of mixture. A preparation known as parawax is satisfactory when there is only a small surface to cover. Two or three

coatings of the above mixture may be necessary, depending upon the amount of handling and exposure.

Where it is desired to preserve some especially fine specimens of fruit and where it is not desired to use them for food after exhibition, they may be preserved in various kinds of antiseptic fluids.

Select the finest specimens of fruit, both as to form and size. Handle them carefully to avoid all bruising, and place them in bottles, arranging them so as to show them to the best advantage. Fill each bottle to the neck with fruit, then pour on the fluid recommended, filling the bottles to within one-half inch of the stopper, so as to entirely cover the fruit; then place the stopper in the bottle and run a little melted beeswax or paraffin over the joint to make it air tight. Tie the stopper down with a strong piece of cotton, and attach to each bottle a label containing the following particulars: Name of the variety of fruit, name and address of grower. Write also in each case in one corner of the label the fluid which has been used. Wrap the bottles in paper to exclude the light and preserve in a cellar or other cool place until required for exhibit. Strawberries and raspberries should be cut from the plants or bushes with a pair of scissors, leaving a short piece of stem attached to each.

Formalin

For red currants, red or black cherries, red or black gooseberries, red or black grapes, dark colored plums, strawberries.

Formalin (Formaldehyde) one pound (16 ounces); water, 21 quarts; alcohol, five pints.

Allow the mixture to stand, and should there be any sediment, pour off the clear liquid and filter the remainder through filter paper.

This two per cent solution of formalin, or formaldehyde, has been found very useful for preserving strawberries, so as to give them a natural appearance.

In each case where this fluid is used, mark "F" on one corner of the label.

Boric Acid

For red apples, blackberries, black currants, red raspberries, black raspberries.

A solution of boric acid in the proportion of two per cent.

Dissolve one pound of boric (boracic) acid in 22 quarts of water, agitate until dissolved, then add five pints of alcohol. If the fluid is not clear, allow it to stand and settle, when the clear upper portion may be poured off and the remainder filtered.

In each case where this fluid is used, mark "B" on one corner of label.

Zinc Chloride

For green or russet apples, russet pears.

A solution of zinc chloride in the proportion of 3 per cent.

Dissolve one pound of zinc chloride in seven quarts of water, agitate until dissolved, then add one and two-thirds pints alcohol. Allow the mixture to stand until settled; then pour off the clear liquid and filter the remainder.

In each case where this fluid is used, mark "Z" on one corner of label.

Sulphurous Acid

For white or yellow apples, apricots, white cherries, white currants, green or yellow grapes, nectarines, peaches, green or yellow plums, quinces, white raspberries, green or yellow pears.

Sulphurous acid, one pint; water, eight pints; alcohol, one pint.

Allow the mixture to stand, and should there be any sediment, pour off the clear liquid and filter the remainder.

In each case where this fluid is used, mark "S" on one corner of label.

CROP REPORTS

Beginning with the issue of April 16 the Cultivator has quoted from letters from all parts of California showing fruit crop conditions. Some of the very first estimates have been very materially changed by abnormal weather. These changes have called for corrections on the part of some of those who made earlier estimates. Plainly not only in California but all over the United States there will be a fruit crop materially smaller than that of last year. A few of the more cautious have awaited the present issue to give their final estimates as follows:

Winters Dried Fruit Company, Yolo County

Almonds: 40 per cent; average, Nonpareil 25 per cent, Drakes 25 per cent, IXL 50 per cent, Ne Plus Ultra 50 per cent, others 30 per cent.
Apples: None.
Apricots: 25 per cent.
Cherries: None.
Peaches: 35 per cent.
Pears: 50 per cent.
Prunes: 50 per cent.
Grapes: Shipping Tokays 25 per cent, wine 10 per cent.
Figs: 50 per cent.
Frost April 14-15 reduced all crops
Rainfall 23 inches. Trees look good.

O. E. Bremner, Horticultural Commissioner, Sonoma County

Apples, 75 per cent; apricots, 10 per cent; cherries, 50 per cent; peaches, 40 per cent; pears, 35 per cent; prunes, 50 per cent; grapes, 80 per cent.

Pajaro Valley

The Pajaronian of Watsonville reports: "From growers in this valley, who are in a position to know whereof they speak, we learn that the recent frosts hit the crop in this valley hard. Some shippers and packers estimate that the shipments this season will be little over 1,500 carloads instead of the 3,000 carloads, ordinarily expected. The effect of the recent frosts and north winds hit some orchards harder than others in this valley. All accounts agree that the San Juan road and railroad districts were hit hardest. Cherries suffered greatly, and it is questionable if the crop amounts to anything."

Sonoma County

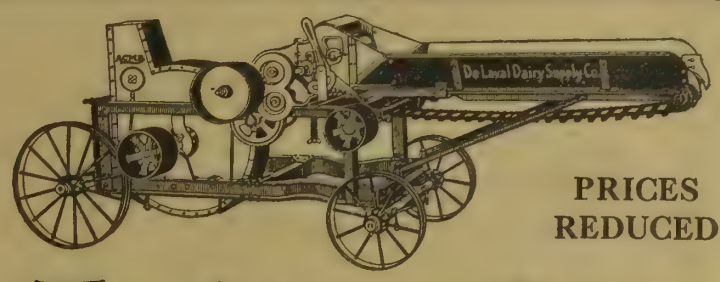
"In the Sebastopol district, which specializes on Gravensteins, an early maturing apple, usually warm weather following a freeze proved injurious, just as in the Pajaro Valley territory, the tender buds were scorched by the heat and consequently ruined. According to President Merritt of the Sebastopol Apple Growers' Association, the "drop" has been heavy, amounting to about 40 per cent. However, there is an increase in acreage this season and this may offset the loss."

STUDY SHIPMENTS VIA PANAMA

As a result of plans worked out in cooperation with the bureau of markets, United States department of agriculture, the Atlantic, Gulf and Pacific Steamship Company is now contemplating arrangements to equip the steamship Charles H. Cramp and adapt it to use as a practical laboratory in which the shipping of citrus fruits and apples from the Pacific Coast to Eastern markets by way of the Panama Canal can be studied.

Every possible effort will be made, it is said, to equip the ship with up-to-date apparatus for the thorough study of the problems arising from this method of transportation. The cargo space will be divided into different compartments, in which various sets of conditions can be produced and controlled. It will also be possible to make records under various transit conditions. Some factors that enter into the transportation of fruits and vegetables through the canal are temperature, ventilation, humidity, and other air conditions. Various degrees of ventilation and refrigeration will be studied.

Oranges, lemons and apples will be the principal fruits to be transported in the Charles H. Cramp, which will operate between the Pacific and Atlantic coasts while the tests are being made. Several of the American steamship lines are interested in the economical fitting out of ships to engage in the transportation of perishable fruits and vegetables by way of the canal to Atlantic Coast ports and to Europe.



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The cutter shaft is provided with three bearings and runs as true as the shaft of an electric motor. The bearings, securely bolted to the steel frame, stay in alignment and are subjected only to natural wear.

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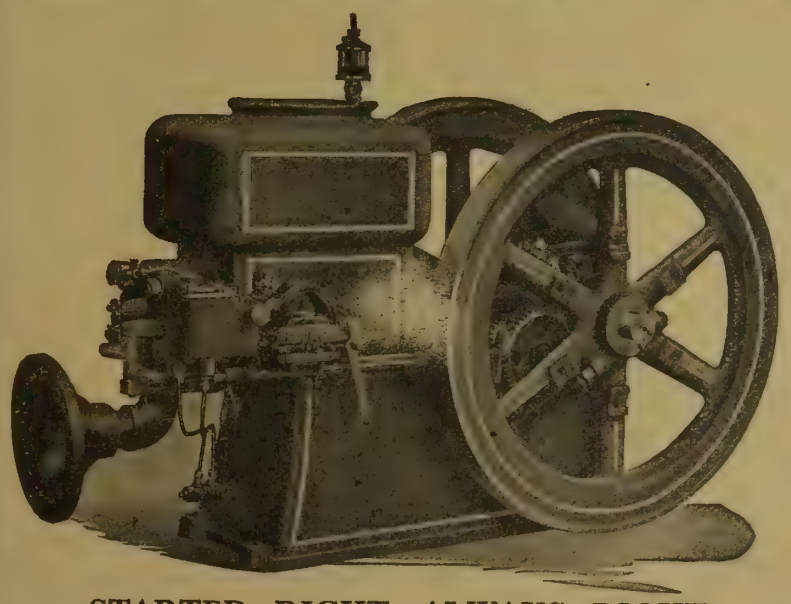

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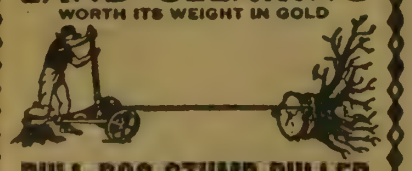

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Protection for Agricultural Products

By Secretary of Agriculture Henry C. Wallace

DURING the next six months we shall either consciously or unconsciously lay the foundation for a national policy. What we do during this period is very likely to determine in a large way whether we shall make ourselves a "self sustaining, independent, self reliant nation agriculturally, industrially and politically," as President Harding expressed it in one of his speeches, or "whether we shall continue to exploit our agricultural resources for the benefit of our industrial and commercial life." Present troubles are greatly aggravated by unprecedented conditions both at home and abroad. Nations which used to buy most of our surplus, paying us in goods which did not seriously interfere with our own enterprises, are in bad condition financially. They owe huge sums of money to us and to their own people. They need all the money they can raise to rebuild their own industries. They are making desperate efforts to grow their own food, consequently they are buying as little as possible from us and are trying to sell us as much as possible. They want to send us goods to meet their payments of interest and principal and to pay for what they now buy. They must follow this policy; their salvation depends upon it. They will compete with our industries both in our own markets and in other markets which can use the sort of goods they produce.

Our own manufacturers see the danger to them in this situation. They see competition becoming more and more severe. Naturally and properly they are laying plans to meet it in every way they can. They want a tariff which will give them protection against cheap foreign goods. They want to cheapen their own cost of production in every way possible and, therefore, are anxious to keep down the price of food products and raw materials. Further than that, our own manufacturers will be wanting to extend their foreign markets as far as possible, especially during this period of financial stress at home. If they can send shiploads of their manufactured goods to the great food producing countries to the south of us and bring back these ships loaded with food products produced on cheap land and with the cheapest of labor, that would seem to them to be good business. But if we look at the interests of the nation as a whole and, indeed, if we take the long view of the future welfare of our great industrial and manufacturing regions, such a policy will be very bad, indeed. What we might gain through temporary enlargement of our foreign markets for manufactured goods will be lost, and much more with it, through the lessened buying power of our own producing population.

Take the case of the farmer at the present time. Last year he produced large crops of all kinds at the highest cost ever known. The fading away of the foreign outlet for his surplus, together with other causes, has resulted in a decrease in the price of the farmers' products until many of them are now selling for less than half the actual cost of production. In the face of this situation, foreign products are coming in. In times past we would be inclined to say that our great surplus and low prices are in themselves sufficient protection against foreign competition.

We cannot say that now because we seem to be one of the very few nations of the earth which has money and credit and can buy. Take the case of wool which furnishes the most easily understood illustration. We now have stored up enough wool to last us a year and a half, or possibly two years. The prices for wool are far below cost of production. Notwithstanding this, huge quantities of foreign wool still are being brought in and added to our surplus, simply because we have the money to pay. Some of it is passing through to foreign countries, stopping here just long enough to have our credit applied to it. As a result the sheep industry of the United States is facing ruin and its intimate connection with the banking and other enterprises of the great range country means trouble all along the line.

But this is simply illustrative of what is happening to producers generally. The cotton growers, the rice growers, the tobacco growers, the grain and livestock farmers, the dairymen, the cattlemen in the range country, the producers of fruit, all are being compelled to take prices below the cost of production. Prices are depressed not alone because of inactive business conditions at home, but because of the importations of competing foreign products.

It is this situation which must be considered when we take up the matter of the tariff, whether it be the emergency tariff or the permanent tariff. This nation cannot afford to permit the breaking down of its own agriculture, even if for a time we can buy food and other farm products cheaper from some one else. Just now we have a great surplus because of large crops and reduced consumption both at home and abroad, but this condition will not continue. Before the war consumption was rapidly overtaking production. Our population is growing. We cannot under any circumstances afford to permit the present discouraging conditions to continue and result in greatly decreased production, because that decreased production may mean exorbitantly high prices within a few years.

We have not considered, as we must, the heavy additional burden imposed upon producers by the increased freight rates and the large increase in other marketing charges. These increased rates are a differential imposed upon our own producers and to the benefit of our foreign competitors. Take corn, for example. The freight rate on corn from Omaha to Chicago is now 5.32 cents greater than it was in 1913, an increase of 86 per cent; and from Chicago to New York the freight rate is almost 23 cents per bushel. The Argentine corn grower can lay his corn down on our Eastern coast for about a third of the shipping cost imposed upon our own Western corn grower. It is true that imports have not been large, but every cargo of Argentine corn which reaches our coast is used to depress prices of our corn out of all proportion to the amount shipped in.

The increased freight and other marketing charges on wheat are practically the same as on corn, and are of even more importance on wheat because of the larger amount exported.

The freight rate on cotton from Memphis, Tennessee, to New York is 192 per cent greater than in 1913.

Freight rates on livestock from the producing sections to the consuming centers of the East are very nearly double what they were before the war.

The same burden has been imposed on potatoes, rice, tobacco, fruits and all other farm products which move to the industrial centers.

Practically all agricultural products should at once be given adequate protection against foreign competition. There is some talk of reestablishing the old import duties on farm products. In many cases those duties, if added, would not equal the extra cost of marketing. To any rates which may be levied now should be added an amount equal to the extra freight charges in getting products to the consuming centers.

The sooner we get down to studying this whole national situation, the better it is going to be for all of us. It is even more important to the industrial sections that our agriculture be put upon a thoroughly sound foundation than it is to the farmers themselves.

NEEDED A BIG ONE

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Gold—in too few hands—is the real yellow peril.—Nonpartizan Leader.

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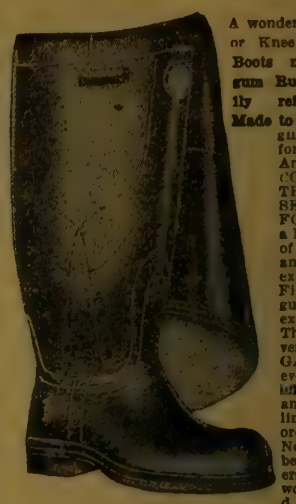

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Secretary of Commerce Hoover has suggested the creation of a national food commission.

FUTURE OF CALIFORNIA BEAN GROWERS

CALIFORNIA Bean Growers are making a fight for increased membership, and regarding the present opportunity and necessity the California Bean Growers Journal says editorially:

"The future of the California Bean Growers Association is up to the bean growers of the state. It is for them to say whether they desire the association to continue or whether they want to place themselves in the hands of those who have absolutely no interest whatever in the grower other than to secure the product of his labor at the lowest possible price. In short, the organized bean dealers, (and they have recently reorganized for their self-protection) are waiting for just this thing to happen. If it does happen the bean grower of California will have to take what is offered him for his crop, or leave it in the warehouse. There is going to be no other alternative. It is a good thing for the grower to remember that every time an independent buyer makes him a price it is considerably below the market value of the commodity. The buyer always plays safe at the expense of the producer. The buyer speculates on the labor and investment of the grower.

"Without an association of growers they are forced to accept whatever the buyer offers and have no means of knowing what the crop is worth. Without an association to watch the markets, keep the grower advised of conditions, get the highest average price throughout the season, handle his crop from the time it is harvested until the returns are in, make him advances at the beginning of the season, when he most needs it, he is going to be at the mercy of those interests. This is said without any animus whatever to any person or group of persons. It is a plain statement of facts.

"It is to be admitted that the benefits of the association have not been all that was expected. Conditions over which no man or any association had any control have brought this about. These conditions are known to every bean grower. It should, however, be borne in mind that it takes considerable time, even under the most advantageous conditions, for any association to function smoothly. There were many important questions to work out, policies to formulate, office and selling force to organize, representatives to be appointed in all of the selling centers in this country and abroad. These things have all been done; mistakes have been rectified; the office system and force reorganized, and an efficient selling department put into the field, comprising some 300 representatives situated in every selling center of the country. This has all taken time. Mistakes and errors of judgment were bound to occur. These have been corrected. In other words, the association is now in a position to give to the grower the service and benefits which were originally contemplated, at a minimum cost, which is the function of every cooperative association. There is not a grower who has not made some mistake in operating his ranch. He does not quit right then and there. On the contrary, he benefits by those mistakes. So it is with any business or any cooperative association.

"It has cost many thousands of dollars to bring the association to its present state of efficiency and the members have paid for it. Do you want to throw away the cost, the efforts and the experience of the past three years now that the association is ready to function profitably? There must of necessity be an association of bean growers for their own protection and a new association would only have to go through the same troubles and make some of the same mistakes and cost just as much, if not more.

The question is—do you want the association to continue? It is your association. If you do, sign the bean crop agreement, also signing and stating on the authorization slip under which plan or plans you desire your 1921 crop to be handled."

A big cowboys rodeo and barbecue will be held May 29 on the Tapo Alto Ranch, Santa Susanna, Ventura County.

COOPERATION IN COLORADO

COOPERATION has made 20 per cent better prices possible to the farmers of Colorado," is the statement in a resolution recently passed by the Colorado Vegetable Growers Association. This association, now about a year old, is not only prosperous, but picturesque. Its membership is composed for the most part of Japanese and Italian truck growers, many of whom do not speak English. But language difficulties have not proved a barrier to effective cooperation.

Declining prices and alleged unfair practices on the part of the local growers were the two principal reasons back of the organization of the Colorado vegetable growers. It was not simply a matter of a few disgruntled farmers with grievances—the whole neighborhood was aroused. Could nothing be done? Was there no court of appeal? Action was imperative. A community meeting was called and late one afternoon a self-appointed committee journeyed to Denver in search of assistance.

Foundations of Successful Cooperation

In broken English and with wild gesticulations the committee stated its case to the representative of the bureau of markets, United States department of agriculture. The agent in marketing suggested cooperation as a possible solution of the growers difficulties. He told them something of the principles of cooperation, how thousands of cooperative organizations had been formed during the past few years, how a number of these associations had achieved undreamed of success, but he cautioned them that there must be a distinct need for cooperation, that once the association was formed there must be a true spirit of cooperation among the growers, and that the organization must be efficiently managed or failure would result. The growers grasped eagerly at the idea. Enthusiasm effervesced in two languages.

That evening a large meeting of truck growers was held. The bureau of markets representative spoke in English and an interpreter translated the speech into Italian and Japanese. The excited auditors were soon discussing the pros and cons of cooperative marketing, its principles, and the rules and by-laws of cooperative organizations. It was voted almost unanimously to form a cooperative organization.

The next evening a representative committee of growers from the various producing sections met with the bureau's agent, who went into further details. Another open meeting was then held and the Colorado Vegetable Growers Association was formed. At the first meeting of the board of directors the agent discussed sound business practices, the importance of establishing and maintaining a practical system of accounting, and the adoption of suitable grades and inspection service on products shipped under the association name and brands.

Within a week the association was rolling shipments averaging five to six carloads daily. Some of the products went out in "mixed cars"; some in carlots. In little more than six months 173 carlot shipments had been handled, made up of 99,390 pounds of potatoes, 2,224,035 pounds of cabbage, 25,209 pounds of celery, and somewhat smaller quantities of parsnips, rutabagas, onions, carrots, beets, turnips, lettuce and cauliflower. The total value of these shipments was $30,000. The first year the association handled about 20 per cent of all shipments of mixed and bunched vegetables sent out from Denver and vicinity.

Why Cooperative Organizations Fail

Hundreds of cooperative organizations have gone to the wall because of the selfishness of individual members and their failure to cooperate in the true sense of the word. Others have failed through improper management. But here is a group of growers, not only of different nationalities, but unable in many instances to converse among themselves without the aid of an interpreter, who have been able to set aside the personal element for the purpose of contributing to the success of the organization as a whole. And they are attaining their end. The

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Approximately 8,500 acres comprising the well-known Capay Rancho in Glenn County, California, are irrigated with Layne & Bowler Turbine Centrifugal Pumps. These pumps were selected in competition with other makes and were given preference because the owners of the ranch considered them the most satisfactory in every respect and capable of giving dependable service year in and year out.

The above two views show two of the Layne & Bowler Pumps in action on the Capay Rancho. The Sacramento Valley Colony Company at Hamilton City, Montana Land Company at Hynes, Salinas Land Company at King City and the San Joaquin Fruit Company at Tustin have used L. & B. Pumps for many years.

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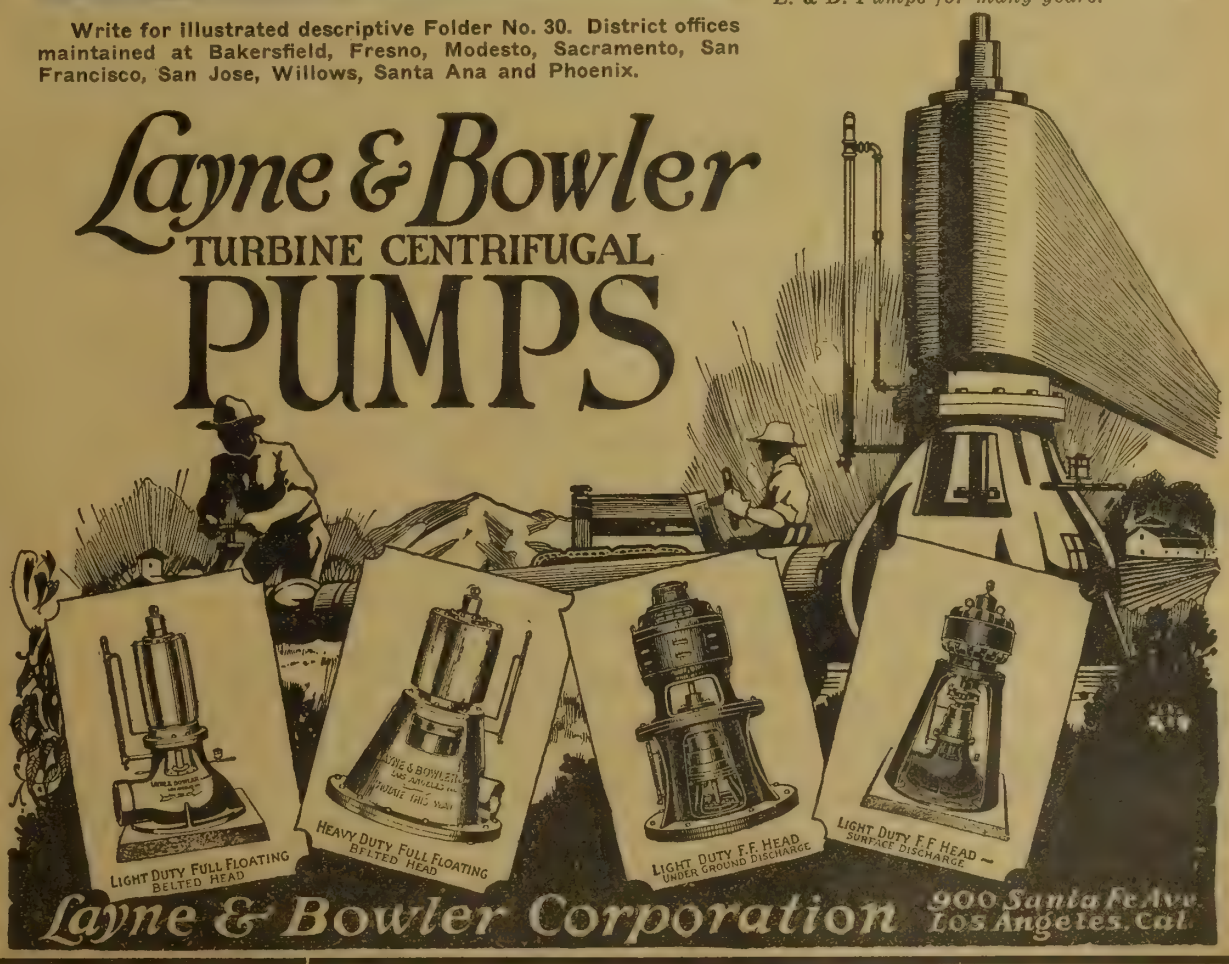
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members feel that the association has come to stay and that cooperation has solved some of their many problems.

Specialists of the bureau of markets who are studying the cooperative marketing question find that associations organized on a sound business basis and efficiently managed perform a highly satisfactory service. But before undertaking a cooperative venture growers should seek the advice of marketing experts qualified to determine the necessity for organizing, the particular kind of association that should be formed, and the business practices to be followed. Cooperative organization is playing such a large part in the distribution of farm products that the bureau of markets has a special division in which cooperation is being carefully studied, and the assistance and advice of the bureau's experts can be had by anyone upon request.

QUICK ACTION DEMANDED

According to those who are said to be well informed, approximately 65 per cent of last year's grain crop is still in the warehouses of the state and by July 1 another crop, variously estimated as being as large, if not larger, than that of last year, will be ready for shelter.

In view of this condition the Oakland chamber of commerce is making the necessary arrangements to provide a grain exchange which will feature the sale of bulk as well as sacked grain. It is conceded that more grain will be shipped in bulk this year than ever before.

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

May Beetle

Bugs enclosed are not visible during the day but at night they are as thick as a swarm of bees and just have a feast on the flowers, buds and leaves of the rose bushes. We find some around the roots in the ground when we dig up the earth during the day but they seem to be lifeless until they realize they are out of the ground and then they try to fly away. They do not bother the roots, however. These enclosed were in a jar for five days and we found them still alive.—Subscriber.

This is the common May beetle or June bug which is an all round nuisance, devouring leaves of nearly all plants. It is especially fond of plum and apricot trees. The pest lasts but a short time, but if one desires to poison, four pounds of neutral lead arsenate in 50 gallons of water sprayed over the foliage is effective.

Rabbits With Sore Feet

Will you please tell me what to do for rabbit with sore feet?—Subscriber, Downey.

The usual cause of sore feet in rabbits is delay in cleaning hutches, the ammonia generated in the deposits causing the hock or sometimes the feet to become sore. Preventive measures should be taken such as thorough cleaning and thorough drying of the hutches. Carefully wash the feet and sore spots with a pure soap and perhaps mild disinfectant. Apply witch hazel followed by zinc ointment or carbolated vaseline. The floor of hutch may be covered with clean straw or litter, or better still, clean sawdust.

Moth Infested Fur

Will you please tell me how to treat moth infested fur and safely put away for the summer?—Subscriber, Downey.

Probably the best treatment for furs is to confine in gas tight box in which has been set shallow dish containing carbon bisulphide. The amount of carbon bisulphide needed in the box will be at the rate of one pound per 200 cubic feet. The temperature should be above 75 degrees Fahrenheit. Be sure and keep fire away from the gas of the bisulphide for it is explosive. After being left in this container with the gas for a few hours the fur should be stored where it is impossible for the moth to reach it, and in addition it may be protected by liberal use of moth balls. Cold storage is also resorted to in protecting furs.

Twig Borer

I am sending an olive twig, together with a bug now infesting my trees. Can you tell me the insect's name? What shall I do to destroy it?—Subscriber, Los Banos.

The remains of the insects were seriously mutilated in the mails. However, quite plainly they are the common branch and twig borer, the adult of which is a beetle, Polycaon confertus, with black or brown wing covers from three-eighths to five-eighths inch long. The eggs of this pest are laid on wood, usually at the axil of the leaf, and the larvae tunnel underneath the bark and in the tender young wood. There is no reaching them with sprays and control measures are so difficult that it is seldom control is attempted. So far as reported the damage has not been serious from this pest.

Processing Fruit for Exhibition

Some time ago you published formulas for preserving fruits fresh such as we see in real estate offices and chambers of commerce. The paper was destroyed and have been unable to get one and I wanted to fix some strawberries and blackberries for our fair this fall so wish you would send me the paper containing the formulas or reprint in an early paper as I would like very much to have them. We have taken the Cultivator for years and feel we can't get along without it. Have received lots of help from its columns.—Subscriber, Orland.

The entire article referred to will be found reprinted on another page.

Gnats

When, where and how do gnats breed? What do they live on when they can't find human beings? How can they be controlled?—Subscriber, Thermal.

As gnats are of little economic importance the literature on them is not very extended. The United States department of agriculture issued a bulletin on "Five Species of Simulium Found In the United States," but no suggestions are offered for control or extermination. They are dependent on running water for development, have no restricted climatic or geographic range, and feed on blood of animals. As they will not feed in captivity and their life is brief, little study has been made of them. Their most favored feeding place is within the ears of horses and mules; in far less proportion on cattle.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Right of Survivorship and Inheritance Tax

Man and wife own property under joint deed with right of survivorship. If either dies, must the survivor pay an inheritance tax? If so, how much? What exemption from inheritance tax is allowed in the case of a son?—Subscriber, Santa Ana.

In such cases, a proceeding is necessary to establish the fact of death of record and before the decree in such proceeding in entered, inheritance tax must be fully paid. The inheritance tax law provides that whenever property is held in joint names with right of survivorship, the right of the surviving joint tenant to the ownership of the property shall be deemed a transfer and taxable under the provisions of the act in the same manner as though the whole property to which such transfer relates belonged absolutely to the deceased joint tenant and had been devised to the surviving joint tenant by will, excepting therefrom such part as may be proved by the surviving joint tenant to have belonged to him and not to the decedent. The following exemptions from tax are allowed: Property of the clear value of $24,000 transferred to the widow or to a minor child of the decedent and of $10,000 in case of beneficial interest transferred to the husband's lineal ancestor or issue of the decedent. The tax upon the difference between such exemption and $25,000 is calculated at the rate of one per cent of the clear value of the interest. As to the cases over $25,000 up to $50,000, two per cent; as to the cases over $50,000 up to $100,000, four per cent; as to the cases over $100,000 up to $200,000, seven per cent, and so on in increasing amounts.

Pay for Services

A party subdivided 40 acres; sold some of the lots; then took the tract off the market. He appointed me to act as his agent in maintaining the pumping plant, supplying water to the lots sold, and to compensate me agreed that I could farm the unsold lots for a year. I sowed and harvested the crop. The next year nothing additional was said and I prepared the land for seed. Then the owner leased the land to a third party to crop. The third party and I made an agreement whereby I was to put in the crop and share the proceeds. Is the owner of the land relieved of obligation to me or am I entitled to payment for services rendered in operating pumping plant during the period of the second year before the new arrangement was made?—Subscriber.

The general rule is that when a lessee of property remains in possession

after the expiration of hiring and the lessor accepts rent from him, the parties are presumed to have resumed the hiring for the same period of time. As the lessor accepted rent from you in the way of services during the first five months, it appeared that you had the right to the lease of the land. If you voluntarily gave up that right, to a third party, it may appear that you gave up your right to payment and the whole claim was merged in the compromise which you made with the third party. There may be on the other hand circumstances which would entitle you to maintain an action for reasonable value of your services.

Use of Pipe Line

Two neighbors own a pipe line. Last year a third party planted five acres with no possible way of irrigating except through our line, which we permitted him to use for that season, but distinctly told him that he would have to find other means for irrigating for the present season. He still insists on using our line. If we forbid him further use, could he hold us for damages because his trees died from a lack of water? Could I prohibit the use of the line without the joinder of the other owner?—Subscriber, Duarte.

Unquestionably, if you gave the man a mere license for one year, he could thereby acquire no right for the succeeding year, as your property is your own to do with whatever you please and if his trees died it is his own fault, not yours. However, as the pipe line is jointly owned, it would undoubtedly be wise to have both owners join in this prohibition, as, if the permission were continued by one of the owners, it would doubtless entitle the man to procure his water.

Auto Contract

I bought an automobile on contract. When I failed to make payment, the owner takes the automobile, sells it at a sacrifice, and now wants me to pay the difference. Can he collect?—Subscriber, Pomona.

That would depend entirely upon the terms of the contract itself. Upon the ordinary conditional sale contract, if the vendor retakes the personal property described, he has exercised the option therein given and that is the extent of his right. Contracts are so drawn, however, which might permit such procedure as that which the vendor seems desirous of taking.

Probating—Torrens Title

In the case of real estate held under the Torrens act, the property being in the wife's name, when she died, leaving surviving a husband and no children, does the property pass to the surviving husband upon death? — Subscriber, Covina.

The Torrens act is a mere method of registration of titles and does not deal with the passing of titles. It would be necessary to take the ordinary probate procedure. The only modification this would have would be that a distinct statement is made in registration under the Torrens act as to whether the property is seperate or community property. That might have some effect upon the administration of the estate. In the given instance, it would be necessary to appoint an administrator, advertise for creditors, appraise the property, and eventually put in the final account and petition for distribution. The property standing in the wife's name, the presumption of law is that the property is her separate property, unless modified by the registration. In case it is her separate property, one-half goes to the husband and the remaining one-half of the estate would go to the next of kin of the wife.

Transferring Realty to Husband

Real estate is deeded to husband and wife with right of survivorship. In case she desires to give her husband full ownership, what is necessary?—Subscriber, Covina.

It is only necessary that she execute and deliver to the husband a deed for her interest in this property.

Inheritance

A husband dies without a will and without children. To whom does the property go? In case there were children, what share would the wife receive?—Subscriber, Covina.

In case the property is community property, the wife would first take one-half irrespective of children. Her interest in the separate property would be one-half in case there are no children and the remaining one-half would go to the next of kin of the husband, which half, in case there were one child, would go to the child. In case there are two or more children, the wife would receive one-third and the other two-thirds would be divided equally among the children or their descendents.

Inheritance by Husband

A wife dies—no children. Is the husband heir to her property? — Subscriber, Covina.

A husband is an heir to the separate property of the wife to the extent of one-half thereof, the remaining one-half going to the next of kin of the wife.

Fictitious Name of Firm

Is a firm operating under the name of "Smith Company" required to publish the names of all interested parties?—Subscriber, Covina.

Every partnership transacting business under a fictitious name or designation not showing the names of the persons interested as partners in such business must file with the county clerk a certificate stating the name in full and place of residence of each of the members thereof and such certificate must be published once a week for four weeks. The only penalty for failing so to do, however, is that such partnership is not permitted to maintain any action upon or on account of any contract or transaction had under the fictitious name until certificate has been filed and publication made. It has been held that any firm name which does not disclose the full names of the parties is a fictitious name under the provision of this rule.

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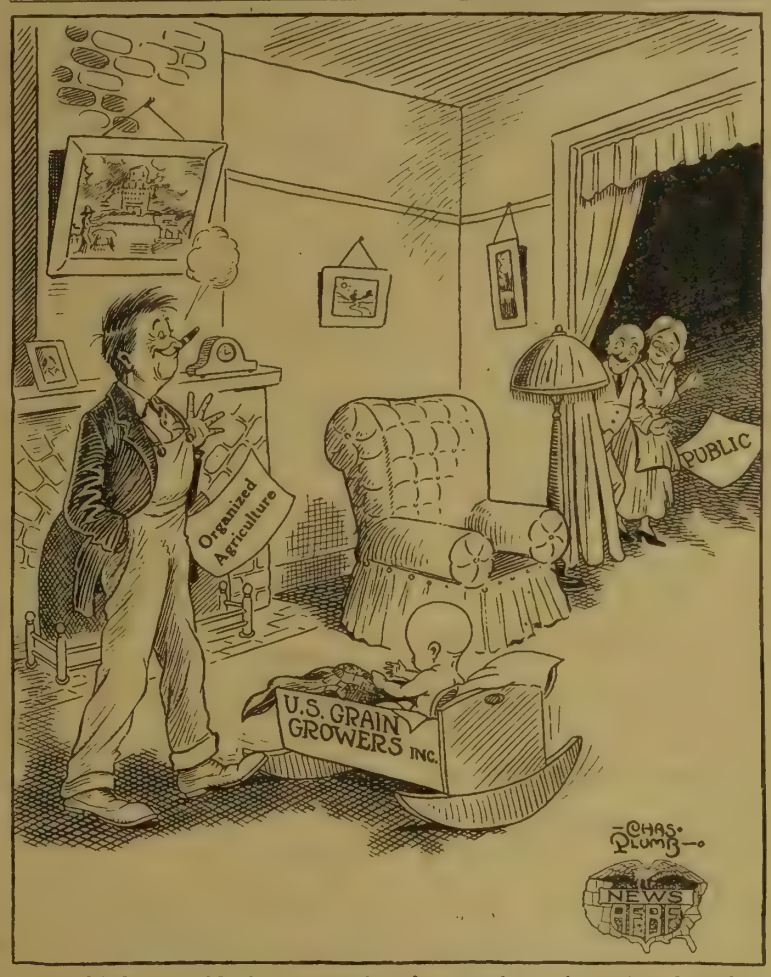

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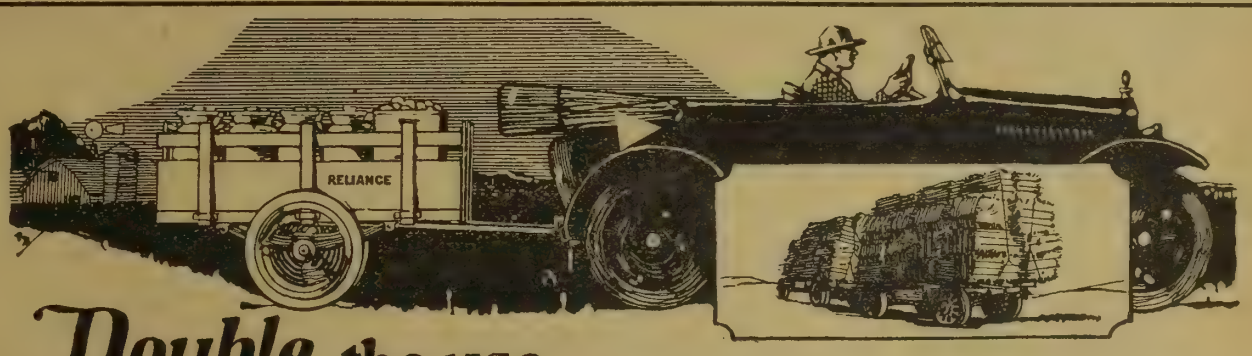

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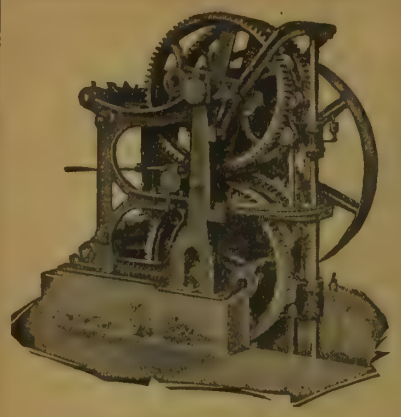

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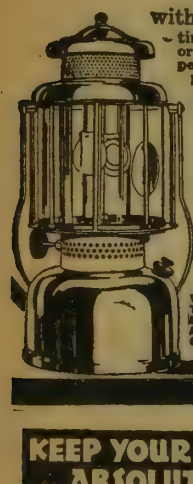
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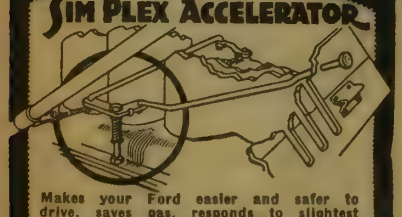
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Household Department

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By James Arthur

A reunited nation—
One flag, one hope, one soul,
One destiny for liberty,
One purpose and one goal—
In grateful recollection
Of those who welded fast
Her sundered bands, with outstretched hands
Gives blessings for the past;

Gives blessings for the soldiers
Who formed the battle's van
In "days that tried men's souls," who died
To save the rights of man,
Who kept aloft Old Glory,
Who made a race go free
And linked the land in one to stand
Through all the years to be.

Heap high their graves with garlands
Until they bloom as bright
As does the fame that writes each name
In lines of love and light,
And let the floral message
Our gratitude declare,
While the perfumes that bank their tombs
Breathe incense like a prayer.

If love were but a blossom
And thankfulness a wreath
The mountain high would reach the sky
These dead should sleep beneath,
Of if a nation's blessings
In music were expressed
The ages long would be a song
About their place of rest.

They saved the first republic
The centuries gave birth,
And that shall be a prophecy
Of one that belts the earth.
They died to lift from bondage
A race beneath the ban,
And that shall shine a deed divine
As long as man loves man.

WITH PUP'S ASSISTANCE

By G. RUSSELL

(Conclusion of story begun May 7.)

Then they talked of many things, finally approaching the subject of orange groves, when Martha said to her brother:

"Phil, Mr. Burnham is interested in orange groves, prospectively. I have been telling him something about the Peters grove. You tell him about it. Maybe he would like to buy it."

Phil laughed, embarrassed. "It's a bargain all right," he said "but Mr. Burnham is a day too late. I bought it myself today."

Martha looked at her brother, dumfounded. Visions of mortgages and sheriff's sales floated before her. But she only looked at him steadily while he continued: "I was over at Peters' place today, looking over the grove. It's a better grove than I had supposed, and not so badly run down. While I was there they had a telegram. Mrs. Peters' mother has had a stroke of paralysis. They had also just had a letter from their married daughter. Her husband has been in an automobile accident and is in the hospital. They are determined to go back at once and Mr. Peters made me a splendid offer. Said he'd be willing to wait for his money but he would rather we had it than anybody else as he knew he would get his money finally. It was such a good offer that I took him up. I know I can handle it, somehow. They are hoping to leave day after tomorrow. Suppose we all go and look it over—see what we have bought," and Phil laughed in a confident way that helped reassure Martha, though she was still somewhat dazed.

Phil showed them the grove with all the pride of ownership. After a somewhat thorough survey, Mr. Burnham said:

"It looks pretty good to me. What will you take for it?"

"Oh, well, I hadn't thought of selling so soon."

"Then it isn't for sale?"

"It might be, under some conditions," replied Phil. "At any rate, the two and a half acres next to our grove isn't for sale. I want that to go with our piece. Seven and a half acres is a good deal better size, for several reasons. But I'll tell you, Mr. Burnham, I wouldn't have risked buying it if I hadn't felt sure I could make a good thing out of it, and I wouldn't care to sell at anywhere near what I paid for it."

"What would you consider a good price for it, as it stands," persisted Mr. Burnham.

"Well," Phill considered, "if I were selling, I wouldn't care to take less than—twelve thousand for the seven and a half acres, including the house, which is a good one, though not very large. And, well, by George, if I were buying I wouldn't consider that an unreasonable price to pay for it."

"Do I understand that you would take twelve thousand for it?"

"Yes, and I admit I'd be doing well at that."

"All right, I'll take it."

Martha gasped. She turned to Frances Burnham. That lady looked calm. "Oh, you don't know my father. That's the way he does business."

"But isn't he likely to regret it," Martha asked.

"Hardly. He's had his heart set on an orange grove in Southern California for years. It looks sudden, but it really isn't so sudden. Of course the where is sudden, but the fact itself isn't."

They strolled back toward the little house, passing Pup, still digging for the gopher with undiminished enthusiasm.

"We must go, Frances," said her father. "It's getting late."

"Not until you have had supper," interposed Martha. And as they remonstrated she said, "If you knew what a treat it is for us to have company, you would know I wouldn't miss a perfectly good opportunity like this. Please don't refuse, and I'll promise to have supper ready in record time."

And sure enough, it was a remarkably short time until the supper bell called them in to a very simple but very appetizing supper. And afterward they visited around the table until George Burnham declared the police would be out after them if they didn't start. He expressed keen enjoyment of the day as he shook hands all around, his daughter following his example as they arranged to return the day after tomorrow and close up the deal for the orange grove. "I believe I have never enjoyed a day so much in my life," Frances said at parting. "I think I'll come back and steal Billy. We are good friends, aren't we, Billy?" and Billy responded inelegantly, "You bet.!"

As their car started down the road after the last good-bye had been waved, George Burnham whistled softly and meditatively. "And we find at the end of a perfect day the soul of a friend we've made."

"It's been just that, a perfect day, hasn't it, Father?" mused Frances.

"That's just what I was thinking," he replied.

"And whistling it, too," she laughed.

And back at the little house, as they stood watching the automobile down the road, Phil was humming "And we find at the end of a perfect day, the soul of a friend we've made." "It has been a perfect day, hasn't it, Father?" said Martha. "Indeed it has," he conceded with unusual warmth, and then:

"I tell you, Martha, I like that George Burnham."

"I'm glad you do, Father, for I'm going to marry him." The three stared at her aghast. Martha laughed. "Oh, he doesn't know it yet."

Phil snorted. "Anybody with half an eye could see he was right willing."

"That's encouraging," said Martha. "And isn't Frances pretty, and isn't she nice."

"Do you think so,' coolly responded her brother. "Well, I'm glad you do, Martha, for I'm going to marry her."

"Well!" exploded his sister.

"Oh, she doesn't know it yet, but I'm going to marry her just the same. Billy, here, has already made a tremendous hit with her, and it's a pity if Billy's father can't do as well when he finds a good opportunity."

Martha smiled. "Anybody with half an eye could see that you would be able to persuade her without tremendous effort. She hardly took her eyes off of you except when she was watching Billy."

And just then Pup came bounding into their midst, a gopher held in a vise-like grip in his jaws, his whole delighted body wagging his satisfaction as he waited for their approval, which was not slow in coming.

"Papa, I know what he's thinking," said Billy.

"Well, what, Billy?"

"He's thinking "This is the end of a perfect day."

The Cultivator Patterns

3598. Child's Dress.—Cut in 3 sizes: 2, 4, and 6 years. A 4 year size will require 3⅛ yards of 27 inch material. Price 10 cents.

3616. Ladies' Dress.—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 5⅝ yards of 44 inch material. The width of the skirt at the foot is 2¼ yards. Price 10 cents.

3594. Girl's Dress.—Cut in 4 sizes: 8, 10, 12 and 14 years. A 10 year size will require 3½ yards of 40 inch material. Price 10 cents.

3617. Ladies' House Dress.—Cut in 7 sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 6½ yards of 27 inch material. The width of the skirt at the foot is about 2 yards. Price 10 cents.

3601. Boy's Suit.—Cut in 4 sizes: 2, 3, 4 and 5 years. A 4 year size will require 1⅝ yard of 24 inch material for the blouse and 3 yards for the trousers. Price 10 cents.

3599-3606. A Smart Costume.—Blouse 3599 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It requires 3 yards of 36 inch material for a 38 inch size. Skirt 3606 is cut in 5 sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. A 28 inch size will require 3 yards of 44 inch material if cut crosswise, and 2½ yards if cut lengthwise of the goods. The width of the skirt at the foot is about 3 yards. Two separate patterns, 10 cents for each pattern.

3595. Girl's Bloomer Dress.—Cut in 4 sizes: 4, 6, 8 and 10 years. An 8 year size will require 2¾ yards of 32 inch material for the dress in bloomer style. With plain skirt it will require 2⅝ yards. Price 10 cents.

3110. Apron and Cap.—Cut in 4 sizes: small, 32-34; medium, 36-38; large, 40-42; and extra large, 44-46 inches bust measure. Size medium requires 3¼ yards for the apron and ⅞ yards for the cap, of 36 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cents) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS; we guarantee safe delivery of all patterns.

CATALOGUE NOTICE

Send 15c in silver or stamps for our Up To Date Spring and Summer 1921 Catalogue, containing over 500 designs of Ladies', Misses and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various, simple stitches) all valuable to the home dressmaker.

PATTERN DEPARTMENT
California Cultivator
Los Angeles

HOUSEHOLD QUERIES

Smoking and Curing Fish

Can you give me information through your columns as to smoking and curing of fish?—Subscriber, Santa Ana.

We are sending this inquirer copy of the Cultivator of October 16, 1920, which contained directions for curing fish and constructing smoke house.

Lemon and Orange Syrup

Would you please reprint the recipe for canning syrup made from lemons. It was printed about four weeks ago. I saved the paper and later it was misplaced.—Subscriber, Reedley.

This is the one given by Mrs. Temple in the Cultivator of March 26:

"Three or four lemons and enough orange juice to fill a quart jar, with about a half cup of sugar, brought to a boil, then sealed in a glass jar, will keep indefinitely. This juice, with a double amount of water, is one of our most delicious drinks."

Recipes Wanted

Would someone please give me a good recipe for muffins made with sour milk? Also a recipe for fig cookies like those you buy. I have tried many of the recipes given in the Cultivator and found them all good.—Subscriber, Oakdale.

For recipes printed in answer to his request the Cultivator will be glad to give subscription credit. With your recipe be sure to send name and address of one to whom you wish paper sent.

Sour milk, we think, makes the very best muffins. There is an almost infinite variety of combinations. Here is a good one, using white and graham flour: One and one-fourth cups sour milk, 2 tablespoons shortening, 1 teaspoon soda, 1 teaspoon salt. Mix to thoroughly blend, then add 1 cup white flour, 1½ cups graham flour, 2 teaspoons baking powder. Beat to thoroughly mix. Bake 18 minutes in well greased muffin pans. But go slow on the soda. If the milk is only slightly sour a "pinch" of soda will neutralize the acid and you may then use only the usual amount of baking powder. This is a case where the experienced cook says: "Just use your judgment." The cook who uses pasteurized milk adds very little soda required. However, the field is open to favorite and tried recipes. Send them in.

LIFE NOT A GAME OF CARDS

The utter accuracy of the universe is appalling. . . . Even music can be mathematically expressed. A Mozart sonata is governed absolutely by the law of numbers. And if all these things are under the rigid rule of exact law, why are not the things of the mind and heart and soul governed also by the same exactness? . . . It is no mere figure of speech, then, to say, "Be sure your sins will find you out."

"Whatsoever a man soweth, that shall he also reap." Also, your goodness will find you out. . . . The Ten Commandments do not foozle any more than does the multiplication table. Once get this conviction deep in our mind, it ought not to alarm us but to give us a great and unshakable peace. For it gives us the feeling that our destiny is not the plaything of chance but the result of a precise and intelligent purpose. . . . Few people actually take as their working creed the moral and spiritual acruracy of the universe. They admit the rule in physics and astronomy and in the lawyer's office, but in their human relations they persist in the suspicion that life is rather a game of cards, part luck and part shrewdness. Whoever will renounce this superstition acknowledges once for all that justice and mercy are as reliable as the rule of three.—Current Opinion.

WHAT THRIFT IS

I am peace of mind.

I am stored up contentment.

I am freedom from worry and fear.

I am common sense applied to living.

I am discipline in youth and rest in old age.

I contribute to health, efficiency and confidence. I am the enemy of the "rainy day" dread, the foe of want.

I put people in a position to take advantage of their opportunities.

I am better than a health resort and more soothing than a needed vacation.

I mean better opportunities for your children and a position of respect in your community.

I am a builder of civilization and I sustain and preserve the best interests of a nation.

I increase the confidence of young men and enable them to mount on the ladder of success.

THE SOUP HABIT

There are habits to be avoided, and habits to be cultivated. Among the latter is the soup habit. It is not only economical, using all the odd tablespoonfuls of vegetables and meat left on the serving dishes, which are too small to make other use of, but it is a most appetizing as well as nourishing form of food. Many people have an idea that soup, like the ancient bit of history regarding Gaul, which was one of our first lessons in Latin, is "divided into three parts," vegetables, beef and potato. They have not learned of the infinite variety which can be given by the addition of various vegetables and herbs.

THE IDEAL DIET

In an ideal diet as much should be expended for fruits and vegetables together as for bread and cereals, and more than is spent for meat, butter and other fats. The only article of diet for which one is justified in spending more is milk. Apples supply necessary minerals, aid in preventing acidiosis, scurvy and constipation, improve the sanitary condition of the bowels, and promote the growth of children. It has been demonstrated that the antiscorbutic vitamine contained in apples is an essential for normal growth.

MARSHMALLOW FUDGE

Use one-quarter pound of fresh marshmallows, three cups confectioner's sugar, three-quarters cup cream, one square cooking chocolate, one teaspoon vanilla extract and one tablespoon butter. With sharp scissors cut the marshmallows into small pieces. Butter the pan into which the candy is to be poured. Boil together the sugar, the cream and the chocolate until a little of the mixture will form a soft ball when dropped into cold water. Remove it from the hot part of the stove, add the butter and the vanilla, and beat into it the pieces of marshmallows. Pour the mixture out before it becomes too thick. If desired chopped nuts also may be mixed in—one-half cup for the quantity of fudge that this recipe will make.

AVOCADO PIE

This comes from Florida:

"Everyone thinks of the avocado as a salad fruit, but really—have you ever eaten an avocado pie? Take a good fruit or fruits, according to size. Just tell the cook lady to make it like pumpkin or sweet potato pie. The combination is guaranteed to make an avocado enthusiast."

THE POEM THAT WILL LIVE

Snakespeare did a little writing
That the race is still reciting;
Milton, too, did some inditing
That we do not think of slighting.
Chaucer did a little singing,
Spencer's phrases still are ringing,
Byron's stuff some praise is bringing,
Wordsworth's flights continue winging,
Burns' poems keep on going,
Shelley's work still life is showing,
Keats' numbers still are flowing,
Tennyson we still are knowing.
When these facts as does the ember
All the world will still remember
"Thirty days hath September,
April, June and November."
—McLandburg Wilson.

When saving for your old age, don't neglect to lay up a few pleasant thoughts.—Life.

Ask for Ghirardelli's Ground Chocolate at the store where you do your trading. Never sold in bulk but in cans only. In this way Ghirardelli's retains its flavor and strength—the two most important elements of good chocolate.

IT'S simple enough—the chocolate-sweetness of Ghirardelli's makes additional sugar unnecessary. You lose nothing of its deliciousness, its flavor, its strength, when you "pass up" the sugar. For Ghirardelli's "stands on its own feet" as a complete food beverage—sufficient unto itself!

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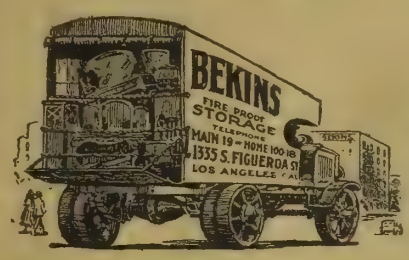

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Rhodes Grass

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RHODES GRASS SHOWING RUNNERS AND METHODS OF SPREADING

Gus Nellen of Imperial Valley has about 8½ acres in Rhodes on which he has kept 20 milk cows, also some hogs, and has about 12 tons hay left from the last year. His place was covered with Bermuda so he just broadcasted the Rhodes Grass Seed and turned the water in slowly and kept the place moist and before long the Rhodes had the Bermuda choked out. Another advantage is that he can keep the cattle on it while irrigating, for it isn't hurt by being trampled on, for wherever the runners are trampled into the ground, they start to grow.

He also recommends it highly for hog pasture as they like it very much, and do well on it.

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—land similar to that which through many years **has yielded from 20 to 45 bushels of wheat to the acre**—oats, barley and flax also in great abundance, while **raising horses, cattle, sheep and hogs** is equally profitable. Hundreds of farmers in Western Canada have raised crops in a single season worth more than the whole cost of their land. Healthful climate, good neighbors, churches, schools, rural telephone, excellent markets and shipping facilities. The climate and soil offer inducements for almost every branch of agriculture. The advantages for

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Records Made by Sir Skylarks' Daughters Last Year in Our Herd

	Butter
Daffy Orm. Sky., Jr. 2	804 lbs.
Joy Orm. Sky., Jr. 2	920 lbs.
Mabel Orm. Sky., Jr. 2	870 lbs.
Rag Apple Orm. Sky., Jr. 2	919 lbs.
Vera Orm. Sky., Jr. 2	864 lbs.
Carrie Orm. Sky., Jr. 2	720 lbs.
Lady Panzie Sky., Sr. 3	1042 lbs.

Duchess Skylark Ormsby
1,506 pounds of butter in one year

We are offering young bulls out of some of these cows, sired by sons of Sir Pietertje Ormsby Mercedes at farmer's prices.

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ASK YOUR DEALER

$2,300 Top at Victory Sale

A general average of $302 marked the dispersal of the Victory herd of Holsteins at Hillcrest Ranch, Caruthers, May 11. The sale was made to close the partnership that has existed between H. E. Spires and J. M. Crawford, but it has been announced that each of the former owners expect to re-engage in the business individually. The feature of the sale was the selling of the cow Norma Korndyke Cornucopia that recently completed a seven day record of 38.40 pounds of butter from 666.20 pounds of milk. She was purchased by a syndicate consisting of Walter Donders, J. M. Blinkiron and J. P. Phillips, all of Fresno, for $2,300. Her yearling daughter, Victory Lady Cornucopia, sold to I. M. Morrison of Laton for $1,000. Mr. Morrison is a new man to become interested in Holsteins and secured a dozen of the better sorts. Another new puchaser was L. Rusconi of Fresno, who paid $1,725 for the splendid young bull, King Pontiac Alcartra Prilly, a son of the famous Bridgford sire and show bull, King Segis Alcartra Prilly. Mr. Rusconi was also a strong bidder of the young females, securing a nice lot for a foundation. Berylwood Stock Farm, Hueneme, selected three head of females. Frank Helm of Fresno purchased the 27 pound three year old Lady Korndyke Hengerveld for $650 and Harry Paulson of San Joaquin paid $510 for her two year old daughter. Ralph C. Blowers of Hanford got a rare bargain when he paid $125 for the herd bull Sir Piebe De Kol Pontiac.

The 22 cows averaged $501, 27 heifers and heifer calves $221 and the 18 bulls, many of them quite young, averaged $183.

The sale was managed by C. L. Hughes of the California Breeders Sales and Pedigree Company. Col. Ben A. Rhoades of Los Angeles, assisted by Col. Geo. W. Bell of Tulare, were the auctioneers.

A representative list of sales follow:

BULLS

1. Sir Piebe De Kol Segis Pontiac, Feb. 1914; Ralph C. Blowers, Hanford, $125.
2. King Pontiac Alcartra Prilly, Mar. 1919; L. Rusconi, Fresno, $1,725.
3½. Bull calf out of Norma Korndyke Cornucopia, Carl L. Lewis, Riverdale, $400.

FEMALES

3. Norma Korndyke Cornucopia, May 1915, 38.40 lbs.; Walter Donders, J. M. Blinkiron, J. P. Phillips, Fresno, $2,300.
4. Victory Lady Cornucopia, April 1920; I. M. Morrison, Laton, $1,000.
7. Dottie Korndyke Segis, April 1915; I. M. Morrison, $350.
8. Victory Josephine Segis Pontiac, Sept. 1917, 15.32 lbs., 2 yrs.; I. M. Morrison, $650.
9. Victory Willea Bess, Sept. 1917, 15.47 lbs., 2 yrs.; I. M. Morrison, $650.
11. Douwe Burke, Jan. 1917, 13.88 lbs., 3 yrs.; E. A. Thurber, Fresno, $185.
13. Korndyke Canary Brightest, Feb. 1916; Berylwood Stock Farm, Hueneme, $700.
14. Leila Korndyke Hengerveld, April 1916, 27.01 lbs., 3½ yrs.; Frank Helm, Fresno, $650.
15. Victory Lorna Korndyke, Mar. 1919, 12.57 lbs., 22 months; Harry Paulson, San Joaquin, $510.
18. Miss Clara Pietertje Ormsby, April 1919; I. M. Morrison, $500.
19. Dora Hamilton Korndyke, June 1916, 22.42 lbs., 4½ yrs.; I. M. Morrison, $300.
20. Victory Dorothy Korndyke, Feb. 1920; L. Rusconi, $200.
22. Marchmont, Mar. 1915, 17.30 lbs., 5 yrs.; D. Carmignani, Dos Palos, $325.
24. Roquette Paula Daughter, April 1918; J. M. Blinkiron, Fresno, $200.
25. Gelsche Walker Korndyke 2d, Sept. 1917; Berylwood Stock Farm, $300.
27. Korndyke Shadeland Gerben, Jan. 1918; Alan Milnes, Riverdale, $220.
29. Fancy Marie Pontiac Sprague, Feb. 1915; Berylwood Stock Farm, $275.
30. Victory Fancy, Sept. 1919; I. M. Morrison, $250.
31. Eldorado Beryl, Feb. 1918, 15.71 lbs., 2 yrs.; I. M. Morrison, $525.
33. Victory Diamond Pel, Jan. 1919; L. Rusconi, $400.
35. Victory Pel Pontiac, Dec. 1919; L. Rusconi, $300.
37. Victory Calamity Jane, Feb. 1919, 12.33 lbs., 2 yrs.; I. M. Morrison, $385.
41. Victory Deal Inez, Nov. 1919; L. Rusconi, $300.
44. Victory Joan Pontiac, April 1920; I. M. Morrison, $200.
47. Victory Segis Piebe, Dec. 1918, 15.56 lbs., 2 yrs.; I. M. Morrison, $400.
49. Victory Pontiac Salome, Jan. 1918, 15.49 lbs.; L. Rusconi, $410.
51. Victory De Kol Mary Pontiac, Oct. 1917, 16.85 lbs.; Frank Helm, $325.
52. Victory Calamity Burr Pontiac, July 1918, 12.72 lbs., 2 yrs.; L. Rusconi, $435.
53. Hedgerow Posch De Kol, April 1915; E. A. Thurber, $210.
55. Jessie Segis It, Dec. 1916; Harry Paulson, $560.
56. Blooming Success, April 1919; L. Rusconi, $210.
58. Maud De Kol Eva Burke, April 1919; I. M. Morrison, $325.
59. Laton Segis, Aug. 1919; I. M. Morrison, $200.
60. Daughter of Tagus Pauline De Kol, July 1919; L. Rusconi, $200.

Three Beef Cattle Sales Next Week

The three beef cattle sales scheduled for the Sacramento territory next week can be taken as an indication of the growth of the pure bred beef cattle industry in this state during the last few years. Only a comparatively short time ago a single sale of registered beef cattle was rather a novelty, but during the last two years it has been possible for sellers to arrange sale circuits. Next week, however, will see the first Shorthorn circuit inaugurated when the Caledonia Farms, West Sacramento, will sell on Wednesday, to be followed by Howard Vaughn's initial sale at Dixon the next day.

The forthcoming sale from the Caledonia herd will be the third public offering from that establishment in 12 months. The three sales have been possible owing to the fact that this is one of the largest herds in the West. As the herd is at present it represents three distinct herds merged into one. First of all it includes the famous Howard Cattle Company cattle, a herd that was one of the pioneers in this state. Later the Harkness and Elmendorf herds of Kentucky were added. This herd is distinguished as the home of three very high class herd bulls. Imp. Caledonia, from whence comes the farm name, was purchased two years ago from Frank W. Harding, secretary of the American Shorthorn Breeders Association. It is of interest to western breeders to know that this bull is rated as one of the most valuable bulls imported in recent years. In several Eastern sales calves sired by Caledonia have sold for an average above $1,500. In the last Anoka sale Caledonia calves averaged $2,470 and one sold for $6,250. Caledonia Farms has many of his calves and all are of remarkable type and quality. Gainford Matchless, grand champion at the 1919 San Francisco show, is also in service in the herd and proving highly satisfactory as a sire. The third herd bull is Pine Grove King, the oldest of the trio, and a sire of marked ability. It should mean much to the future of the Shorthorn breed in this state to have the blood of such notable sires made available to all. The Shorthorn industry in this state is growing very rapidly and many new herds have been established, but many more are needed.

Howard Vaughn, who is making his first public sale in this state, is a former Iowa breeder and at one time was secretary of the Iowa state association. Vaughn has been literally raised among Shorthorns, his father and his grandfather before him being breeders. He is a graduate of the Iowa State Agricultural College. Vaughn moved to California last year and purchased a highly improved ranch just north of Dixon. He has listed 32 head, 16 bulls and 16 females, for his sale.

Following the last named sale the Finnell Stock Farms, Galt, will disperse their entire herd of Herefords. This firm is one of the new breeding establishments in this state, having been organized but a little over a year ago. At that time it was planned to develop an extensive herd, but their plans have been changed and it is now proposed to devote most of the ranch to fruit and grape culture. Accordingly the cattle holding will be closed out. Included in the sale will be all the cattle the owners selected as their private breeding herd from the large purchase made last year from the Kiesel Land and Cattle Company of Oregon.

There seems to be every reason to expect a wide expansion of the beef cattle industry in California in the years to come. This state is a natural cattle country without a superior and as the problem of production costs grows cattlemen are turning more and more to registered bulls to increase

the efficiency of their herds. It has been estimated that this state requires eight to ten thousand bulls a year to care for our range business. That fact alone would seem to make for a wide and stable market for all time to come.

REFUND TO WOOL GROWERS

A new record of distributing refunded excess profits on the 1918 wool clip was made by the bureau of markets, United States department of agriculture, during the week ending April 16, when 11,645 checks, representing $53,188.06, were mailed out to growers. The total number of refund checks which were mailed out to that date was 54,492, distributing excess profits amounting to $185,463.66.

The distribution of refunds was begun last October. Distribution for the week ending April 16 covered one-fifth of the total number of checks and one-fourth of the total amount of money returned to growers that far. The record made during that week, however, was due to an accumulation of checks received from the disbursing office and the special effort made to bring the work up to date.

Up to this time $568,116.54 has been received from wool dealers as excess profits to be distributed to the growers. The pending excess profits cases involve an additional minimum amount of $581,600.27, which will make the total refund from wool dealers $1,149,716.18. This represents the excess profits thus far ascertained and demanded from 68 central dealers and 953 country dealers. Reports submitted by wool dealers indicate that only 38 per cent of the central dealers and 20 per cent of the country dealers made excess profits on their 1918 transactions.

What the Future Holds for Dairymen

By J. E. Dorman during Livestock Week at Davis

THERE may be men who can say what the future holds for dairymen but I frankly confess that I cannot to any great extent although I am inclined to be very optimistic. However, it may not be so difficult to predict what may take place if certain lines of work are carried out. The dairymen themselves will determine the future of the dairy industry, whatever it may be, but I will say this, as long as there is a government of the United States there will be a dairy industry.

Mr. Hoover says, "The white race cannot exist without dairy products and we will be compelled to support the dairy industry." The situation today, we must admit, is somewhat unsettled, yet there is nothing that should alarm us if conditions were anything like normal.

We are not as dependent on foreign trade to take our surplus as some may think. While exports have fallen off very materially during the past year, yet our export trade has never been so extensive that if it was entirely withdrawn it would bring disaster to the industry.

The condensed milk situation has caused some concern in some districts, yet only five per cent of our product is manufactured into condensed milk. Prior to the war we exported 20 million pounds yearly. During the war period exports amounted at times to as high as 115 million pounds monthly. Exports now are considerably above the normal amount. While the closing of some of the condenseries has placed more butter and cheese on the market, yet reports indicate that the amount in storage is less now than at this time last year.

While the imports of butter have had some influence on prices, there should be no great concern. The greater part of our imported butter comes from Denmark. At the present time it is coming at the rate of two million pounds per month. We consume about 4½ million pounds per day. With just a little effort on the part of our dairymen to improve the quality of our butter this amount of imported butter would not make the least disturbance on the market. This increased consumption of dairy products is one of the greatest problems before the dairymen today and it must be done if the industry is to make progress. It is marvelous what can be done in this connection.

I was talking to a professional man a few days ago and he said: "Our family ordinarily uses one pound of butter a week, but I happened to get some butter from a local creamery last week that was made from fresh, sweet cream and it was so delicious that we used three pounds during the week." Think what that would mean if the same thing happened in all of the families in the United States—the demand for three times the amount now used. The same increase could be made in the consumption of cheese. It will take advertising of dairy products and quality to back it up.

When Dr. McCollum discovered vitamines in dairy products it gave the dairy industry advertising material that no other product in the world ever had. The dairy councils, state and national, are making use of it, and when the work is fully organized and supported the dairy council will be a powerful influence in the marketing problems of the industry.

We are almost at the bottom of the list of nations in consumption of dairy products. Sweden consumes 69 gallons of milk per capita, the United States, 42 gallons; Australia consumes 27 pounds of butter per capita, the United States 16½ pounds; Switzerland uses 36½ pounds of cheese per capita, the United States 3 pounds.

The problem of the market for dairy products does not lie beyond the seas; it is here in our own country and the solution is better quality, increased consumption and economy in production.

Economy in production is not the least of these, for prices must be reasonable in order to increase consumption. Whatever can be done to reduce the cost of production will help to increase consumption. This is the problem of the producer.

Scientists are at work on problems that may result in changes that we do not even dream of today. What do we know about the inside of a cow? Very little. Two cows may look alike in conformation, in size and quality, eat the same amount of feed and yet one will produce several times as much butterfat as the other. Will this difference in their ability ever be discovered? Perhaps.

Dr. Meigs of the bureau of animal industry believes that he has found a difference in the ability of cows to store up from their feed enough of certain elements necessary for maximum milk production to last through a lactation period. One of these elements is phosphorus. He has been feeding phosphorus in the form of sodium phosphate to a number of cows for some time, and while it is still in the experimental stage he has announced that it was possible to obtain an increase of from 20 to 30 per cent in milk production. This indicates that we may expect some discoveries within the next few years that may decidedly lower the cost of production.

In this connection I might briefly mention other feeding problems. In the examination of the production records of over 10,000 cows it has been found that the size of the cow has a direct relation to her production. The large cows of every breed are decidedly ahead of the small cows of the same breed, not only in the production of milk and butterfat but in the income over cost of feed. This is true for every breed and every age of every breed. The records of one breed of grade cows will illustrate what was found to be true in all other dairy breeds:

	Small	Med.	Large
Pounds milk	5865	7037	7890
Butterfat	226	259	280
Income over feed cost	$68	$79	$84

Of course, there are exceptions to this rule, and while size seems to be an important factor, size alone is not enough to guarantee production, and no high producing cow should be condemned because she lacks size. However, the ten highest producers of milk and the ten highest producers of butterfat in each of the four leading dairy breeds averaged 260 pounds in weight above the breed averages given in Farmers Bulletin No. 893 of the United States department of agriculture. Of these 80 cows, two were of average size, one was below the average weight and 77 were above the average breed weight.

This opens up the question of raising big cows. I believe there is a general feeling of dairy men to underestimate the value of properly feeding calves. Milk costs something, and where labor is scarce calves are not given the attention that they should have to develop into large cows, yet when handled so that they will develop into cows above the average in size they stand a very good chance to produce from 40 to 60 pounds of butterfat per year more than the small sized cows.

I might bring up many other matters relating to production, but in my opinion the real problem of the dairy business today is the poor milk and cream problem. In no other line of industry would a business man go to the expense of manufacturing an article and then allow it to deteriorate before reaching the market. Carelessness on the part of the dairymen in this respect has caused the failure of more creameries than any other cause. Quality should be the aim of every manufacturer of food products because it has been found that such goods will sell better and as a rule consumption will be increased. Good butter and cheese can be made only if the raw material is good. The producer is responsible for the quality of the raw material and therefore for the quality of the finished product. It costs just as much to produce butterfat whether it reaches the market in good or poor condition.

One of our men assisted a cooperative creamery in changing from sour cream to a sweet cream supply. Before the change this creamery was content to sell its butter for from five to 15 cents below top quotations. Now their butter retails at ten cents above the regular run of creamery butter in the local markets in the Intermountain states. It will mean an additional income of about $50,000 annually to the patrons of this creamery.

The producers and manufacturers of dairy products everywhere are beginning to realize that quality is becoming the greatest marketing factor known. Consumers are demanding quality, and those who wish to get the most from their labors must produce quality.

Everything points to a safe, steady growth of the dairy industry, but every precaution should be observed to prepare for unfavorable conditions. If hard times fail to materialize the industry will be in much better condition by having taken such precautions. For years we have realized that we owe a duty to the consuming public, the necessity for improvement in the quality of our products.

The future of the industry will be just what we make it. It is in the hands of the dairymen themselves. Let us cooperate with all agencies interested for a common purpose to make the dairy industry the greatest and cleanest industry of our country.

Richard Sale, Tehama County's noted barley grower, has planted a small acreage in rows 30 inches apart and plants four inches apart. Some roots now have fifty stalks.

Orange County has a new 560 acre seed farm, now being planted to peppers, beans, melons and general garden fruits and vegetables.

Anaheim will hold a bond election to pass on $50,000 worth of bonds to be used for various city improvements.

By Waries Professor Grand Champion

Indiana State Fair. Dam, King Orion Lady 2nd. Litter mate to King Orion Cherry, second prize junior yearling boar at state fair.

Weaning boar pigs $25.00 each.

Walnut Grove Stock Farm
Box 152, Walnut Grove, Cal.

GUARANTEED HUBAM CLOVER
Annual White Sweet Clover

This is the new clover discovered by Prof. Hughes. Till the 1920 crop of seed is exhausted. But seed of early strain planted in Texas since Xmas has reached maturity. You can get it in time to raise a crop yet this year. Make big profits growing seed for yourself and neighbors. Order from The Henry Field Seed Co., Shenandoah, Iowa, or direct from The Grower Who Guarantees. The price is $5.00 per pound.

THE DEGRAFF FOOD CO., DeGraff, Ohio

FREE BOOKLETS ON
FARM SANITATION

The following booklets tell how to prevent disease among livestock and poultry and give directions for using

Kreso Dip No. 1
(STANDARDIZED)
PARASITICIDE AND DISINFECTANT
which is specially adapted for use on all
Livestock and Poultry

BOOKLETS

No. 151—FARM SANITATION. Describes and tells how to prevent diseases common to livestock.

No. 157—DOG BOOKLET. Tells how to rid the dog of fleas and to help prevent disease

No 160—HOG BOOKLET. Covers the common hog diseases.

No. 185—HOG WALLOWS. Gives complete directions for the construction of a concrete hog wallow.

No. 163—POULTRY. How to get rid of lice and mites, also to prevent disease.

Kreso Dip No. 1 is sold in original packages at all drug stores.

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ABSORBINE
TRADE MARK REG.U.S.PAT. OFF.
will reduce inflamed, swollen Joints, Sprains, Bruises, Soft Bunches; Heals Boils, Poll Evil, Quittor, Fistula and infected sores quickly as it is a positive antiseptic and germicide. Pleasant to use; does not blister or remove the hair, and you can work the horse. $2.50 per bottle, delivered.
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ABSORBINE, JR., the antiseptic liniment for mankind, reduces Painful, Swollen Veins, Wens, Strains, Bruises; stops pain and inflammation. Price $1.25 per bottle at dealers or delivered. Will tell you more if you write. Liberal Trial Bottle for 10c in stamps.
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For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

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Big Type DUROCS

We are offering typie spring pigs by Pathfinderson, Ace of Pathfinders, and Stilts. Everything double treated and guaranteed to please.

EFFANELL DUROC RANCH
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Ultimately
Why Not Now?
We want everyone to see this wonderful herd
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DIAMOND G HEREFORDS

A few choice young bulls, big, heavy-boned husky fellows sired by DON PERFECT 2nd, one of the best sires in the West. Priced right and guaranteed.

H. H. Gable Esparto, Cal.

When writing advertisers, mention the Cultivator.

MARKETING DATA

The California Cattlemen's Association has a marketing committee composed of Fred H. Bixby, Long Beach, chairman; C. N. Hawkins, Hollister; A. S. Goode, Bakersfield!; James Barry, Cottonwood, and Owen Duffy, Napa. This committee meets every two weeks in the state office, 224 Sharon Building, San Francisco, to review the feed and market situation, not only in California but the 12 western states. The recommendations of this committee are sent to the members of this association. There are something like 8,500 cattlemen in California at the present time, though only about 2,000 of them belong to the association.

The reports of the committee are to be supplied to the California Cultivator and will be given as promptly as possible after released by the committee. High points from the first report indicate:

Grass conditions in parts of San Diego County, Kern County, Santa Barbara County, Fresno County and San Luis Obispo County below normal; in central and northern parts exceptionally good.

Fat cattle in Southern California at least 50 per cent shortage; Central California at least 25 per cent shortage; Northern California normal. There will be no surplus beef this year. The average monthly consumption is approximately 41,000 head.

Beef supply in Texas 40 per cent shortage; Arizona—feed very short, necessitating shipping out 100,000 head of feeder steers, a large percentage to Montana; Wyoming 50 per cent shortage; Montana 60 per cent shortage; Idaho 25 per cent to 40 per cent shortage; Oregon 25 per cent shortage.

Advices from outside markets north and east point conclusively to higher prices in the immediate future. This will enable California to ship out beef cattle if it is found advisable.

Lamb advanced three cents in San Francisco today.

A meeting with the Los Angeles packers was held Thursday, April 14. Eight packers were represented, including Mr. Hardy of San Diego.

A meeting of the San Francisco and Oakland packers was held April 25. Five packers were represented.

The consensus of opinion is that the cattlemen of the state will be paid 7 cents for cows and 8½ for steers, when cattle are located within a $5 freight rate, if they stick.

Consignment of cattle: Very few cattle are being sent in to be killed on commission. Never send in cattle on consignment. Sell your cattle f. o. b. ranch or shipping point. As an example, look at the lamb situation for the past month. Consignments from foxtail areas arriving in San Francisco daily and price dropping to almost nothing, shipments have stopped, price goes up 3 cents in one day. Last week steers were sold in Imperial at 8 cents f. o. b. cars. Last week 6½ cents was offered for cows near Gilroy f. o. b. cars. This offer was refused by the owner.

DISPERSAL SALE

98 REGISTERED HEREFORDS

62 FEMALES—36 BULLS

Finnell Stock Farm Co., Galt, Sacramento County Cal.

Friday, May 27, at 10 A.M.

When Finnell Stock Farm Company purchased the entire herd of 180 registered Herefords from Kiesel Land & Cattle Co. early in 1920, the plan was to develop a large herd of high quality, but the owners have recently decided to make extensive planting of vineyards and orchards, making the sale of the cattle necessary.
Shortly after this herd was purchased, the owners prevailed upon Alex McDonald, the noted herdsman at University Farm, to visit the herd and select from the 180 head the females they should retain as breeding material in the number they wished to carry. This was done and afterward the tops of the remainder were sold at public auction in November, 1920. The offering in this sale thus represents the very tops of the entire original herd, and they are Herefords of unusual usefulness as breeding material.

29 COWS WITH CALVES AT FOOT

This group contains a most desirable lot of young cows, the calves at foot being sired by Beau Blanchard 37th, son of Engle's great Beau Blanchard, and by Sir Thomas, the numbers by each sire about equally divided.

33 BULLS FOR THE RANGE

These bulls are sired by Beau Blanchard 37th and Sir Thomas, out of some of the very best cows in the herd. Eight of them are 1920 calves, all except one past a year old, and the other 25 are of 1919 calving, practically all senior yearlings with a few 2 year olds. They have been raised on the range, which is true of the entire herd, and are ready to go right out into service.

33 BRED COWS AND BRED AND OPEN HEIFERS

This group presents a most attractive appearance for purchase, including young cows of real worth and a considerable number of heifers by Sir Thomas and Beau Blanchard 37th.

3 HERD BULLS

Beau Blanchard 37th and Sir Thomas have a large number of sons and daughters in the sale, which easily prove their worth as sires. The third herd bull to sell is without question one of the very best bred Hereford bulls ever sold in the west, the noted Gudgell & Simpson bred bull Cardinal, sired by the famous bull Domino and out of Capitola 34th, a daughter of Beau Modesto, second dam by Dandy Rex, third dam by Beau Brummel.

A STAR LOT The sale list includes a daughter of Cazier's Harris Standard 2nd, selling with a fine heifer calf at foot by Cazier's $10,000.00 Beau Blanchard 76th.

TERMS OF SALE: The owners are prepared to extend unusually liberal terms to responsible parties. Such arrangements must be made before sale, otherwise terms are cash. Applications for credit may now be made either in person or by letter to FINNELL STOCK FARM CO., Galt, Calif.

Every animal sold as a single lot, except range bulls, guaranteed breeders; everything over six months old tuberculin tested.

FINNELL STOCK FARM is about eight miles east of Galt, about 35 miles southeast of Sacramento.

SALE OPENS PROMPTLY AT 10 A.M.

Auctioneers:
Col. Ben A.Rhoades, Los Angeles
Col. John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, 211 Ochsner Bldg., Sacramento, Calif.

First Spring Sale

32 Registered Shorthorns 32

16 FEMALES—16 BULLS

MOUNTAIN VIEW HERD OWNED BY HOWARD VAUGHN DIXON, CAL.

Thursday, May 26, at 1 P.M.

This is the first individual public sale from this well known herd since its removal from Iowa to California, and for this offering Mr. Vaughn has selected a class of cattle that he depends upon to make a favorable impression in his initial sale in California.

Scotch and Scotch Top Females and Bulls

In the sale list will be found a number of individuals representing the most popular tribes of Scotch breeding, as well as American sorts of approved breeding and substantial individuality.

The females include cows with calves at foot, and bred and open heifers, among them some of outstanding worth and the balance rated as most useful breeding material.

THE BULLS are especially attractive, including individuals that may well be given consideration as herd headers, with a splendid selection for the range man, big, well grown, rugged bulls raised under range conditions and ready for heavy service.

TUBERCULIN TESTED—GUARANTEED BREEDERS

TERMS OF SALE: One-half cash, balance in six months on approved notes at 8 per cent, but terms are cash unless credit arrangements are made before sale. Applications for credit may be made any time between now and opening of sale to the sale managers.

MOUNTAIN VIEW HERD is located on the main State Highway one and one-half miles north of Dixon, Calif. HEADQUARTERS OF SALE will be Travelers Hotel, Sacramento, from which point transportation to sale will be provided to those coming in by train morning of sale.

CATALOG FREE ON REQUEST

Auctioneers:
Col. Ben. A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

MANAGEMENT
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

MORE ANIMALS

By George H. Hecke, Director of Agriculture

We have reached that point in our agricultural history at which we must allot to its two cardinal divisions, plant industry and animal industry, a like support and encouragement in order to realize a coordinated and perfect machine. Such encouragement and support do not call for inordinate, unlimited demands from the state or from the people but rather a well ordered, well deserved support and aid commensurate with contemparary needs. An increase in a given budget as bienniums mature should be accepted as a logical result of normal, healthy progress and in nowise indicative of unreasonable demands or inordinate expense.

Heretofore an ample demonstration and proper representations have secured for California plant industry at least sufficient aid to show progressive development, and now with the critical needs of the times calling for such added assistance that animal industry may give to the plant industry we of California must marshall our resources and promote her animal industry when it is shown that such measures are timely and necessary.

HOW TO OVERCOME FAILURE OF SWINE TO REPRODUCE

Failure in the ability or desire of swine to reproduce may be caused by any of several conditions. It may result from a disease or injury that seriously affects or destroys the secretory reproductive organs. It may be caused by improper functioning of the system, which in turn is often brought about by unsuitable feed or faulty elimination of waste products, or it may be due to a general lowering of body vitality.

There are also cases of sterility or impotence for which definite causes are difficult to find. Failure to breed quite frequently occurs in boars and sows which have been fitted and kept in high condition for show purposes. In some instances the sow fails to come in heat, or perhaps indicates that she is in heat and is successfully served by the boar without resulting conception. In other cases the boar shows no desire to mate or acts ineffectively.

Make Examination to Find Cause

The first step in overcoming the trouble is to find a positive cause, when possible, by making a thorough examination. This should include a search for physical defects, the presence of disease, the results of injuries, or lowered vitality from any cause.

When, from such examination, it appears that proper treatment will prove successful, remedies should be administered promptly. But if the cause is obscure or if there is little likelihood of correcting the defect successfully, it is best to remove the animal from the breeding herd. Boars may be castrated and fitted for slaughter as market hogs. Similarly, sows should be discarded when they become uncertain breeders.

At the recent wool sales in London certain German buyers were observed to use the sense of hearing, in addition to those of touch and sight, when examining wool. If one holds a handful of wool close to the ear and draws out a staple, the noise so caused in a dry fleece is really surprising. In very greasy wools—New Zealand, for example—there is scarcely any sound at all. It only remains for some enterprising buyer to taste the wool!—Wool Record.

Essentials of Animal Breeding

By Geo. M. Rommel, Chief Animal Husbandry Division

(Conclusion of article in Cultivator April 23, 30 and May 14.)

A breeder's success depends to a very large extent on his ability as a qualified judge of animals, on his knowledge of the pedigrees of his animals, and on his acquaintance with the characteristics of the ancestors of those animals. The breeder's ability as a judge must be based on an instinctive gift to recognize animal types and carry them clearly in mind. This is of even more importance than a knowledge of pedigrees, because a knowledge of pedigrees is of practical value only as it gives its possessor an acquaintance with the individuality and type of the ancestors in the pedigrees, which he may use in making effective matings and thus perfecting the type of his animals. One of our most eminent breeders of hogs once made the statement, "I breed my hogs in the barnyard, with the animals before me, not in my parlor with their pedigrees before me." That homely statement carries a truth which every ambitious young breeder should follow. Before deciding to make a certain mating, the man who made this statement is said to spend hours studying his breeding animals, going over their characteristics, and especially recalling to mind the characteristics of their parents, grandparents and more remote ancestors. If this review is satisfactory, the mating is made; if not, some other is tried.

To sum up, knowledge of a pedigree must not stop with the routine knowledge of the names of the animals which compose it. The breeder must know also the characteristics of these animals, as far back as possible, their weaknesses as well as their strong points. When he possesses this information the breeder can more intelligently mate individuals and blend blood lines. He has then a practical working knowledge of pedigrees. The study of pedigrees, therefore, based on a knowledge of the characteristics of the animals composing them, is indispensable to the man who would excel as a constructive breeder.

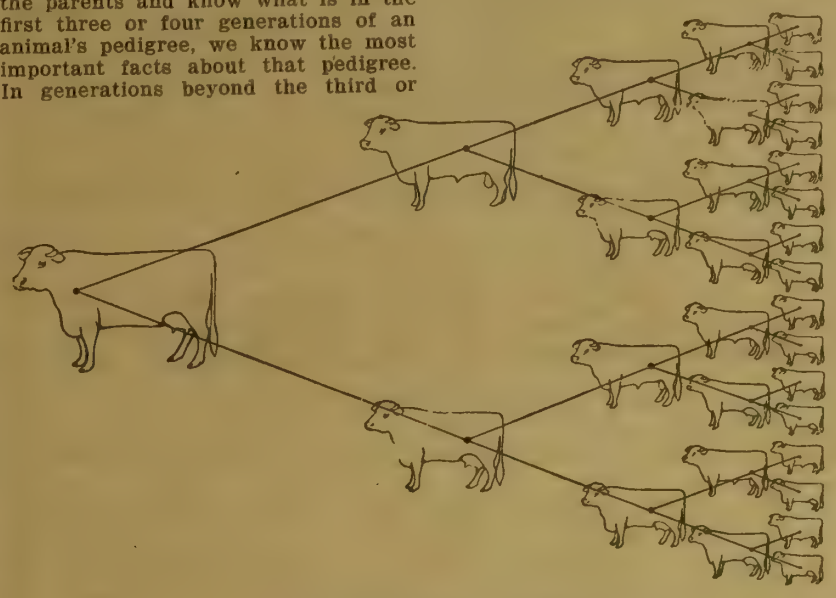
Value of a Pedigree

No one breeds animals without dealing with pedigrees. The common phrase "pedigree stock," as a synonym of "well bred" or "pure bred" in describing livestock, is a misnomer. All plants, all animals, all people have pedigrees, but all information about these pedigrees is not available. Pedigrees become known because of merit in some individual which stands out above his fellows. His progeny are watched, and if they have merit above the average they are "saved for breeding purposes," and by and by we have a line of known descent and ultimately perhaps a pedigree of distinction and formidable appearance. They are written into genealogies, herd books, flock books, and stud books, and the inheritance of decades and even of centuries becomes in time a matter of written record.

The proof of the value of the pedigree is the worth of the animals it produces. The value of animals with certain pedigrees depends upon their ability to produce desirable types with greater excellence and uniformity than animals with other pedigrees or with no known pedigrees whatever. The power of the animal with a known pedigree to reproduce its type has been intensified by selection. Therefore, if the matings which have been made in constructing the pedigree have not been directed by a high order of skillful selection, the animal may have intensified powers of producing an undesirable type, and may be what is commonly designated a "scrub pure bred." The purchase of an animal or its use for breeding purposes solely on account of its pedigree is a dangerous matter and may result in much more harm than good.

What is the most important part of the pedigree? Usually only the ancestors which are "close up" are those which are of practical importance in determining the identity of the individual. Assuming that Mendel's law governs animal inheritance, we may occasionally expect to find an off type occurring, but by the repeated culling out of such types the frequency of their occurrence is being constantly reduced. Therefore, if we are sure of the parents and know what is in the first three or four generations of an animal's pedigree, we know the most important facts about that pedigree. In generations beyond the third or fourth the influence of any ancestor is so slight that for practical purposes it may be ignored.

In a four generation pedigree there are 30 ancestors, all of which may be different individuals. Usually in pedigrees of most pure bred herds there are fewer than 30 separate individuals, depending on the amount of inbreeding in the pedigree. The chart shows this fact graphically. Suppose there is no inbreeding in a four generation pedigree, the chance that one of the animals in the fourth generation will dominate the pedigree above all others is very small indeed. The chart thus shows graphically the relative importance of the respective ancestors for four generations. Each figure in the chart is just half the size of the one in the generation preceding, and this conforms fairly well to the standard formula of inheritance. The chance of grandparents' dominating the inheritance of the mating can not be more, and is undoubtedly much less, than one in six; the chance of a great grandparent is less than one in 14; and the chance of a great great grandparent (fourth generation) is less than one in 30, provided no inbreeding occurs. In a pedigree covering ten generations (which can easily be run out with almost any of our well established breeds of domestic animals) there are 2,046 ancestors, more than half of which are in the tenth generation. Yet cattle are sometimes sold at a premium because a certain cow appears in the pedigree as far back as the tenth generation or even farther, regardless of the merit of animals much farther down in the pedigree. Or a pedigree may be classed as unfashionable and the animal carrying it may be discriminated against, regardless of its individual excellence, because some unpopular animal may have appeared in an extremely remote generation.



The Main Points of a Pedigree

A graphic representation of the relative importance of ancestors in the first four generations. Families in livestock often trace their foundation to a single animal which may not be reached within ten generations. It is quite as important to know what sort of animals make up the later matings as it is to know to what family the animal belongs. The proof of the value of a pedigree is the worth of the animals it produces.

The Texas Sheep and Goat Raisers Association is considering cancelling its June show at Del Rio, Texas, and joining with the Northwest goat interests in the Portland show in November.

Why the De Laval Milker Increases production

The De Laval Milker is based on two fundamental principles that govern the milking of a cow for greatest production:

(1) **85% of a cow's milk is made during milking time.**

(2) **Unless milking is pleasing to a cow, the greatest amount of milk will not be made.**

The organs of a cow which make milk are so sensitive, and the milk is made in such a short time, that the way milking is done greatly influences the production.

The De Laval Milker operates in a manner most pleasing to a cow and therefore the organs which make milk are stimulated to greatest production. Its action is gentle, uniform, cannot be changed, and anyone can operate it. The fact that it usually increases production over hand milking, is the best evidence that it pleases the cow.

The extra milk your cows will give and the saving in time will soon pay for a De Laval Milker. It is a better way of milking. Write for complete information.

DE LAVAL PACIFIC COMPANY

61 Beale Street San Francisco

Sooner or later you will use a De Laval Milker or Cream Separator

Thousands of Dollars Added to Cattle Profits

OUT of every five bushels of *whole* grains fed your cattle, *one bushel goes to the manure pile without being digested and is a total waste.*

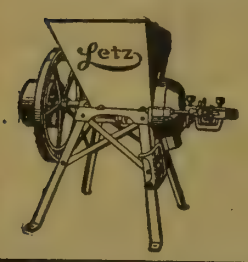
But *ground* feed is *all* digested. Feeding it, means a 20% cut in feed costs, also fatter, higher priced stock. Come in and let us show you without any obligation, how easy it is to get these results with the

LETZ *America's Leading Feed Mill*

The *fine cutting* of the Letz is due to the 848 keen cutting edges of the patented Letz Grinding Plates. In one operation cuts, grinds, *pulverizes* into finest meal all grains and grasses, wet or dry; and cannot clog.

Grinds corn, shelled or on cob—snapped corn—or complete stalk, ear, leaves, and all. Grinds oats, hulls and all; grinds barley. rye; special attachment for alfalfa, clover, millet, Kaffir corn and other roughage crops. Grinds into finest flour.

Plates are self-sharpening—can be run together empty for hours without injury—average 2000 bushels of moderately fine cut meal before replacement is necessary.



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REGISTERED HOLSTEIN FEMALES

Tuberculin tested and sold on money-back guarantee.

Yearling and Two-year-old Heifers

bred to freshen during the summer and early fall to sons of

KING SEGIS PONTIAC

whose sons have sold for more money than those of any other bull of the breed
P.S.—Can also spare a few fresh cows of high production.

$7.50 After 30 Days FREE TRIAL

Without paying one cent down or obligating you in any way, we will send to you an imported Belgian Melotte Cream Separator direct to your farm on a 30-day absolutely free trial. Use it just as if it were your own machine. Put it to every conceivable test. Compare it with any or all others. We want to prove to you that it is the best separator possible to buy anywhere in the world. When convinced it is the best separator you can buy it on our easy payment plan, paying only $7.50 after thirty days free trial and small monthly payments thereafter of $7.50.

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Send today for Free Separator Book containing full description of this wonderful separator and our 15-year guarantee and 30 Day Free Trial Offer.

Self Balancing Bowl
The Belgian Melotte is the only single bearing-bowl separator ever made. It is self balancing. Positively cannot ever get out of balance. Hangs from a single bearing. Spins like a top. It skims as perfectly after 15 years use as when new.

The Melotte Separator, H. B. Babson, U. S. Mgr., 2843 W. 19th St., Dept. 9025 Chicago, Ill.

Italian Vineyard Company Big Type Berkshires

Some dandy young boars for herd headers. The choicest breeding and ready for service.

Every one tuberculin tested and cholera immune.

Alex. M. Wilson, Supt. **Guasti, Cal.**

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
June 9, Burr Farm and Agee Bros., Burr Farm, Los Angeles.

Shorthorns
May 25, Caledonia Farms, West Sacramento.
May 26, Howard Vaughn, Dixon.

Herefords
May 27, Finnell Stock Farms, Galt.

The Jersey cow, Marigold of Ferndale, owned by J. W. Coppini of Ferndale, has recently completed a Class AAA Register of Merit record of 511.10 pounds fat from 8,866 pounds milk in 350 days.

E. W. Doane of Merced has been making some very creditable Register of Merit records with his Jerseys. Lorna's Dorothy, starting her test at the age of one year and 11 months, made 272.8 pounds of fat from 4,337 pounds of milk in 316 days; Effie Richie, three years and 11 months, produced 584.28 pounds of fat from 9,266 pounds of milk in 365 days; Fern's Interested Bessie, an aged cow, made 537.50 pounds of fat from 10,209 pounds of milk in 309 days.

George V. Kirkwood of Pasadena has recently purchased ten Aberdeen Angus heifers and a bull from Congdon & Battles, Yakima, Washington. The above purchase represents foundation material for another Doddie herd in California.

W. M. Carruthers of Live Oak, writing under recent date says: "I am in receipt of a letter from W. S. Short of Nevada, who purchased several Shorthorn heifers from my consignment in the association's spring sale at Davis, stating that they have all passed the 60 day retest for tuberculosis and that he expects soon to have his herd on the accredited herd list."

Financier's Peggy, a Jersey owned by Grant A. Brown of El Monte, has completed a Class A Register of Merit record started at the age of one year and ten months. In 365 days she produced 391.37 pounds of fat from 6,831 pounds of milk.

The American Hampshire Swine Record Association reports having recorded 22,000 more pedigrees during the first four months of 1921 than during the same period last year. The association states that over 1,200 persons have bought their first registered Hampshire since January 1.

Dr. W. J. Fitts of Gallatin, Tennessee, and Ortell Lininger of Fairfax, Missouri, have been chosen by a committee of representatives from the National and American Duroc Association to judge Durocs at the 1921 National Swine Show. Both men are experienced Duroc breeders.

Volume 105 of the American Shorthorn Herd Book is off the press and ready for distribution. It contains pedigrees of animals calved before May 26, 1920, numbers running from 877,001 to 907,000, inclusive.

Volume 31 of the Holstein-Friesian Blue Book is now available for distribution and may be obtained from Secretary M. H. Gardner of the Holstein Advanced Registry, Delavan, Wisconsin.

The National Swine Growers Association has launched a monthly publication called "The Hogman." The subscription list is limited to members of the association.

Dr. H. G. Gross, prominent Jersey breeder of Eureka, has placed his cow, Inez Raleigh, in Class AAA of the Register of Merit with 399.81 pounds fat from 7,329 pounds milk to her credit.

A newspaper report tells of a cow that gave birth to two calves three weeks apart. She calved first on April 16 and again on May 7. The cow and calves are reported "doing well."

California Juliana De Kol 2d, a junior three year old Holstein cow owned by the University of California, has completed a year's test, during which she produced 598.41 pounds of butter from 16,618.1 pounds of milk.

The Kings County farm bureau has organized a dairy department with J. P. Lemon in charge. The department is expected to greatly stimulate the dairy industry in that county.

The third annual "Pork Day" will be held at Hanford November 17. A class for farm centers and one for individuals is provided in the carload lots as well as classes for lot of five and single entries. A class for boys and girls between the ages of six and 14 is also provided. Prizes aggregating several hundred dollars will be offered.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Lame Goat

We have a purebred Nubian goat (doe) that is lame or weak in the hind legs. She was born February 1 and we purchased her two and one-half months later. Up to that time she had nursing and grazing on barley. After we purchased her she ate grain fairly well and grazed but it was about two weeks before we could get her to take any milk. We noticed the lameness about ten days after we had her. She struggles every time we force her to take the milk. Do you think the lameness may be strained muscles from her resistance or is it due to error in feeding?—Subscriber, Compton.

We would guess that the lameness was caused by her struggling when you force her to take the milk. If she refuses the milk why do you force her to take it? If she liked it it would probably make her grow faster but to force her to take will do more harm than good. If you are anxious that she should take some milk why not add a little at first to the water she drinks and increase it later or put a little in the grain she eats and increase it as she will take it.

Worms in Horse

Please prescribe a remedy and the manner of giving it for a horse with large worms. Have seen some expelled that were nearly as large as a lead pencil.—Subscriber, Santa Ana.

Mix one-fourth of a pound of fresh wood ashes with two pounds of common salt. Give a tablespoon of the mixture in the feed once a day. If this does not bring the desired result then get these powders: Powdered gentian, three ounces; powdered nux vomica, one ounce; powdered sulphate of iron, two ounces, and ground flaxseed or cornmeal enough to make a pound. Mix and divide into 16 powders. Give one every evening.

Swelling on Horse

I have a work horse that has a swelling on the front side of the hind leg. It has been there a year or longer and remains the same size. There seems to be a soft spot on top of the swelling that is sore to the touch. Sometimes when stepping over an object as the threshold of a door he acts like a string halted horse.—Subscriber, Santa Ana.

If the swelling is on the joint a blister may do it some good, but after so long a time you can not expect much. If it is the muscle below the joint and is entirely clear of the joint then open it. Make a cut two inches or more long and deep enough to lay the sack wide open. When you get it open you will probably find the cause of the trouble. Scrape out the cavity

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with the edge of a stiff spoon, then wet the inside of the cavity once a day with a solution of permanganate of potash, half a dram to the quart of water. Warm the solution and inject it with a syringe or use a swab.

FEED GRAIN EARLY TO SKIM MILK CALF

At the time calves are changed from whole to skim milk, they are ready to begin eating small amounts of grain, which should be placed before them in small feeding boxes. Or if they are tied in stanchions for milk feeding, the grain can be put in the manger before they are released. Just a very small handful is all the calf will take at first, and only as much should be fed as the animal will clean up.

Ground corn is very palatable, and it can be fed alone or in combination with other grains, such as ground oats, bran, and some oil meal. It sometimes helps to get the calf started on grain by putting a small amount on its tongue and muzzle when the empty milk pail is taken away. This also puts a stop to sucking the ears of the calf in the next tie. After the young animal's appetite for grain has increased, the corn and oats can be fed whole, but many feeders continue to let them have ground grain.

A good grain mixture to feed to growing calves is made up of 500 pounds of ground corn, 300 pounds ground or whole oats, and 100 pounds linseed oil meal.

Hay can also be placed before the calves at this time in a small rack. Clover hay, mixed clover and timothy, or alfalfa hay not too leafy, are all satisfactory.

An early start in grain and hay insures the proper development of the digestive organs of the young animal and assists in promoting vigorous growth.—M. H. Fohrman, superintendent of official testing, University Farm, St. Paul.

SAN FERNANDO ALFALFA GROWERS

About 150 alfalfa growers of the San Fernando Valley met at the high school at Van Nuys recently and formed a local association, to be affiliated with the Alfalfa Growers, Incorporated, of California. L. T. Guild was elected chairman and Fred S. Owen secretary. H. M. Maddaford, general sales manager, and Vice President Gregory, both of the state association, explained methods of marketing and plans of their association. Those elected to complete the association are: E. L. White, Burbank; B. Maxwell, Lankershim; T. M. Edmondson, Van Nuys; E. D. Grant, Van Nuys; Ben Kenney, Owensmouth; L. T. Guild, Jr., San Fernando; J. R. Anderson, Zelzah; A. J. Gibson, San Fernando; Fred S. Owen, San Fernando. About fifty contracts were signed up at this meeting and an active committee from each locality put in charge of the membership campaign, which will be followed up vigorously, and it is expected that 90 per cent of the growers of the San Fernando Valley will be in line with the association by the time the incorporation papers are received. Another meeting was held May 20, at which the organization was perfected.

THE DAIRYMAN'S OPPORTUNITY

By A. J. Cramer

Prof. G. C. Humphrey, Wisconsin college of agriculture, says: "Now is the time to make herd improvements."

Not all pure bred sires, cows and heifers are 100 per cent in quality. We select quality from quantity. Cull the herd more closely (at this time) than ever. Keep only the best foundation animals, having regard for breeding, individual excellence and production records. Be more particular about the kind of bull you will use.

How to measure a bull for quality, on scale of:

Individuality.

Breeding, pedigree, ancestry, etc.

Production records on part of dams and granddams.

Production records and excellence of daughters.

The older bulls will be the ones that can be measured most accurately on the four points of the above scale.

Younger bulls will be measured on three points:

Are they good enough in all of these respects? If not, now is the best time to buy others at reasonable prices.

Take advantage of going to sales and buying a better bull if the opportunity permits. This insures your future herd becoming best possible in breeding, individuality, quality and production.

Send your present bull to the shambles if he is undesirable, otherwise your neighbor may be glad to use him in place of a scrub or grade bull. If his daughters are not tested you may well afford to have your neighbor keep him for a long enough time to prove what his daughters will do in production.

Do everything possible to get your neighborhood and community started to breeding and developing the class of cattle that will be in greatest demand when such demand is restored. History is bound to repeat itself and every period of depression in prices and slow demand will be followed by a rise in prices. It will take all of the time of what may be a period of years of depression to build up the kind of a herd that will best enable one to reap the harvest of the better times sure to follow.

TRUTH IN FABRIC

Quoting from a letter received from the National Sheep and Wool Bureau of America:

"Hearings on the French-Capper Truth in Fabric bill (S. 799) will be held by the senate's interstate commerce committee at Washintgon, D. C., beginning June 1. Those who favor the sale of unidentified shoddy (reworked rags) as virgin (new) wool under cover of the misunderstood popular term, "all wool," may be expected to turn out in full force to register their opposition to the measure. The friends of "Truth in Fabric" should attend in at least equal force to plead—in behalf of square business dealing, the cloth buying public and American sheep husbandry—that the measure be speedily enacted.

Milk is good for adults as well as for children and babies.

The corn field is an expensive germination tester.

Rich soil gives rich blooms.

OBREGON SEEKS U. S. BREEDERS

President Obregon of Mexico is desirous of making his country a land of pure bred stock. In order to realize his ambition he feels that he must have in Mexico large numbers of expert American breeders. The Terrazas concessions recently were cancelled by Obregon because he felt that the present representatives of that family were not living up to their agreements with the Mexican government and were letting land lie idle that should maintain pure bred cattle.

The first considerable body of American breeders of pure breds to arrange for settlement in Mexico come from Illinois and Iowa. They are led by George V. Boatright, a farmer and feeder, formerly of Kankakee, Illinois. The Boatright colony has leased several million acres of grazing and farming land from the Obregon government, with an option to buy the land at the end of a term of years. Under the charter of the colony only pure bred stock will be produced.—American Hereford Journal.

20%
PRICE REDUCTION
On GOODRICH TIRES
Endorsed By Users and Dealers

The decisive reduction of 20 per cent. on the prices of Goodrich Silvertown Cords, Goodrich Fabrics and Goodrich Inner Tubes, which took effect Monday, May 2nd, received the endorsement of both tire users and dealers throughout the country.

It was accepted at its full face value as a helpful economic move in tune with the times.

It conforms to present conditions and carries out in a straightforward way constructive merchandising methods.

Goodrich Tires have earned their reputation and standing with motorists by sheer quality of construction and complete dependability of service.

Quality in a tire rests not only upon the materials of which it is made, but also upon the experience and skill of its makers.

Every advance in construction and improvement in making, with many exclusive betterments, is in the Goodrich tires you buy today.

Your Goodrich dealer is ready to supply your needs.

The B. F. Goodrich Rubber Company
Akron, Ohio

Big Milk Producers

On Easy Terms

The combination sale of registered Holsteins to be made for Burr Farm, Los Angeles, and Agee Bros., Rivera, contains an unusually attractive lot of fresh and heavy producing cows, in fact especial attention was given to this feature by both owners in making selections for this offering. The financial terms on which these cattle will be sold are so liberal that in many cases they will have paid for themselves in milk production long before the last payment comes due. The sale will total

60 REGISTERED HOLSTEINS 60

BURR FARM---AGEE BROS.

At Burr Farm, Los Angeles, Cal.

Thursday, June 9, 1921, at 10 A.M.

The females in the offering are not only heavy producers, but they are of most substantial breeding as well, and those that are bred are in calf to bulls that lend value through the calves they are carrying. Many of these good cows are bred to KING KORNDYKE PONTIAC 20TH, SIR VEEMAN KORNDYKE PONTIAC, KING PONTIAC TOLA ORMSBY, TOYON FAYNE VALDESSA, SIR MANUEL HENGERVELD, every one of which is out of a 30 to 36 pound dam or a dam with over 1,000 lbs. butter in one year.

There are many individual females with official records from 20 to over 27 pounds butter in 7 days, some with good yearly records, and a large number now on yearly test.

EIGHT YOUNG BULLS IN THE SALE

Dairymen will find eight desirable young bulls in the offering, choice young fellows from every standpoint to breed production and type into the herds which claim them in this sale.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

TERMS OF SALE: One-third cash, the balance in twelve equal monthly payments, with approved notes at 8 per cent, live stock insurance on deferred payments, if arrangements for credit are made before sale. In absence of prior arrangements the terms are cash. Applications for credit should be made to the sale management.

CATALOG OF SALE FREE ON REQUEST

Auctioneers:
Rhoades & Rhoades
Los Angeles

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

DISPERSAL SALE

50 Registered Holsteins 50

H. A. De Wolf Herd

Ripon, Cal.

Wednesday, June 15, 1921

It will be remembered that when the foundation of this herd was laid some years ago Mr. De Wolf was a prominent buyer of some of the better things in a number of the good sales. The present herd although not large in numbers is made up of choice individuals, including a splendid lot of young granddaughters of the good bull Sir Skylark Ormsby Hengerveld.

The offering will consist of forty females and ten bulls, including the two herd sires, one of which is a son of Sir Skylark Ormsby Hengerveld and the other a son of King Mead of Riverside.

Watch for details later, but write for catalog now.

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

HOLSTEIN Fred Hartsook RANCH CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

King Segis Pontiac Jannek

A proven sire of show winners and high producers is available for service to high class Holstein cows.

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Are Milking Machines Profitable?

By Arthur L. Dahl

THE trend of all agricultural activities is toward the use of mechanical means for carrying on as much of the work of production as possible. This tendency not only follows the practice universally followed in modern manufacturing industries, but is made necessary by the shortage of competent labor on our ranches. This is particularly true of dairy farming. Care must be used in the selection of help to tend milk cows, for every man that wants to work in the country is not fitted for dairy work. Cows are sensitive machines, and to get the best results with them the men who attend to their wants must be quiet and gentle and have the knack of making friends with them. One of the owners of a large dairy ranch in Northern California recently said that the greatest problem he had to solve was to keep good men, in spite of the fact that living and working conditions on that particular dairy farm were unusually good. Without the use of milking machines this owner would not have been able on numerous occasions in the last two years to have kept his plant going profitably.

California does not rank with Wisconsin, Minnesota and some of the other big dairy states of the Union, but dairying is now an important industry here and it is fast growing bigger, as evidenced by the new establishments that are springing up at various points for the making of condensed and powdered milk products. These plants operate on a large scale and they must receive daily immense quantities of fresh milk and cream. In turn they provide a stable market for the dairy products produced in the vicinity of the plant.

Milking machines have been on the market for a sufficiently long time to demonstrate their worth, and the experiment and development stage necessary in the life of any new invention has been passed, so that it is now possible to rather definitely determine when and under what conditions the use of a milking machine is warranted. A number of the state experiment stations have conducted thorough examinations and careful tests of the different types of milking machines, and the results of these investigations are available for those interested.

As a result of such an investigation made by the University of California experiment station it was found that the modern milking machine is a practical and safe labor saving device. Where failures have occurred they were found to be chiefly due to the fact that the owner did not fully understand the mechanics of the machines or appreciate the necessity for care in operating and keeping them clean. As the manufacturers have been zealous in developing and simplifying their machines and making them as "fool proof" as possible, the number of failures have greatly decreased in the immediate past.

The California experiment station authorities found that "any farmer with a fair degree of intelligence and resourcefulness need not hesitate to install a milking machine in his dairy if he keeps 20 or more cows. In many cases it may prove advantageous to adopt machine milking also in dairies of 12 to 15 cows, as it will make the owner less dependent upon or entirely independent of hired help."

While there are other considerations which lead many dairy farmers to install milking machines the principal one is the saving of labor. Where a number of cows are kept it is of the utmost importance that the routine work of milking and preparing the product for market be restricted to as short a period as possible, and the more work accomplished by mechanical means the less dependence must be placed upon extra hired hands.

Officials of the department of agriculture have ascertained from studies made in different dairy communities that the time saved by the use of milking machines increases with the size of the herd. For instance, in a herd of 15 cows or less the average time required to milk a cow by hand is a fraction over seven minutes; by machine, a fraction under five minutes. With herds of over 50 cows it takes slightly under seven minutes to milk a cow by hand and but 4.15 minutes by machine. With a herd of over 50 cows one man with a machine milks on the average about 28 cows per milking as against 17 where the milking is done by hand.

At the Kentucky experiment station a very careful study was made of milking machines, and it was found that five different men assigned to milking 14 cows with a machine averaged 3.1 minutes per cow. In other words, two of these men operating double unit machines can milk 28 cows, strip them, feed and carry the milk to the dairy room in 43.4 minutes. The average of many observations made in connection with hand milking indicates that this same operation, performed by two men, required one hour and 20 minutes.

The records of many individual owners of milking machines show that with the machine they can do at least twice as much work as by hand. L. E. Bowen of Montesano, Washington, found that with a milker he could save the wages of a hired man, and Fred T. Butterbrodt of Burnett, Wisconsin, milked as many cows with his machine as previously required the services of three hired men. D. J. Kirkland of Bloomfield now milks his 40 cows alone by using a milking machine, thus allowing his hired man to continue working in the fields.

While a study of costs made by the department of agriculture showed that it cost slightly more to milk with a machine in small herds than by hand, the larger the number of cows kept the greater the saving with the machine. On 32 of the farms using machines for milking small herds it was found that in spite of the cost per cow being greater for machine milking than hand milking the annual saving in hired labor amounted to $2.63 per cow through the dropping of hands who had been kept primarily to do the milking.

One dairyman who kept a record of the cost of milking by hand and by machine reported that the average cost of milking 20 cows by hand was $1 per day, or $365 per annum for labor alone, while with a double unit machine the annual cost was $176, or a saving of $189.

In commenting upon the effect of the machine on the milk yield of cows the men who conducted the Kentucky experiments stated:

"The effect of machine milking on the milk yield of the cows has been a paramount issue whenever the mechanical milker has been mentioned. Most dairymen believe that the machine will cause a decrease in milk production, and many dairymen who have fine, high testing cows have failed to take kindly to the machine for this reason. After carefully tabulating the milk yield of each cow for 30 days before the machine was used and for 30 days after its use was begun, we can state definitely that there was no appreciable or permanent decrease in milk production during the short period when the cows were becoming accustomed to the mechanical milker."

It is a well known fact that some hand milkers secure a greater quantity of milk from cows than others and that when a cow has become accustomed to the touch of one individual a change to another has an effect upon production. With the use of machines it has been the universal experience of users that once the cows become accustomed to the teat cups they will give a more uniform production than under hand milking. Some owners even go so far as to say that milking machines increase the quantity of milk and lengthen the lactation period, though this fact is not generally borne out by universal practice.

It has been demonstrated, however, that a nmber of highly sensitive cows are more satisfactorily milked with machines than by hand, as the uniform action of the suction cups has a soothing effect. Walter A. Carr of Hemet states that one cow of nervous disposition in his herd was, through apparent abuse of hired help, becoming a

vicious kicker. Hand milking was at times impossible, but when a milking machine was tried she became gentle and tractable and her milk production was increased.

When milking machines are properly cleansed and handled the milk obtained from the cows is found to be cleaner and purer than when hand milking is practiced. Milk as it comes from the udder is practically free of bacteria, and these are added by the contact of the milk with outside sources of contamination. The mechanical milker is so constructed that if properly cleaned before using, and if the cows' teats are washed before the cups are fastened, the milk drawn from the udder will be as free from bacteria as the most careful hand milking will produce. In the larger dairies the barn equipment is so arranged that the milk drawn from the cows is instantly taken by pipe lines to the receiving room, and at no stage does it come in contact with the open air or the hands of the operator.

Like the tractor in the fields the milking machine in the barn will enable the farmer who keeps enough cows to justify its use to do the milking faster and under more sanitary conditions. It will materially reduce the labor requirements on the farm, often to the extent of displacing one or more hired hands, and from this standpoint it will save money for the owner. Lacking the uncertainty always to be considered in the human element, the machine is more dependable than a hired hand and is always ready for use when wanted. The cost of operation is small, and anyone can learn how to operate the milker after a little instruction.

CONSTRUCTION BEGUN ON PACIFIC INTERNATIONAL ADDITION

Construction has been started on the addition to the Pacific International Livestock Exposition plant at Portland. This will provide housing sufficient to take care of 750 beef cattle, 850 dairy cattle, 400 horses, 1,000 hogs, 1,000 sheep, 250 goats, 2,500 coops of poultry and rabbits, with plenty of space remaining for the boy and girl club exhibits. Besides this there will be erected immediately in front of the present building, and connected with it, a machinery hall and dairy products building, sufficiently large to take care of the many varied exhibits of allied farm life. When completed and ready for the show, November 5-12, there will be a trifle more than ten acres under one roof, making it undoubtedly the most complete building of its kind in the world, a building so arranged that every breed of livestock has an equally good position in its relation to the amphitheater, and a plan permitting of indefinite extension without impairing the general scheme of things. That the Pacific International has made a tremendous impression on the breeders of the United States is evidenced by the friendly references made to it and to the many ads appearing in national publications advertising sales, in which the winnings of the Pacific International are a prominent part. Those connected with the Pacific International organization have endeavored at all times to assist in building up shows of a like character here on the Pacific slope, recognizing very clearly their importance to each other. Here we find working in harmony breeders of all the different kinds of livestock, something that has been considered rather an impossibility in other sections of the country. The show is equally well balanced from a beef and dairy standpoint, its board of directors being well divided among the different breeds, and it has been my observation that many happy friendships have sprung up between men of opposing breeds who, up until the time of our joint organization, had known little or nothing of each other.

Large as was our show in 1920, present advices from all sections of the country, and many sections far more distant than heard from in previous years, make us feel that the showing in every section will be stronger than ever before. Some conservative breeders regard this as a strong statement, but our expectations for 1919 and 1920 were more than fulfilled in each case. —O. M. Plummer, General Manager.

There will be a meeting of the American Angora Goat Breeders Association during the Pacific International Livestock Exposition at Portland, November 5-12.

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Honda, California

THE CALEDONIA FARMS' KIND
FAYETTE COUNTESS 2D

LAST CALL

Caledonia Farms'

Third Public Sale of Shorthorns

at the Farms, West Sacramento, Cal.

Wednesday, May 25

50 SELECTED FEMALES AND BULLS 50

15 Scotch Cows — The fifteen straight Scotch cows and heifers that have been listed were selected with the view of affording breeders a chance to add to their herds breeding material of the highest quality. There will be Acanthus, Orange Blossom, Rosa Hope, Campbell Ury, Roan Lady and other popular tribes. Such material carrying the services of the three great Caledonia herd bulls should be eagerly sought after by all breeders. Several of the cows sell with calves at foot.

25 Scotch Topped Cows Caledonia herd bulls. — The Scotch topped material represents a rare collection of big, thick fleshed, heavy milking cows that will return any man a handsome profit for their keep. Every one can boast of a most unusual list of sires in their pedigrees. No man can go wrong in purchasing such useful cattle. They too, carry the services of the three famous

Imp. Caledonia Gainford Matchless
Pine Grove King

It is entirely conservative to state that no herd in America has three better bulls in service. Think what an opportunity this sale affords California breeders to add to their herd's bloodlines of the best. If you own Shorthorn cattle now, or expect to buy, you positively cannot afford to miss this event. Get to the top quick through the use of such blood.

10 Young Bulls — The ten young bulls include six Scotch and four Scotch topped. They run in ages from 12 to 24 months. They are well grown, well bred and of good colors. Several are extra good prospects. Here is a chance to buy just the sort of bulls you need and at your own price. Remember the better the bull—the better the steers.

Terms: One-half cash, balance in six months on approved security. Arrangements must be made prior to sale with sale manager.

Every lot guaranteed a breeder.
All over six months old sell tuberculin tested.

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

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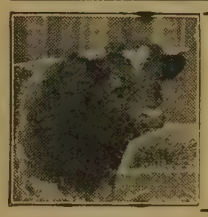

Grow Shorthorn Cattle

With corn, hay, forage and all grains at present prices the only chance for profit is in growing good livestock. Shorthorns will pay best. It is a good time to put in a few registered Shorthorns.

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POULTRY

Baby Chicks—You are looking for the largest returns for your "Baby Chick Money." To get this you want chicks that will live, have vitality and will produce. Our Anconas are all from first class Hoganized stock. The White Leghorns are all mated to roosters from trapnested stock of 229 eggs or better. Now we also have especially good layers in the R. I. Reds, Fancy Dark Reds, Fancy Anconas and Barred Rocks. Our stock will produce the eggs. We have as well an equipped hatchery as there is, and know how to hatch strong sturdy chicks. May and June prices on White Leghorns are $16.00 hundred, $150.00 thousand. Anconas, R. I. Reds, Barred Rocks, $19.00 hundred, $180.00 thousand. Fancy Dark Reds and Fancy Anconas, $24.00 hundred. All chicks are sent Prepaid by Special Delivery Parcel Post. Can give immediate delivery, or will return your money at once. ORANGE COUNTY HATCHERY, Santa Ana, California.

Petaluma Hatchery. Established 1902. Capacity 30,000 chicks a week. White Leghorn chicks from heavy laying free range stock after May 15th, 15c each, $13.00 per 100, $120.00 per 1,000. Brown Leghorns one cent more than White Leghorns. We positively guarantee safe arrival and full count of good strong chicks and no questions asked. L. W. Clark, Proprietor, 615 Main Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from heaviest laying (hoganized) stock. Safe delivery; live vigorous chicks guaranteed. No money in advance; pay on delivery. Price from May 15 to June 30 $3.50 per 25, $7.00 per 50, $12.50 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh St., Petaluma, California.

Ten Weeks Old Hudson White Leghorn Cockerels—Bred from our 200 egg hens. California winners in three Pullman, Washington, contests. We won "SPECIAL PRIZE" on pullet No. 3 for April in present Missouri National Egg Laying Contest. $1.50 each, $15.00 per dozen. CHAS. HUDSON, ESCONDIDO, CALIFORNIA.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

Booking Orders For Eggs from our wonderful utility and prize stock of Bronze turkeys, geese, Pekin ducks, Muscovy ducks, White King pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, guineas. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California

White Leghorn Baby Chix for May and June delivery from heavy laying, Hoganized stock. Safe arrival of full count, live, strong chix guaranteed. $12.50 per hundred; $120 per thousand. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks—"Only the best," May and June delivery. White and Brown Leghorn, R. I. Reds, Barred Rocks. Safe arrival guaranteed. All vigorous chicks from good layers. Send for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67-D, Palo Alto, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. Eggs from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route B Box 47, Hanford, California.

Baby Chicks from my carefully selected, heavy laying strain of purebred S. C. White Leghorns. June and July delivery, $12.00 per 100; special reductions on lots of 300 or more. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

Place Your Order Now for chicks for 1921. Standard varieties. Prices right. Send for circular. Madera Hatchery, Madera, California

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

For Sale—White Wyandotte eggs, $2.50 per 15, $9.00 per 100. Mrs. Flora Cox, Anaheim, California

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once J. W. Nicholson, Wasco, California

POULTRY

Annual Sale — Chicks, Eggs, Pullets, Breeders. Most profitable season for buying, everything reduced. Chicks grow quickest into layers; eggs hatch best; time yet breeders clear their low cost. Get Best for Less! Our early maturing, heavy winter laying 180-290 egg Leghorns, Reds, Anconas, Rocks, Minorcas, Wyandottes, Andalusians, Ducks (turkeys) often clear customers $5. 140,000 electrically hatched. Write, Profitable Poultry, 19 North Fair Oaks, Pasadena.

"Watch Us Grow" Baby chicks. We are now booking orders for May and June at reduced prices; White and Brown Leghorns, R. I. Reds, Barred Rocks, Anconas and White Wyandottes. E. W. Ohlen, Campbell, California.

For Sale—Baby chicks every week. Barred Rocks, R. I. Red, Black Minorcas, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose, California.

White Plymouth Rocks, eggs and breeding stock. Write for prices. Mrs. B. M. Jesch, Fallon, Nevada.

MISCELLANEOUS

For Sale—Used Fumigating Tents
13-62 and 64 ft.
15-54 ft.
18-46 ft.
We have contracted to have our fumigating done by another party, so have no further use for these tents. Prices very reasonable. Charles C. Chapman Ranch Fullerton, California.

For Sale—Orchard Heaters at a Bargain. 6,000 6-gallon Huntoon orchard heaters complete. 500 Hislop orchard heaters complete. These heaters are as good as new never having been lighted. Will sell all or any part of same at greatly reduced prices. Write or call. Charles C. Chapman Ranch, Fullerton, California.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Ship Your Hay to Us and receive cash when car is unloaded. Pacific Growers Exchange, Central Bldg., 6th & Main Sts., Los Angeles, Pico 3384. Alex. Thornton—Gordon Davidson.

Tobacco — Kentucky Homespun Natural Leaf Chewing and Smoking, 10 lbs. $3, 20 lbs. $5. Andrus Tobacco Agency, Box 367, Mayfield, Ky.

I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

WANTED

Herdsman — Made world records. Life long experience with Holstein cattle. Open for position where A. R. O. work is done. Best of reference. Give full particulars in first letter. Address Box G, California Cultivator, 112 Market Street, San Francisco, California.

Wanted—An experienced Dairyman. Married. State qualifications and salary expected in letter. Address: Montana Land Company, Hynes, California.

Farm Wanted — Wanted to hear from owner of a farm or good land for sale for fall delivery. L. Jones, Box 311, Olney, Ill.

Agents Wanted—Benedict Nursery Company, 185 East 87th St., N. Portland, Oregon.

Wanted Poultry and Eggs. Shippers write for our cash prices. C. W. Bedford, Santa Barbara, California.

SEEDS AND PLANTS

For Sale—Celery, Golden Self Blanching from seed bed $1.00 per 100; Stone tomato, 80 cents per 100; Anaheim, Pimento and Bell Peppers $1.50 per 100; Egg Plants $2.00 per 100; Dry Weather Cauliflower $1.00 per 100; Winningstadt Cabbage 70 cents per 100. Reduced prices in larger quantities. Strong and healthy stock. J. M. Chacon, 4431 Hawthorne Street, Los Angeles.

Rhodes Grass—Grows on alkali soil so bad nothing else will germinate. It will kill Bermuda and reclaim the land for any crop you may want to grow on it. Write Imperial Valley Seed House, El Centro, California.

Reliable Seeds—Ask your dealer or write for our Reliable Seeds and Instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch 767 S. Central Avenue, Los Angeles, Cal.

R*O*S*E*S—$1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue KAVAN NURSERIES, San Bernardino, California.

Some Grape Rootings Left—Tokay, Sultana, Zante Currants. Farm and Garden Seed and Plants. Write your wants. Box 501, Fowler, California.

For Sale — Loganberry plants, 30,000 tips, 10,000 2 year old plants. Immediate delivery. W. E. Archambeau, Sutherlin, Oregon.

Fordhook Lima Bean Seed—Hand picked, machine cleaned. Priced right. Leon W. Rudd, Downey, California. Phone 1152.

For Sale—Sweet potato plants, $4.00 a thousand f. o. b. Santa Ana. H. Beatty, Rd. 3, Santa Ana.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination. 25c per lb. Aurora Seed Mill, Stockton, California.

GOATS

Milk Goats, some registered, prices $15 to $30. Francis Rudkin, Fillmore, Calif.

FARM LAND FOR SALE

FOR SALE
Seven Acres and a Bungalow. Hardwood Floors, Electric Range, Kewanee Water System

$16,500—Located 3 minutes' walk from the station in a high-class neighborhood, we have for sale 7 acres in bearing orchard, 4 acres Blenheim apricots, 10 to 12 years old, 2½ acres French prunes, 4 and 5 years old; has a fine modern bungalow of 5 rooms, modern plumbing, hardwood floors, open fireplace, electric lights, also an electric range; there is a domestic Kewanee water supply with high pressure storage tank; complete set of outbuildings, garage, room for help, stable and a new modern poultry plant with capacity for from 1,200 to 1,500 chickens, tools, incubators, farming implements, etc., go with the place.

$30,000—100-acre dairy ranch located near Mountain View. The place is all fenced and cross-fenced, and divided into several fields. There is a good modern dairy barn with stanchions for 60 cows, also milk house, garage, hay barn, and other outbuildings. There is a 7-room dwelling which is now vacant and ready for occupancy. Terms of payment can be arranged, and a purchaser can get immediate possession.

$20,000—17 acres of creek bank sediment soil, planted as follows: 9 acres in bearing peaches, 6 acres in bearing apricots, and 2 acres dry ground and building site. This is a remarkably good producing orchard — it paid net and clear of all expenses the last 3 years: in 1918, $2,099.01; in 1919, $3,-153.33; in 1920, $3,351.83. The income for 1918 and 1919 represents the peach crop only, as the apricots were not in bearing until 1920. 400 fruit boxes, 500 drying trays, and 4,000 tree props go with the place. This property is owned by non-resident partners who have interests in other parts of the state that need their attention; hence this low price. Terms of payment can be arranged.

$25,000—20 acres, located near Mountain View, in a good neighborhood. 10 acres in bearing orchard and 10 acres in four-year old French prunes. Has a good residence of 7 rooms with the modern conveniences, good plumbing, electric lights, etc. Complete set of outbuildings, barn, garage, cottage for help; poultry, horses, farming implements and equipment go with the property. Can be bought on terms.

A HIGH-CLASS DAIRY PAYING NOW OVER $1,200 A MONTH

We have for sale a fully equipped modern dairy now stocked and running and producing over $1,200 a month from the sales of milk alone. Consists of 80 milch cows, 15 heifers and springers, 3 pure bred Holstein bulls and 6 calves. The dairy is on a 160 acre leased ranch. The lease has 5 years to run, and the ranch is equipped with a complete set of buildings, including a 7-room dwelling, cottage for help, modern dairy barn with milking machines, separators, etc. There are 40 acres in alfalfa. Complete set of farming implements, four work horses, two driving horses, etc., go with the place. Price $17,000. Rigid investigation invited. This property is offered for sale for the reason that it is owned by partners who wish to dissolve the partnership.

WILLIAM P. WRIGHT
Mountain View, Santa Clara County
California

CALIFORNIA IRRIGATED LANDS

Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

For Sale — Five acre improved ranch, seven room house, other buildings, suitable for dairy or chicken ranch; complete irrigation system; lots of fruit of all kinds; all livestock included; owner must leave. Located near city limits of Pasadena. Address Box 114, Lamanda Park, California.

For Sale—20 acres, Hemet, in bearing apricots, peaches, 2½ acres alfalfa, modern 5 room bungalow, gravity water, on boulevard. Special price $19,000, terms third cash, balance 3½ years, 6 per cent. Address Box 284, Hemet, California.

For Sale—Cheap—Beautiful Residence Lot on High Street, Oakland, California. Clear of incumberance. Address "K," 1281 Sherman Street, San Jose, California.

Akey & Skaggs, San Jose, California, Minute Men Realtors. Santa Clara Valley ranches a specialty. See us for anything.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

TURKEYS

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St., Pomona, California.

Mammoth Bronze Turkey Eggs, 30 cents. W. L. Duvall, Pomona, California.

ROOFING MATERIAL

Roofing Paper Firsts. Complete
1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35.
Outside Bungalow Paint, $2.25 a gal.
Roof Paint Special, 40c a gal.
Prompt deliveries on Mail Orders.
ANGELUS ROOFING & PAPER CO.
764-766-768 So. San Pedro Street.
Phone Bdwy. 5401 Los Angeles, Calif.

DUCKS

Mammoth White Pekin Duck Eggs for hatching. $1.00 per dozen. A. Surtman, Petaluma, California

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

RABBITS

Pedigreed Flemish Giants — No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

Guinea Pigs Wanted, highest price paid. Smith, Route 1 Box 139, Pasadena.

TREES

Avocados—I have a limited number of fine trees nicely balled and well established from two to six feet in height which I am offering for from two to three and a half dollars each. Fuerte, Linda, Puebla, Sharpless, Ganter and No. 2. Yearling Valencia trees 75c balled and guaranteed. A. R. Rideout, Rideout Heights, Whittier, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

5,000 Valencias; 2,000 Eureka lemons, 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTH LAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

Fruit Trees — 150 late Valencia Orange Trees, 2 year, balled, ready for immediate delivery; inspector's certificate; one lot at 50c, another at 75c each. Los Nietos Valley Nursery, Phone 692, Downey, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 588. Phone Colorado 6044.

Budded Avocado Trees. Write for special prices for orchard planting. S. S. AVOCADO NURSERY CO., 15 North Raymond Ave., Room 6, Pasadena, Calif.

Florida Sour Seed Bed Trees, six to sixteen inches high, straight roots, stock trees. L. A. Tuttle Nurseries, Route 7, Pasadena.

Florida Sour Seed bed stock. Paul E. Magee, 100 Ventura St., R. F. D. 2, Box 199, Pasadena, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 80 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class Owensmouth. See A. V. Austin, Van Nuys, California

BERKSHIRES

Grape Wild Farm—Berkshires, Guernseys. Big Type Berkshire boars of serviceable age, sired by Big Leader, greatest son of Grand Leader 2nd, Panama Pacific Grand Champion. A. B. Humphrey, Prop., Escalon, California.

Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Cals Orchards, Martinez, California.

POLAND-CHINAS

Registered Poland Chinas. 40 tried brood sows; 40 gilts. Some choice young boars all at reduced prices to move at once. These Polands are as good as can be had anywhere at any price. W. L. Trewhitt, Route B Box 47, Hanford, California

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price $75.00 and up. J. A. Crawshaw, Hanford, California

Big Type Poland Chinas—Breeding stock of both sexes for sale at all times. Prices reasonable. J. N. Cook, Orland.

HAMPSHIRES

Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

CATTLE

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome. Information cheerfully given. T. T. Miller, Hollister, California

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Aberdeen-Angus — Purebred bulls and few heifers. These are range raised and rustlers. Priced right. Fred B. McCay, Cathay, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Mill strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 325 Court St., Los Angeles.

MACHINERY

Owing to Illness Have Had to Give Up my farming interests and will dispose of my equipment, consisting of a Trundaar tractor, ¾ gauge Moline engine disc plow, 6 ft. Moline double disc harrow, 4 row Ventura bean planter, 2 row Planet Jr. bean cultivator, No. 26 American bean thresher, 2 100-gal. gasoline tanks and 2 50-gal. oil tanks. No reasonable offer refused. J. B. Reeve, 429 West Amerige Ave., Fullerton, California. Phone Pacific 523-W.

For Sale 50 rebuilt windmills, 50 new and used tanks, 50 brass cylinders, rods, plunger pumps 1-in. to 30-in. capacity. Why pay more? When you can save so much these times. Send for bargain sheet. Demmitt Co.'s. Office 120 North Main, Los Angeles. 15191.

For Sale—Six ton ice machine. Complete with tank and cans for freezing 750 pounds. Also bottle washer, Chilly King cooler, stanchions and other dairy supplies. Priced right. Hollow-Hill Farm, Colton, California.

For Sale—24 inch Acme ensilage cutter, good condition, and 40 feet blower pipe. Arden Dairy, El Monte. Phone El Monte 42.

60 H. P. Holt Caterpillar, good condition; also Land Leveler. (Outfit at Manteca.) Bargain and sell on time. B. S. Brown, 619 West 41st Place, Los Angeles.

For Sale—Pomona pump, 28 head, nearly new. Clarence Wagner, Terra Bella, California.

TRACTORS

For Sale—Cletrac tractor, newly overhauled throughout, new eight inch treads, all in A-1 shape and a bargain at $750.00. E. M. Fillmore, 1723 E. Victoria St., Santa Barbara, California.

For Sale—Holt 75 with implements. Or exchange part for good dairy cows. C. E. Newman, Chowchilla.

LIVESTOCK

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

White Rats—fifty cents pair. Smith, Route 1, Box 139, Pasadena.

PHEASANTS

Chinese Ringneck Pheasant Eggs. Orders filled immediately $3.00 per setting. El Nido Pheasantry, Fairoaks, California.

Plant Winter Rhubarb
FOR PROFIT

Growers netted this year $1000 per acre. April, May and June are absolutely the best months to plant for full crop next winter and spring. We can supply plants —all sorts for large fields. Write for price list.

J. B. WAGNER
Rhubarb and Berry Specialist, Pasadena, Cal.

MACHINERY
OF EVERY DESCRIPTION
Bought, Sold and Rented
BUTTRESS & McCLELLAN
205-7 N. Los Angeles St., Los Angeles

KILL THE BUGS

The extremist whose religion prevents him from taking life has no place in the farming game. He who would produce food and raiment has not ended his fight when he has conquered abnormal weather conditions. When he has finished the good fight of preventing Jack Frost or June Heat from doing his crops to death he then has to take up the fight with weeds and varmints and fungus, and then to cap the climax, with about a million of insects which are chewers and suckers in all their various stages of growth. Hoes, cultivators, traps, caustics, poisons, deadliest of gasses all have to be brought to bear if we would win. Of the many questions which come to the Cultivator office appealing for help none come more often than this of pest control.

This week we give from the pen of Fred K. Howard suggestions for the vineyardist as to the control of the vine hopper. This pest hovers in myriads over the bearing vines. He is of the sucker class and the vitality of the vine is soon gone unless he is brought under control. A very small percentage of nicotine dust in kaolin or other neutral carrier suffices. Hand and power dusting appliances now enable swift and effective application.

Another serious pest is the red spider. Almond and other orchards have been seriously reduced in productivity because of this ever present enemy of the nut and fruit grower. We have an illustrated article from the pen of E. R. de Ong. We had hoped to give it alongside of Mr. Howard's in this issue. It is, however, held over and, will make one of the leader articles in the Cultivator of May 28.

Meantime lay for these and other pests and get them before they get the fruit.

LIME

The gospel of lime is being preached today as never before. The scientist has preached for years, "A lime country is a rich country," but all of us are getting into the procession more than ever. California is a "lime country." It is rich. It will be richer, for its soil problems are being studied and wherein they are still lacking in producing to the highest is becoming better known.

BEAN GROWERS AND THE TARIFF

The bean growers of California should at least see a rift in the clouds in the action of the senate in passing the emergency tariff bill, which includes a two cent tariff on imported beans. While it is true that this amount was not all that was asked for, it will at least put California beans on something like an equitable standing with the Oriental product in our own markets.

Too much credit cannot be given the California Bean Growers Association for securing this legislation, for it was mainly through its efforts that the tariff on beans was finally passed. The association started its campaign early in 1919, sent a committee to Washington and has consistently kept up its fight for the protection of the bean industry.

It is also a striking object lesson of what cooperative effort can accomplish, for without the association it is doubtful if the industry would have been able to secure this vitally necessary legislation, and one of the most important agricultural activities of the state would have practically been forced to go out of business, meaning a loss of millions of dollars to growers.

The association has already begun preparations to secure the four cent tariff originally asked for, and which it expects to have incorporated in the permanent tariff bill to be acted upon this fall. Every grower of beans should give the association his support in its endeavor to further the interests of the industry, and which he is financially interested in.

Book Review

NATIONAL STANDARD SQUAB BOOK

"The National Standard Squab Book," by Elmer C. Rice, Melrose Highlands, Massachusetts, published by author.

"This manual or handbook on squabs is written to teach people, beginners mostly, not merely how to raise squabs, but how to conduct a squab and pigeon business successfully. We have found breeders of squabs who knew how to raise them fairly well and took pleasure in doing so, but were weak on the business end of the industry. The fancier, who raises animals because he likes their looks or their actions, or because he hopes to beat some other fancier at an exhibition, is not the man for whom we have written this book. We have developed squab pigeons and the squab pigeon industry solely because they are staples, and the squabs they produce are staples, salable in any market at a remunerative price. The success of squabs as we exploit them depends on their earning capacity."

The book consists of a dozen chapters, the last one being given up to questions and answers. Then follows a supplement and appendix, so extensive in fact that it makes up a large part of the book. There are scores of illustrations. The various chapters touch upon squabs pay, easy start, unit house, nest bowls, water and feed, laying and hatching, increase of flock, markets, ailments and finally questions and answers.

THE KING SNAKE

One of Yosemite national park's most interesting snakes is the King snake. The King snake was a great favorite of forty-niner gold seekers. Finding it throughout the country infested by rattlesnakes, snake stories, with the ready imagination of that time, were soon told of its hunts for big rattlers. These yarns finally crystalized into the well known mountain superstition. The King snake does eat other snakes, but it is surely nature faking to say that it deliberately starts out on a hunt for the rattlesnake.

NEW ORANGES AND NEW CULTURE

By Ernest Braunton

"We have several new oranges of promise and several varieties of other citrus that may yet find their way into commercial orchards," said Dr. J. T. Barrett, acting director of the Riverside citrus experiment station. "Among the better oranges given a good trial here and which appeal to me as of value are: Bessie, Boone's Early, Brazilian, and Starr; also one we have numbered 311. Then, too, we have a good new pomelo known as Imperial, though it is not seedless." Growers given to experiments should send for buds of the new varieties and give them a trial. And June is a good month for budding.

Farm Advisor Hodgson of Los Angeles County and several farm center directors held a field day at the experiment stations (there are two, the old and the new) to canvass the results and accomplishments of 14 years work experimenting with fertilizers, root stocks, etc. The old station, where the state owns but three acres and leases about 20, has no new orchard work, though the chemistry laboratory is still there and in active operation. The new site, of broad and sufficient acres, is on the opposite side of the city of Riverside and is a veritable "land of promise" compared with the Rubidoux station.

The young orchards, now four years old, are not surpassed in size and vigor by any the writer has seen, and they have received no fertilizer except what was grown on the land—bean straw. In addition to this the Blackeye bean crop has each year paid within $15 per acre of the total cost of planting and maintenance.

This new station work was started right. Before planting soil samples to the depth of four feet were taken in many parts of the orchard plats and stored away for reference in future years. Each tree of the many hundreds is numbered, measured each year, close crop production records kept and everything done to insure the greatest possible value from each experiment. There is so much to tell of this station that we will have to leave the remainder for another story.

FARMERS OWN HALF THE AUTOMOBILES

Farmers are interested equally with city dwellers in good roads and highways over which they can run their automobiles both for business and pleasure. Farmers own and operate fully 50 per cent of the automobiles and trucks in this country, the total of which now exceeds 9,000,000. They wore out fully half of the 24,000,000 tires used last year and will buy their share of the 27,000,000 tires required this year to keep the cars running. Yet these same farmers know that they travel mostly between their farms and the nearby cities—just as most city people rarely take long distance tours. The farmers are interested in a road program that takes into consideration the development of the road system of their state and at the same time makes provision for intercountry and interstate highways.

The Dowell bill requires each state receiving federal aid to designate through its highway department a connected system of roads, interstate in character, not to exceed seven per cent of the total roads mileage, and to classify the roads of this system into two groups, primary or interstate and secondary or intercounty. But this is only a starter. As rapidly as the state has funds to construct additional intercounty roads the percentage will be increased.

A new bridge is soon to be constructed on the Hassayampa River near Wickenburg, Arizona. This is on one of the direct roads between Phoenix and Los Angeles and the bridge will be much welcomed by the traveling public.

The man who makes the quickest motions is not always the one who does the most work—it is the man who makes every move count that accomplishes things. — Merchants' Magazine.

No Failures Trapping Gophers

The above heading is not written for the purpose of fooling the readers of this column. Our daily mails are full of orders for **Chubbuck's Double Catch Gopher Traps**, with the number of repeat orders rapidly increasing. The farmers, owners of Double Catch Traps, write our advertisements for us. Here are two letters snatched from the latest mails:

Enclosed is my check for $3.00 for which I would ask you to send me **four more** gopher traps. It might be of some interest to you to know that this is the only trap we have ever had that would really catch gophers. **My man reports that he has caught more gophers with the first four traps than with all the traps and poisons he has put out in the past year,** that he has been in my service.—Frank A. Guernsey, Manager, Sacramento-San Joaquin Bank, Stockton, Calif., 4-30-'21.

Recently an advertisement about your gopher traps came to our notice. It looked like a strong "adv." but since it appeared in a reliable farm paper, we decided to try one on a smart gopher which steered clear of every trap we ever set for him. The gopher got the worst of it in the course of an hour after setting the Chubbuck, and we have been fooling gophers ever since. Before that they sure fooled us. A trap like that is a real blessing for a pest-ridden locality. Now make something just as effective and simple to trap ground squirrels and we shall call your name blessed indeed. Thanking you for calling our attention through your truthful advertisements, and wishing you every success. — Brinkmann Brothers, Lathrop, Calif., 5-9-'21.

If you cannot secure these traps from your local Seed stores or Hardware dealers, send direct to us. **Price, postpaid 75c.**

E. J. CHUBBUCK COMPANY
Manufacturers, Dept. A.
731 Market Street, San Francisco, Cal.

Rock Phosphate Available

(See rare Minerals Column, Times, Monday, April 11, 1921)

Torrance Lime and Fertilizer Company

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Calcium Carbonate — Phosphoric Acid

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Odorless — Soluble

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SOIL VITALIZER AND FERTILIZER

Detailed information mailed on request.

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Blacklegoids
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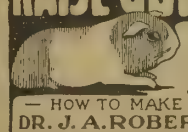
RAISE GUINEA PIGS FOR US.



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Look for Paint

That's Cracked or Checked

DON'T let *your protective coat of paint crack* and come off. Even tiny breaks will let weather in, and that means decay.

You can't save by not painting, if your paint is wearing out.

Look for those signs and *paint now,* if you need paint.

The best paint spreads more easily —saves labor cost. It covers more square yards—you buy more gallons of cheap paint.

The best paint, if properly applied, protects the house five or more years longer.

There is no question as to which *costs* less. Don't allow surfaces to rot. It costs less to paint them.

* * * *

The best paints are scientific in formula and preparation. We've made them for 72 years—to meet weather conditions in the West.

The best materials — pure PIONEER WHITE LEAD, pure linseed oil, zinc, and color in scientifically exact proportions, arrived at through 72 years' experience.

Our process super-purifies and "whitens" the lead base. It must be fine enough to pass through a silk screen with 40,000 meshes to the square inch. A fine lead means easier spreading, and a more elastic, tougher protective coat. The "whiter" lead base means more beauty in the colors. Such paint will last five or more years longer than cheap paint, if properly applied, and look better through the years.

House Paint: Fuller's Pure Prepared Paint, Phoenix Pure Paint, for Painting Houses. The purest, best protective and most durable paint made. Made in 32 colors.

BARN AND ROOF PAINT: A protective coating for barns, roofs, fences. Dries with a good gloss and wears. Economical in cost and dependable in quality. Six colors to select from.

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SPECIFICATION
Farm Paints
House Paint-Barn & Roof Paint
Wagon Paint-Rubber Cement Floor Paint

W. P. Fuller & Co.

Pioneer Manufacturers of Paints, Varnishes, Enamels, Stains and PIONEER LEAD for 72 Years.

Branches in 16 cities in the West—Dealers everywhere
Established 1849 San Francisco

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Send coupon for "Save the Surface," a free book which tells of the importance of good paint, and the need for painting now if your paint is wearing off.

Also ask for small booklet of Fuller's Farm Paints and Varnishes.

Ask our Specification Department any quetsion that you'd like to have answered about painting—complete detailed advice is given free.

W. P. Fuller & Co.
Dept. F-32, San Francisco.

Please send me, without charge, a copy of "Save the Surface" and your small booklet of farm paints and varnishes.

Name.....

Address.....

City..... State.....

Hurry the Cockerels Off

By Jean A. Koethen

FROM the day the hatch comes off the preparation of the cockerels for market should be kept just as clearly in mind as the developing of the pullets into layers. The cockerels are a side line, to be sure, but they cannot be eliminated. As long as half the chicks hatched are cockerels, just so long must they be considered and turned into an asset if possible.

In the beginning all the chicks are fed alike, and whatever produces most rapid growth is good for all alike. Bran for the protein it contains, which is needed for the building of the deep tissues; corn meal for fat, ground oats for frame, some animal meal to add protein, the most essential requirement of the little chicks, are fed to all alike after the first week. Not until pullets and cockerels are separated, at two months of age, need any change be made in the feeding of the latter.

Feed Cockerels for Weight, Pullets for Muscle

When the sexes are separated it is customary to give the pullets as much range as possible, and the cockerels as little. They are not fed in crates till the last two weeks, but it is well to keep them in small yards so that they will not be disposed to overexercise. Too much exercise makes tough, stringy muscles, highly undesirable in a broiler. The pullets, on the other hand, develop more satisfactorily under free range conditions. They should not be fed for weight but for frame, and the more they exercise the more fit will their muscles be for the work of production. Bran, wheat, oats and green stuff, with milk available part of the time, and not too much beef scrap, lest they begin to lay prematurely, is the ration for pullets. Cockerels require less bran and a good deal of corn. Ground oats are a part of most fattening rations.

From the time the cockerels are separated they should receive a moist mash once a day. Three weeks before they are to go to market begin giving the moist mash morning and night, with a feed of cracked corn at noon. Moisten the mash with sour milk or buttermilk. "Milk fed" broilers are to be found in every market these days, and one can hardly expect a top price without using milk.

Crate Feeding

Two weeks before marketing the birds are put in crates and kept on a ration of moist mash. The mash used at Cornell consists of 50 pounds corn meal, 20 pounds middlings and 10 pounds ground heavy oats. This is mixed to a batter fresh three times a day with sour milk. Another good ration consists of 2 pounds corn meal to 1 pound each of middlings and ground oats. This is moistened with 8 pounds buttermilk and is allowed to stand and sour 24 hours before feeding. It is fed in a trough outside the slats in front of the crate.

Birds that are being crate fed should eat ravenously. If they do not, there is something wrong, and they should be removed from the crate. Crate feeding, if carried on longer than two weeks, is apt to put a bird off its feed, and it will then lose weight more rapidly than it gained before. The mash should be left before the birds half an hour. Water is not necessary except in hot weather, but grit should be fed two or three times a week.

When crate feeding is not convenient, very good results may be secured by feeding the moist mash three times a day to the birds in their small yard.

Marketing Broilers

White Leghorn cockerels are best marketed as broilers, that is, when they weigh from 1¼ to 1¾ pounds. They are too light to make good fryers, but they grow so rapidly the first three months that they are considered excellent broilers.

Since the Poultry Producers undertook the task of marketing broilers for its members the broiler problem has been less perplexing than formerly. The poultryman receives the wholesale market price when the birds are delivered, and later, after the association's charge for handling has been met, receives whatever margin there is between the wholesale price and the price the Poultry Producers has been able to secure.

Cockerels of the heavier breeds generally bring a better price when kept to 2 or 2½ pounds weight, when they are sold as fryers. If it is not too late in the season they may be even more profitable when kept to soft roaster weight, 4 to 6 pounds. Late maturing breeds, like Light Brahmas, are particularly well adapted to the soft roaster market. If hatched in April they just reach a fine roasting size by Thanksgiving.

TURKEYS SPREAD GAPEWORMS

Turkeys are probably the natural hosts of the gapeworm, a serious pest among young chickens, and are an important factor in their spread. This has been demonstrated by a zoologist of the United States department of agriculture as the result of investigations carried on at Washington, D. C. and on farms in several localities in Maryland.

During three winter seasons beginning in December, 1916, a total of 635 chickens and 679 turkeys were examined in the Washington city market. No gapeworms were found in the chickens, but 22.5 per cent of the turkeys were found to be infested. From one to 18 worms were found in each of the infested turkeys. A report of these investigations has been published by the department in Department Bulletin 939, "The Turkey as an Important Factor in the Spread of Gapeworms."

In view of the complete absence of gapeworms from a large series of adult and approximately adult chickens, and their common occurrence in a similar series of adult and approximately adult turkeys, all obtained at the same market at the same season of the year, it would appear that adult chickens are poor hosts of gapeworms. It is also evident that not merely young turkeys may harbor the worms but that these parasites are very common in adult turkeys. That turkeys above three years of age may harbor gapeworms is established by the fact that a turkey which was kept at the department's experiment station at Bethesda, Maryland, for three years after it was brought there was found after its death to be infested with a pair of worms.

In the perpetuation of gapeworm from year to year on infested poultry farms the two chief factors appear to be turkeys and contaminated soil. Whether, in the absence of turkeys from a farm, gapeworm affliction among chickens will regularly disappear has not been definitely established, but it seems probable that it may often do so. Gapeworms among chickens appear to be more prevalent on farms where turkeys frequent the chicken runs than on farms where there are no turkeys. Available evidence indicates that gapes has a tendency to disappear on farms following the removal of turkeys.

Losses from gapeworms can be greatly reduced, if not altogether avoided, by keeping young chickens on ground that has not been exposed to contamination within at least a year by chickens with gapes or by turkeys and by excluding turkeys from it during its occupancy by chickens. As gapeworms appear rarely to occur in adult chickens, brood hens may be associated with young chickens with little risk of infection.

BOLL WEEVIL LIKES ALL COTTON

Boll weevils develop about as rapidly and live as long on one kind of cotton as on another. They seem to adapt themselves to new conditions rapidly and become organized to carry on their work of destruction without delay. These points are brought out in detailed studies of the pest in the states east of the Mississippi, covering a period of two years, conducted by entomologists of the United States department of agriculture at Madison, Florida.

Poultry Queries

Conducted by Jean A. Koethen

Roup or Stickers?

Some of my White Leghorns have a disease which makes them go blind in one eye. The eye fills with a yellow substance; some die but others recover. I first thought it was roup and put potassium permanganate in the drinking water, but it did not check the disease.—Subscriber, Owensmouth.

Are you sure this trouble in the eyes is not due to foxtails that have worked down into the passage between the eye and nostril? I would examine each hen very carefully. At this season when hens on range are certain to come in contact with foxtails and hens that are confined are frequently given unthreshed barley, there are many cases of eye trouble that can be traced to the one or the other. Will the subscriber who some months ago told how he cleaned out the passage where foxtails are sometimes imbedded please repeat the information. Of course, this may be roup of the eyes. In any case, the eye should be cleansed twice a day with a boric solution. Dip a bit of cotton in the solution and drop in the eye till the yellow secretion is washed away. Then anoint the edges of the lids with plain white vaseline. Permanganate of potash in the drinking water does no good at all except perhaps to prevent contagion while it is fresh, but dipping the head in a permanganate solution is an excellent remedy for any form of roup. Where only the eyes are affected, however, boric acid is better. A decoction of chamomile flowers may be added to the boric solution.

Mites and Ticks

Will you kindly tell me how to get rid of mites or chicken ticks which infest my chicken house?—Subscriber, Julian.

It is not quite clear whether this inquiry means "mites and chicken ticks" or the writer is not sure what the infestation is. If the house is infested by both mites and ticks it will take a lot of work to clean them out, but generally speaking, the cleaning and disinfecting that rids a house of mites will also destroy ticks. To get rid of mites first scrape and sweep and hose walls and dropping boards till they are as clean as water will make them. Then spray or paint every bit of wood with kerosene and crude carbolic acid, making the mixture as strong as you can afford to make it. The more acid you add to the kerosene the more certain will it be to kill every mite. One part acid to 8 of kerosene is sufficient in most cases, but when the pests have been allowed to breed without interference 1 part acid to 4 of kerosene is better. One painting will not be sufficient; three times a week apart is better. The first painting gets most of the mites; the second gets the nits that have hatched since the first painting; and the third gets anything that is left. Care must be used in disinfecting an old house to get the mites that crawl through the cracks to the outside. The only sure way is to paint both sides of every board.

CALIFORNIA FARM BUREAU EGG LAYING CONTEST

The seven highest pens in the California farm bureau egg laying contest for April are: Hollywood Farm, Hollywood, Washington, 239 2/3 eggs; S. L. Gibson, Santa Cruz, 239; Hanson's Poultry Farm, Corvallis, Oregon, 237; Geo. Gray, Santa Cruz, 233; D. B. Walls, Petaluma, 233; D. B. Walls, Petaluma, 233; W. A. Ford, Umatilla, Oregon, 230.

Hanson's Poultry Farm took first place again for pen totals to date, forcing Hollywood Farm into second, while W. H. Marshall of Santa Cruz ousted S. L. Gibson from his long favored third seat.

At the end of the first six months 15 pens have passed the 100 egg average per hen. High standings are as follows: Hanson's Poultry Farm, 1,257 eggs; Hollywood Farm, 1,251; W. H. Marshall, 1,205; S. L. Gibson, 1,196 2/3; Geo. Gray, 1,196 1/3; W. A. Ford, 1,170; R. J. Kenter, 1,103; Santa Barbara Poultry Ranch, 1,079 1/3; S. L. Gibson, 1,079; S. L. Gibson, 1,072; F. L. Spacher, 1,054; Warren Wood, 1,046; C. E. Hyde, 1,043; Alex Stewart, 1,012 1/3; La Rita Poultry Farm, 1,011 1/3.

Leading hens to date (over 75 per cent production for the 181 days) are: Hollywood Farm, 146 eggs; Chas. Lehman, 145; J. S. Conrado, 144; La Rita Poultry Farm, 143; Hollywood Farm, 142; Hanson's Poultry Farm, 141; Geo. Gray, 141; Ed. Crewdson, 140.

Boys in the manual training class of the Casa Grande, Arizona, high school are doing double duty by making rabbit traps as a part of their school work, the rabbit traps being used to help the farmers to exterminate some of these pests.

Sick Baby Chicks?

Germozone operates just as these people say. It is preventive as well as curative, and satisfaction is absolutely guaranteed. Twenty years on the market. Sold by drug and seed stores at most towns.

Wm. E. Shepherd, Scranton, Pa., wrote — "Two weeks after we started last spring we were a mighty discouraged pair. Every day from three to six chicks died. A neighbor put us next to Germozone and we are now sure if we had had it at the start we would not have lost a single chick." Ralph Wurst, Erie, Pa.—"Not a case of white diarrhoea in three years." C. O. Petrain, Moline, Ill.—"I never had a sick chick all last season." Mrs. Wm. Christiana, Olive Ridge, N. Y.—"Have 800 chicks now 5 weeks old and not a single case of bowel trouble."

GERMOZONE is a wonder worker for chicks, chickens, pigeons, cats, dogs, rabbits or other pet or domestic stock—for roup, bowel trouble, snuffles, gleet, canker, swelled head, sore head, sores, wounds, loss of fur or feathers.

If no dealer, order by card. Postman will collect. No extra charge. Handy as phoning. 75c and $1.50 pkgs. Baby Chick Book FREE.

Geo. H. Lee Co., Dept. F30, Omaha, Neb.

Baby Chicks

All the Popular Breeds Every Day
Baby Ducks, Baby Turkeys

We can supply Baby Chicks in any quantity. Best quality. Place your order now to insure prompt delivery. Can ship to any point within seventy-two hours' ride from Los Angeles.

Hatching Eggs, Fireless Brooders, Poultry Supplies, Remedies, Feed, Seed, Feeders, Fountains for sale.

We are the SOLE AGENTS of this County for the Pioneer Incubators and Brooders. Send for Price List.

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"Wor'd's Largest Hatchery" Established 1905

Baby Chicks

Largest assortment of baby chicks in the West. Hatched in the RIGHT way. Can ship Express or Parcel Post. We carry a complete line of poultry supplies. Fireless brooders that are made to care for chicks properly. Chicks shipped safely in these brooders. Breeding and Pet stock of all kinds. Write us your wants. Send for price list. Dogs, cats and rabbits.

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Our free book Chickens from shell to Market gives full particulars
Coulson Co., Petaluma Cal.

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A simple, harmless and positive preventive and cure for Poultry Lice. Chickens dust themselves. Brings quick relief to chickens. Retains curative strength indefinitely. ORDER AT ONCE AND BE CONVINCED. Standard Package (25 lbs.), $3.00.

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Write to either distributor for illustrated catalog and full particulars.

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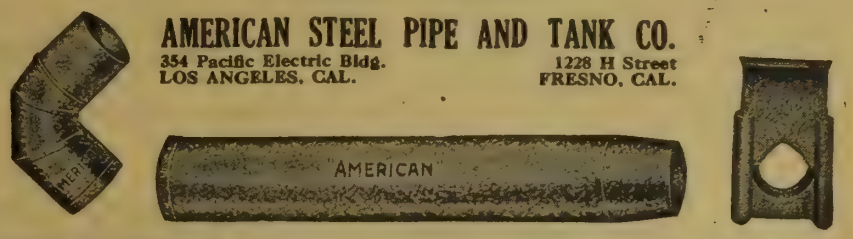

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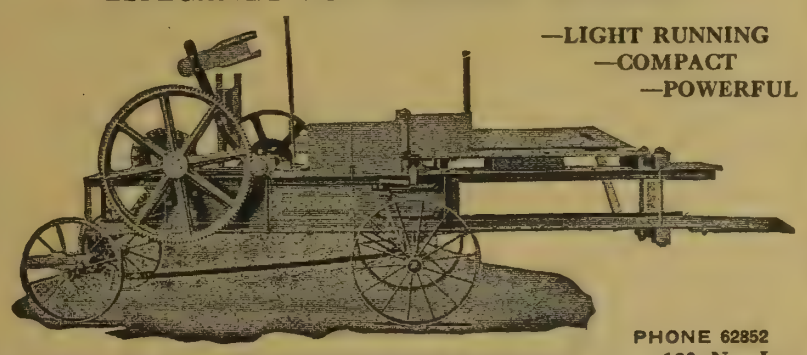

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We also manufacture Well Casing, riveted Steel Water Pipe, Tanks, and Corrugated Culverts.

Western Pipe and Steel Co. of California
1758 N. Spring St., Los Angeles 424 Market St., San Francisco
Fresno, Bakersfield, Taft

Los Angeles Markets

Los Angeles, May 18, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price 37 cents.

CHEESE

Brokers' prices:
California flats, 16@18.

EGGS

Fresh extras (case included): Produce Exchange closing price 24½ per dozen. Case count Produce Exchange closing price 23. Pullets, closing price 20 per dozen.

A slight strengthening of Eastern markets is to be noted. New York is now quoting California Whites at 30 to 34 which is not very satisfactory but the general condition promises improvement.

POULTRY

Price to producers: Hens, 19; colored, 32; broilers, 20@25; roasters, 40; old roosters, 10; fryers, 40; ducks, old, 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live 50; dr., 54; squabs, 45@47.

Belgian hares, live, 12@16; old, 8.

LIVESTOCK

Los Angeles, May 17. — Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 8.50; 175 to 225 lbs., 9.00.

Cattle (on foot, gross weight): Steers, good, 8.00@8.50; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Bulls and stags, 4.00@4.50. Calves, 125 to 150 lbs., 10.00; 175 to 225 lbs., 9.00.

Sheep: Ewes, 4.00@5.00; lambs, 8.00@10.00.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered. Receipts from the interior for 24 hours ending at 10 a. m. Tuesday were: 182 hides, 45 pelts, 555 lbs. tallow.

Green and green salted hides: No. 1 hides, 5 per lb.; No. 1 kips, 15 to 25 lbs., 6½ per lb., No. 1 calf skins, under 15 lbs., 11½ per lb.; No. 1 slunks, 20@40 each; No. 1 bull hides, 4 per lb.; No. 1 horse hides, over 50 lbs., 1.75 each; No. 1 horse hides, 40 to 50 lbs., 1.25 each; No. 1 horse hides, 30 to 40 lbs., 75 each; ponies, 30 each; No. 1 grubby hides and skins, 1½ less; No. 2 hides and skins, 2 less; kosher hides and skins, 1 less; glue hides and skins, 1 per lb.

Dry flint hides—No. 1 hides, 16 lbs. and up, 9 per lb.; No. 1 kips, 6 to 16 lbs., 10 per lb.; No. 1 calf skins, under 6 lbs., 11 per lb.; No. 2 hides and skins, 6 lbs., 10 per lb.; No. 2 hides and skins, 2 per lb.

Pelts: Large, long wool, 40@70 each; medium, 20@40 each; short wool and shearlings, 10@20.

shearlings, 10@20. Lambs, 10@30 each; badly damaged and very small lambs, worthless.

Goat skins: No. 1 common, 10@30 each; No. 2, 5@10 each; badly damaged and small kids, worthless.

Tallow: No. 1, white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool: According to quality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock May 17, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market steady. Idahos: Russets mostly 2.25@2.50, Rurals, 1.90@2.00. Oregons: Burbanks, 2.25@2.35; few 2.50. New potatoes: Supplies liberal, market unsettled, best 1.25@1.50, small 75@1.00 per lug. Sweet potatoes: Supplies liberal, market firm. Louisiana, 8½@9; jobbing sales, 8 lb.

Onions: Supplies heavy, market dull. Stocktons: White Globes and Browns, cold storage stock best 1.00, poorer 65@75 per cwt. Local: Per bunch green mostly 12½. Imperial Valley: Bushel crate, Yellows, 1.25@1.35.

Wax, 1.40@1.50.

Garlic: Supplies liberal, market dull. Wide range in quality and condition. Best mostly 10@13, poorer, 9 per lb. New 10@12 lb.; few higher.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock May 17, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Supplies heavy, market steady, 75@1.00; few fancy, 1.25@1.50.

Asparagus: Market steady; supplies liberal. Local: Mostly 12@15 per lb. Northern, 11@14 per lb; poorer, 7@10.

Beans: Supplies liberal. Per lb., Green Kentucky Wonders, 10@12 per lb., green pods, 8@9 per lb.; Wax, 8@9 per lb.

Beets: Doz., 30@40.

Cabbage: Field crate best mostly 1.75@2.00; poorer, 1.25@1.50.

Carrots: Doz., 35@40.

Cucumbers: Local best, 2.50@2.75 doz.; Hothouse, mostly 1.75@1.90.

Eggplant: Supplies moderate. Imperial, mostly 14@16 per lb. Mexicans, mostly 9@11 per lb.

Lettuce: Local field crate quality poor, 75@1.00; best, 1.25@1.50.

Peas: Local: best, 8@10; poorer low as 6 per lb.

Peppers: Supplies liberal, market steady. Imperial Valley, Bells and Chills, best, 25@30 per lb.; Mexicans, Bells and Chilis, best, 25@30 per lb.

Radishes: 20@30 doz.

Rhubarb: Local strawberry 1.10@1.25 bx.; jobbing 1.00@1.15; Crimson Winter, 60@80.

Spinach: Mostly 30@35 doz.

Squash: Summer, best, 1.00@1.25; jobbing, 90@1.10; Italian 1.00@1.25.

Tomatoes: Supplies liberal, market firm. Imperial Valley, per crate, best 1.70@1.90; small, 1.25@1.50; jobbing, Imp. Valley best, 1.50@1.75.

Turnips: Do., 40@50.

FRESH FRUITS

Cherries: Supplies light, black Tartarians mostly 18@20; best, 25 lb.

Apricots: Supplies light, market steady, mostly 2.10@2.35 per 20 lb box.

Loquats: Best mostly 9@11; poorer, 7@8.

Strawberries: Supplies moderate, market steady. Per crate, 30 pints, best 4.75@5.25; poorer 3.00@4.00; fy., 5.50@6.00.

Raspberries: Supplies moderate; best, 5.50@6.00; poorer, 5.00@5.25 per 30 pint crate.

CITRUS FRUITS

Grapefruit: Supplies liberal, market firm on good stock. Local: per box, market pack 2.00@2.50, special packed brands 2.75@3.00.

Lemons: Supplies heavy, market dull, wide range in prices. Local: packed box 1.50@2.25, few high as 2.75, loose 75@1.00 per box, per lug mostly 40@50.

Oranges: Supplies firm, market firm. Navels, market pack, large sizes 3.00@3.50, small low as 1.75, special brands, large sizes 4.00@4.75, small sizes 3.00@3.50. Valencias, best brands, all sizes 3.75@4.00, packing house culls 50@75, few best 1.00@1.75 per box.

HONEY

Supplies of White Sage and White Orange Blossom extremely light. Supplies of other varieties heavy. Very limited wire inquiry. Very slow movement, market dull. Carloads f. o. b. usual terms: per lb. nominal quotations, very few sales White Orange Blossom 11@12; White Sage 12; Light Amber Alfalfa 6@7; Light Amber Sage 8½ White Alfalfa 8@8½. Hawaiian White 7; Light Amber 6; Honey Dew 4½. Account unfavorable weather condition, prospect for orange and sage crops are poor. Too early to obtain indications of crop prospects for other varieties.

GRAIN AND FEEDS

Grain Exch. price bid May 17:

Corn: Bulk, No. 1, Yellow 1.65@1.75; No. 2, Yellow, 1.65@1.67½.

Bran: Kansas, 31.75@32.60.

Kaffir: Eastern, No. 2, 1.75@1.87½; No. 3, 1.62½@1.80.

Milo: No. 2, Eastern bulk 1.76¼.

Barley: Carlots 1.37½.

Wheat: Mixed feed 37.00@50.00.

HAY

Alfalfa Growers of California report under date of May 16:

Continued light receipts of alfalfa hay, continued with a good demand and absence of selling pressure, gave the market and upward tendency throughout the week and led to an increased business in round lots for prompt and nearby shipment.

There were 320 tons received on the Los Angeles tracks the week ending May 14 with 40 tons held over as against 320 tons the week before.

Rabbit Alfalfa	27.00
No. 1 Dairy	23.00
Standard	20.00
Stock	15.00

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@28.00
Barley	15.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	14.00@16.00
Straw	10.00@13.00

San Francisco Markets

San Francisco, May 17, 1921

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras	34

Dairy Exchange prices extras this week and year ago:

May	10	11	12	13	14	16
'21 ...	33½	34	34	34½	..	34
'20 ...	55½	55½	55½	55½	..	..

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	14½@16
Oregon Trips	21
Cal. Y. A.	18
Cal. Flats	16

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	30
Extra Firsts	24½
Dirties No. 1	22
Extra Pullets	20
Undersized	17

May	10	11	12	13	14	16
'21 ...	27	26	26	25½	..	25
'20 ...	46½	46½	47	47	..	..

POULTRY

Wholesale prices are:

Hens: Colored, 37@39; White Leghorns 23@27; strictly young roosters, 42@45; old roosters, 13@18; fryers, 45@50; broilers small, 28@30; large, 35@42.

Squabs: 45@48 per lb.

Belgian Hares: 20@28 per lb.

Pigeons: Old, 3.00@3.50 per dozen.

Jackrabbits: 3.00@3.50 per dozen.

LIVESTOCK

Western Meat Company prices are:

Cattle: Steers, No. 1, 6¾@7; do, second quality, 6¼@6½;.

Cows and Heifers: No. 1, 5@5½; do second quality, 4@5.

Calves: Light weight, 7½@8; medium 6½@7; heavy, 5@6.

Sheep: Wethers 4@5; ewes, 2½@3½.

Lambs: Milk, 5¼@6¼.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 9; 200 to 250 lbs., 8; 25 to 300 lbs., 7.

HIDES AND PELTS

No. 1 heavy hides, 60 lbs. and up, 5 medium, 45 to 60 lbs., 5; No. 1 light hides 30 to 45 lbs., 7; No. 1 native bulls, 3; No. 1 center branded hides, in all grades 2 less than base price; No. 1 wet salt kip, 15 to 30 lbs., 7½; No. 2, 5½; No. wet salt calf, trimmed, 13; No. 2 cal 2 per lb. less. The price of No. hides will be 1 less than price of No. 1 Hides having any of the following defect will be classed as a No. 2: Any cut ove six inches from the edge, over five ba scores, five grubs, one grain slip, on rubbed spot where grain is gone, on dragged spot where grain is gone, on sore spot where grain is gone.

Dry hides, 16 lbs. and up, No. 1, 8; dr kip, 7 to 15 lbs., No. 1, 9; dry calf, unde 7 lbs., No. 1, 10. Dry stags and bulls, one third less than dry hides. Dry glue hides kip and calf, one-half price or less, ac cording to quality. Dry salted hides an skins 6.

Pelts: Long wool, 9 to 12 months growth, 65 up; medium wool, 6 to months' growth, 50@60; short wool, 3 t 6 months' growth, 25@40; shearlings, good 1 to 3 months' growth, 10@20; shearlings shaved or damaged, 9@10. Lambs, large long wool 25 up; lambs, small, 15@20 milk lambs, 5@10.

California Farm Bureau Marketing Association reports:

No. Hogs	Avg. Wt.	Dock	Price
Tulare, May 10			
72	173	...	$8.80
99	167	...	8.75
77	202	...	8.60
78	204	40	8.55
7	163	...	8.55
23	217	...	8.50
100	161	...	8.50
14	261	30	7.50
3	407	40	6.00
1	500	200	5.50
Total six cars; 50 consignors, $7,604.25			
Visalia, May 11			
96	167	...	$8.60
85	170	70	8.60
59	217	30	8.55
2	125	...	8.05
1	280	...	8.05
11	372	130	6.15
3	433	520	3.15
Total three cars, 17 consignors, $4,167.61			

Fire Warning

Fire assumes many forms to get to your grain. Passing pedestrians and tourists, trains, careless smokers, automobiles, harvesters and sparks from gas engines—any one of these causes may drop that smoldering spark that in a few minutes is fanned into an inferno of flame. Act now—insure today.

Here are a score of practical suggestions on how to protect your grain against fire, and how to fight a blaze that has a good start. Read them carefully, and follow them faithfully.

Keep all fires under control.

Don't even start a fire unless you know you can keep it under control.

Be prepared to fight fire wherever it may start.

Have adequate spark arrester on all smokestacks.

CHEMICAL FIRE EXTINGUISHERS (Anti-Splash) should be carried on all combined harvesters, headers, threshing machines, and hay balers.

Have spark arresters on exhausts of gas tractors, oil-burning engines, and auxiliary engines on harvesters.

Never leave a fire unwatched.

An extra spark arrester can be made of ordinary window screen, covering a frame 30 inches square.

Lead the exhaust from tractor or auxiliary engines into a tank containing water.

Keep your carburetor properly adjusted.

Employ only reliable men.

PLATFORM

It is the Policy of the Northwestern Mutual Fire Association

FIRST

to conserve life and property against fire.

SECOND

to extend indemnity only to those who use due care to protect their property.

THIRD

to issue non-assesable policies secured by cash resources sufficient to protect against any possible contingency, thus furnishing the safest and strongest insurance obtainable.

FOURTH

to co-operate with all policyholders in lessening the cost of their fire insurance by reducing both losses and expenses.

FIFTH

to give policyholders all benefits derived from their co-operation by returning to them as savings the largest possible portion of the insurance premium consistent with business safety.

DO NOT PERMIT AUTOS TO BE DRIVEN THROUGH STANDING GRAIN.

Have all machinery well oiled and greased.

Keep strangers off your property.

FORBID SMOKING IN YOUR FIELDS OR FARM BUILDINGS.

Have a boy on horseback, carrying a fire extinguisher, follow the combine.

Many communities have their own volunteer fire department located at a central point. If none in your community, organize one.

Get sacked grain into the warehouse without delay.

Should a fire start, give a general alarm and call nearest fire company. Wet sacks and fire extinguishers can be used to advantage. Cans of water should be rushed to the men.

When sacked grain is burning it is just as necessary to extinguish the fire as quickly as if the grain were still standing. Even the slightest smoldering spark in sacked grain is "dynamite."

Be sure the fire is all out!

WRITE TODAY for illustrated, descriptive folders on how to Prevent loss by fire, also name of nearest agent.

CASH ASSETS EXCEED $1,750,000.00

RESERVE ASSETS EXCEED $1,500,000.00

Northwestern Mutual Fire Association

Central Building, Los Angeles, Cal.

SAN FRANCISCO SACRAMENTO SEATTLE

The Northwestern Mutual Fire Association is composed of 70,000 careful Policy Holders

Hanford, May 12

97	166	...	$8.60
34	210	...	7.05
43	119	...	7.00
9	263	...	6.05
4	420	120	4.55
2	300	220	4.05
1 sow and 5 pigs			23.50

Total two cars, 32 consgnors, $2,491.49.

Corcoran, May 13

51	172	...	$8.50
20	208	...	7.50
6	338	...	5.00
1	280	...	7.00

Total one car, nine consignors, $1,189.17.
Total for the week, 12 cars, 108 consignors, $15,452.55.

POTATOES AND ONIONS

Wholesale prices:
Potatoes: Street prices: River, nominal; do, Oregon Burbanks, 2.25@2.60. Nancy Hall, 5.00@6.00 per 100 pounds.
New: 1¾@2¾ lb.
Onions: Australian brown, 35@50 per sack. Green, 1.75@1.85.
Garlic: New, 6@8 lb.

VEGETABLES

Wholesale selling price:
Asparagus: Culls, 3@4 per lb.; field run, 4@5; fancy graded, 8@10; green, [illegible]
Beets: 1.00@1.50 sk.
Beans: String, 10@15; Wonder, 12@14; Wax, 8@10.
Carrots: 75@1.00 sk.
Cucumbers: Hothouse, small, 4.00@4.25 box of 2½ dozen; large, 2.50@3.00 per dozen; English, 2.00@2.25 per dozen. Signal Hill, 3.00@3.25 per box of 2½ dozen.
Cabbage: Lb., 1.
Corn: Green, 75@1.00 doz.
Eggplant: Lb., 10@15.
Lettuce: Sacramento, 1.00@1.75 small crate.
Okra: 20 lb.
Onions: Green, per lug, 1.50@1.75.
Peas: Bay, 8@11 lb.
Parsnips: Sk., 2.00@2.25.
Peppers: Bells, Mex., 10@25; Cal., 15@25.
Rhubarb: Alameda, 1.50@2.00.
Squash: Imperial Valley Summer, 1.60@1.75 cr., do lugs, 2.00@2.50; Italian, 1.25@1.75.
Spinach: Lb., 2@4.
Tomatoes: Mex., L. A. lug, 1.75@2.50; imp., 1.75@2.10 per cr.
Turnips: Sk., 50@1.00.

FRESH FRUITS

Apricots: 2.00@2.50 per four basket crate.
Avocado: California, doz., 2.00@5.00.
Bananas: Lb., 8½@10.
Cherries: Flat box, 1.50@2.75; bulk, 15@20 lb.; white, 10@12½.
Pineapples: 4.50@6.00.
Blackberries: Cr., 3.00.
Gooseberries: 15@17½ lb.
Raspberries: Dr., 1.50@1.75.
Strawberries: Peninsula and Watsonville, 50@75 per drawer; fancy, 85; Salinas, 1.25@1.65 per crate; Watsonville, 1.25@1.60 per crate, according to quality.
Loquats: Lb., 6@7.
Watermelons: Mex., 8 lb.

CITRUS

Navel oranges, 100s to 126s, 4.50@5.00 per box.. 150s, 4.25@4.50; 176s, 4.00@4.25; 200s, 3.75@4.00; 216s, 3.25@3.50; 250s, 3.00@3.25; 288s and smaller, 2.75@3.00; Valencias, 3.00@3.75. Lemons, 2.25@3.75 per box. Lemonettes, 2.00@2.50. Grapefruit, 3.00@3.75. Limes, nominal. Tangerines, nominal.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb. boxes, 16½ lb.; Sunmaid, seeded, 36 15oz. pkgs. 22½ lb.; seedless Sultanas, 25 lb. bxs., 20 lb.; Thompson Seedless, 25 lb. bxs., 21½ lb.; do, 48 15-oz. bxs. 23½ lb.; 2-cr. L. M., 25 lb. bxs., 18 lb.; 2-cr., do, 7 lb. 1 lb. clusters, 20 lb. bxs., 5.40 box.
Figs: Fancy black, 25 lb. boxes, 12½ lb.; extra choice, do, 10 lb.; choice, do, 9 lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 extra choice, do, 10 lb.; choice, do, 9 oz. white, $1.25 bx.; 20 oz. white, $1.75 bx.; fancy 4 layer, 10 lb. bxs., $2 bx.
Prunes: 30-40s, 25-lb. bxs., 15 per lb.; 40-50s, do, 12 lb.; 50-60s, 9½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.; Persian dates, 24 lb.; Dromedary dates, 6.25 case; fancy silver prunes, 15 lb.
Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 9 lb.; choice, do, 8 lb.
Peaches: Blue Ribbon brand, 48 11-oz. No cs., 7.00 cs.; do, 24 2-lb. to cs, 8.00 cs.; fancy peaches, 25-lb. bxs., 15 lb.; extra choice, do, 12 lb.; choice, do, 11½ lb.
Apricots: Fancy, 25-lb. bxs., 29 lb.; extra choice, do, 22; choice, do, 20; standard, do, 18.
Pears: Fancy, 25-lb. bxs., 15 lb.; extra choice, do, 12; choice, do, 10.

BEANS

Below California Bean Growers Association shippers prices choice recleaned,

Large Whites	3.30
Small Whites	3.25
Pinks	5.70
Mexican Reds	7.75
Red Kidneys	8.75
Henderson Bush	5.00
Cranberries	6.95
Bayos	9.80
Blackeyes	7.25

GRAIN

Sales grain exchange, May 17:
Corn: Cal. Yellow, 1.35@1.45; White Egyptian, 2.10@2.25.
Oats: Red feed, new crop, 1.45@1.60.
Barley: Feed, 1.20@1.25; off grades lower; shipping, 1.30@1.45.
Milo: Cal. Red, 1.75@1.85; Eastern Red, 1.60@1.65.
Kafir: Eastern, 1.50@1.55.
Wheat: Milling, 2.10@2.35; do, feed, 2.00@2.25.

HAY AND FEED

Alfalfa Growers of California report under date of May 16:

No. 1 Dairy	17.00
Standard Dairy	15.00

Under date of May 13, A. W. Scott Co. says:
Receipts past week 839 tons. Demand has been extremely light and the receipts have been more than sufficient. The prospect of new hay coming in and the arrival of a few cars of first cutting alfalfa had a tendency of weakening all prices and preventing trading in any quantity. Although no new grain hay is available new volunteer will probably be on the market in a few days at prices very much under rates prevailing heretofore. New volunteer and new barley hay has been sold in small quantities at from 9.00 to 11.00 per ton at shipping points in the country, mainly for local consumption.
We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	20.00@21.00
Wheat Hay, light 5-wire bales	17.00@20.00
Tame Oat Hay, fair to choice	17.00@19.00
Wild Oat Hay	12.00@15.00
Barley Hay	12.00@15.00
Alfalfa Hay	17.00@20.00
Stock Hay	10.00@14.00
Straw	10.00@15.00
Barley, ground	30.00@34.00
Barley, rolled	27.00@30.00
Oats, Rolled Feed	33.00@35.00
Bran, Red	34.00@35.00
Bran, White	36.00@38.00
Millrun	35.00@40.00
Middlings	47.00@50.00
Linseed Meal	37.50@40.00
Cocoanut Meal	25.00@27.00
Alfalfa Meal	26.00@28.00
Cottonseed Meal	35.00@40.00
Sugar Beet Pulp	32.00
Molasses, Tanks	23.00
Molasses, Barrels	26.00
Milo	35.00@40.00
Corn Meal	35.00@40.00

Citrus Markets

Los Angeles, May 18, 1921.

While the shipping of Navels is practically ended they still dominate in the auctions and many other markets and are closing the season with very satisfactory prices. Valencias are coming in with exceptional quality, are running somewhat larger than the Navel. F. o. b. quotations are running around $3.00 to $3.25.
New York took a spurt on lemons and reports high average at $5.20 on one day's sale. The lowest average on any one lot on the 17th was $3.50.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 22,155 cars; lemons, 4,705; total, 26,860. To same date last season: Oranges,18,309; lemons, 3,680; total, 21,989. From Central California to date this season: Oranges, 5,757; lemons, 137; total, 5,894. To same date last season: Oranges, 5,147; lemons, 287; total, 5,434. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261, lemons, 22; total, 283.

AT THE AUCTIONS

May 13

New York: 22 or., 8 mixed. Nav. 2.85-5.00, Val. 2.90-4.60, Mikes. 3.85-4.40, Seeds. 2.85-3.75, Sweets 3.00-4.10, Bloods 3.45-3.95, Rubys halves 1.70-2.15, lem. 1.50.
Boston: 12 or. Nav. 3.60-5.40, Val. 3.05-4.55, Rubys halves 2.20.

May 17

New York: 40 or., 4 mixed, 3 lem. Nav. 2.50-4.95, Val. 2.85-6.70, Sweets. 2.70-3.70, Mikes. 3.35-4.45, Bloods 2.75, Seeds. 3.00-3.30, lem. 3.50-5.20.
Boston: 15 or., 3 lem. Nav. 4.05-5.45, Val. 3.25-4.90, Seeds. 4.10-4.40, Bloods 4.80, Mikes. halves 2.25, lem. 1.75-3.30.
Pittsburg: 5 or., 2 lem. Nav. 3.50-4.60, Seeds. 3.20, lem. 2.55-3.15.

WEATHER REPORT

San Francisco, Cal., May 14, 1921.

Stations	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.00	46.32	43.74	60	44
Red Bluff	.00	26.67	24.05	90	50
Sacramento	.00	16.13	19.61	90	46
San Francisco	.00	22.93	21.76	71	46
San Jose	.00	14.50	16.37	82	40
Fresno	.00	7.69	9.35	92	48
San Luis Obispo	.00	18.66	19.97	86	42
Los Angeles	.00	11.39	15.40	76	49
San Diego	.00	5.84	9.79	66	49

Johnson's Defender Jr.

Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

H. C. WITHEROW — Live Oak, Cal.

PAYNE'S 1921 Garden Guide

Write Today For Your Copy Of This 68 Page FREE Book Telling How and When to Plant
—SEEDS — PLANTS — TREES — SHRUBS—
CALIFORNIA WILD FLOWERS
Seventeenth Annual Catalog, Illustrated
Theodore Payne — 345 So. Main Street, Los Angeles

WHICH

Why Lose the Other 20 Dozen?

Uncle Sam has counted the hens on the ranches and farms in this country, also the number of eggs that farm-raised hens lay in 12 months' time—it is 69.

Compare this with the returns in eggs, per hen, from the properly fed, bred, and housed hens here in Southern California, where records of 310 eggs per hen per year are an actual fact, established, not merely by one single hen, but by several hens, all with actual trap nest records for every day in the year.

These as well as more than one-half million OTHER HENS in Southern California, are fed each and every day in the year on

PCA Poultry Food

exclusively. And it is to the PCA BRAND OF POULTRY FEEDS manufactured and marketed exclusively by the Poultrymen's Co-Operative Milling Association of Los Angeles that much credit is due for these wonderful egg records.

PCA Poultry Feed is nothing but pure grains, properly cracked, ground and so blended with the added protein as to make the ONE correctly balanced and mixed ration to produce maximum egg yield.

PCA Poultry Feed

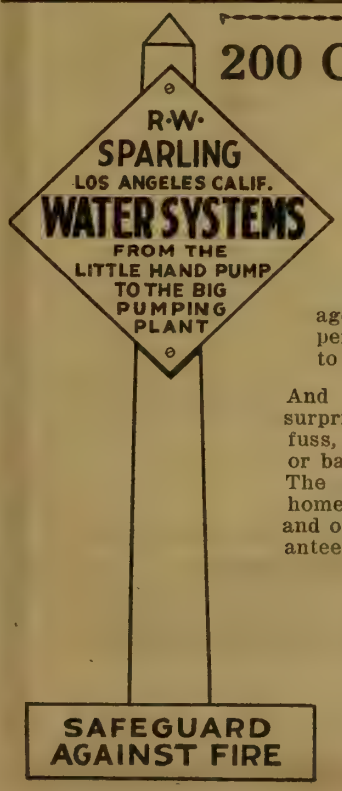
costs no more than clean, unadulterated feeds should cost. They are really CHEAPER in the long run, for the hens do not require as much PCA DRY MASH as of other makes to obtain the same required amount of protein and other egg-building material.

Ask your dealer for PCA EGG MASH, PCA DRY MASH—with buttermilk—PCA SCRATCH FEED, PCA CHICK MASH—with buttermilk—or with egg PCA CHICK FEED, PCA GROWING SCRATCH, etc. Do not accept something offered as being "Just as Good."

Phone or write us and we will see that delivery is made to you QUICKLY for the GENUINE PCA PRODUCTS.

Poultrymen's Co-operative Milling Ass'n.

1516 Industrial Street Phones 12076 and Main 2935
Los Angeles, California



200 Gallons of Cool Fresh Water for One Cent
AND UNDER A HEAVY PRESSURE, AT THAT

Wouldn't you enjoy having plenty of water in all parts of the house and barn every minute of both day and night? Nice clean, fresh water, always cool,—coming direct from the well—free from dust and dirt, without being heated by the sun, and with a CONSTANT PRESSURE more than enough to drown out a possible fire,—to hose off the sidewalks, porches and windows, or to drench both lawn and garden?

With a Sentinel Automatic Water Pressure System you have all these advantages,—yes, and many more. No big tank and stand to put up, no unsightly and expensive frame or tower to erect,—yet ALWAYS, plenty of water with a pressure equal to that from a tank from 80 to 120 feet high,—and even more if you need it.

And this powerful, modern **Sentinel Automatic Water Pressure System**,—simple, yet surprisingly efficient, is AUTOMATIC,—starts itself, runs itself and stops itself. No fuss, no bother,—just tuck it away under the house, back of the house, in the garage or barn, except for an occasional filling of the oil reservoir,—forget it.
The **Sentinel Automatic Water Pressure System** is such a SAFEGUARD to your home and family, so serviceable, practical and convenient and yet so reasonable in cost and operation that you will be intensely interested in our detailed description and guarantee. Write or wire us TODAY.

Sentinel Automatic Water Pressure Systems for Country Homes.

R.W. SPARLING
Irrigation and Power Machinery
945 North Main Street
Los Angeles, California

Constant Pressure Economical Convenient

The Inner Secret of making GOOD Bread

THE first essential for perfect bread is a *good flour;* one which has been properly tested for its bread-making qualities before it reaches you—a flour that is *always the same.* Every sack of Sperry Drifted Snow Flour has been put through this test.

To keep the dough from cooling, mix and knead it quickly. In cool weather the bowl containing the dough may be set in a pan of warm water. The longer the batter is beaten, the less kneading the dough will require. When dough can be lifted in a mass on a spoon, it is ready to knead.

Dough is kneaded to mix the ingredients thoroughly; to make the gluten elastic and to work in the air. It is sufficiently kneaded when it can be left on the board for a minute or more without sticking. Dough containing large bubbles has risen too long or too fast. It should be cut down and rekneaded to distribute the gas evenly.

Always make small loaves to insure bread being baked through; in large loaves the heat may fail to penetrate to the center of the loaf.

If bread rises much after being put in the oven, the heat is not great enough, but if it begins to brown in less than fifteen minutes, the heat is too great. During the first ten minutes the loaves are in the oven they should merely rise and perhaps begin to show a little brown in spots; in the second period of ten minutes they should become a delicate brown all over the surface and cease to rise; in the third period they should finish browning, and in the fourth they should shrink slightly from the pans. After the first ten minutes the oven heat can be decreased slightly, and as baking continues, it may be lessened still more.

When baking is completed, the loaves will give forth a hollow sound when tapped, and will shrink from the pan. After baking, remove bread at once from the pans and allow to cool in fresh air, uncovered. Do not put away until perfectly cold. Here's the recipe:

Sperry Drifted Snow Bread

1 cup water or milk, scalded; 1 tablespoon melted shortening; 1 tablespoon sugar; ½ yeast cake dissolved in ¼ cup lukewarm water; between 3 and 4 cups of Sperry Drifted Snow Flour.

Put shortening, sugar and salt in hot milk, let stand until lukewarm, then add dissolved yeast and flour gradually, beating well until too stiff to stir. Turn on moulding board and knead in remaining flour until mixture is smooth. Place in well-greased bowl, brush dough over with melted shortening, cover and allow to rise in a warm place to twice its original bulk; then turn on board, knead and shape into loaves. Place in greased pans, having them about half full. Brush over loaves with melted shortening, let rise again and bake in a hot oven about 45 minutes for a medium-sized loaf.

NOTE: All measurements are level and flour is sifted once before measuring. A half-pint measuring cup is used.

Director
Sperry
Domestic
Science
Department

THIS is the first of a series of "homey" articles by Belle de Graf—an acknowledged authority on domestic science Mrs. de Graf has learned by practical experience what practical housewives want to know. You will find these articles timely and well worth while. Watch for them!

—EDITOR.

SPERRY DRIFTED SNOW FLOUR
"A Sperry Product"

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — May 28, 1921 — No. 22

UNIVERSITY OF ... JUN ... 1921

In Memory of Our Patriot Dead

In the National Cemetery at Chattanooga, Tennessee

"Low green tents whose flaps never outward swing" in a small portion of a section dedicated to the unknown dead gathered from various battlefields in southern Tennessee. There are over 13,000 graves in this one cemetery, about one-third of which are of unknown dead. The grave marker in the case of those which were known is a plain white marble slab standing some 18 inches above the sward and perhaps 14 inches across the face with simply the number, the soldier's name and the state from which he enlisted. More complete records are kept in the keeper's lodge. The unknown are marked, however, as may be seen in this illustration with a square piece of marble with simply a number on the top. This photograph was taken by Mr. Messenger in 1885. A grateful nation has never lessened its care and attention to these last resting places of the veterans of the Civil War. Every one of these graves is decorated with flag and flower on May 30.

Lincoln's Address at Gettysburg Cemetery

FOURSCORE and seven years ago our fathers brought forth upon this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal. Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of that field as a final resting-place for those who gave their lives that that nation might live.

It is altogether fitting and proper that we should do this. But in a larger sense we cannot dedicate, we cannot consecrate, we cannot hallow, this ground. The brave men, living and dead, who struggled here have consecrated it far above our power to add or detract. The world will little note, nor long remember, what we say here, but it can never forget what they did here. It is for us, the living, rather to be dedicated here to the unfinished work which those who fought here have thus far so nobly advanced.

It is rather for us to be here dedicated to the great task remaining before us, that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion: that we here highly resolve that these dead shall not have died in vain: that this nation, under God, shall have a new birth of freedom, and that government of the people, by the people and for the people shall not perish from the earth.

KIRKMAN NURSERIES

Established in California in 1888

Reliable Trees and Vines

are essential to the great fruit industry of the Pacific Coast.

Our experience has been gained by 32 years of progression in the nursery and orchard business in California.

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Main Office

FRESNO, CAL.

California Cultivator

Vol. LVI, No. 22 | Los Angeles, May 28, 1921 | One Dollar Yearly

The President Opens Valencia Show

By Ernest Braunton

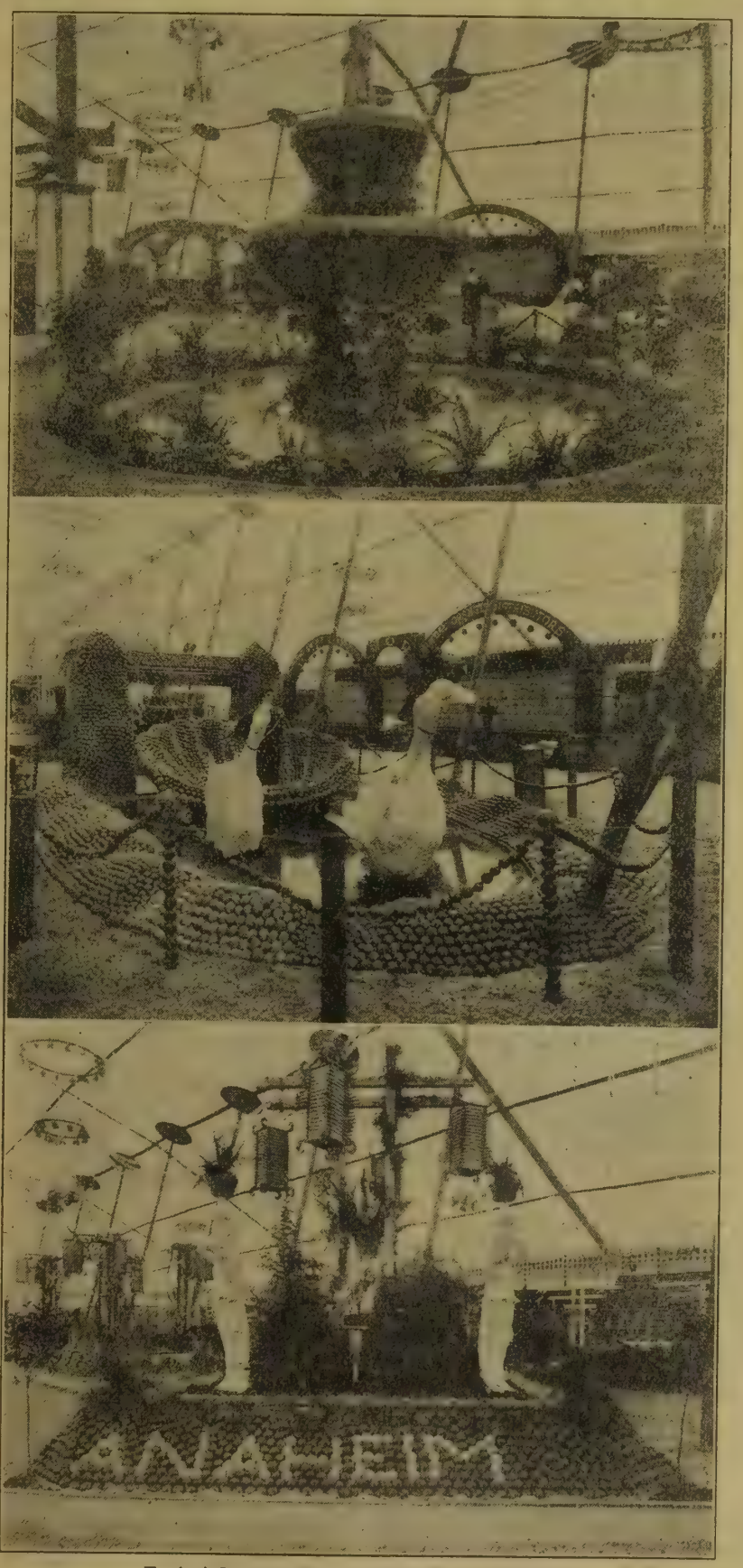
PRESIDENT HARDING was paid for opening the California Valencia Orange Show at Anaheim on May 17. A box of the choicest prize winning Valencias was promised him by C. C. Chapman, honorary president of the show, upon President Harding's formal opening words over the 4,000 mile long wire that connected the White House and the huge tent that covered trainloads of golden fruits. The special box was packed at the show by the president's sister, Mrs. E. E. Remsberg of Santa Ana. While the management was proud of have our chief executive perform the service and send warm greetings of love to California, President Harding would have felt honored could he have seen this great exhibit, for it was "some show."

Promptly at ten o'clock Tuesday morning President Harding, sitting in his office in the White House, spoke the words that formally launched the first annual California Valencia Orange Show. Sixty persons prominent throughout the Southland, including the president's sister, were seated at a long table at the show with telephone receivers glued to their ears and heard the president's words as plainly as though he had been standing before them. C. C. Chapman was spokesman and after the formal and necessary "Hellos," said: "I am delighted, Mr. President, to have the honor of this unique introduction across the continent. We shall appreciate it if you will now officially open the California Valencia Orange Show by addressing us, after which I desire to say a few words."

After the formal opening Mr. Chapman had a chat with the president, thanking him for the honor, inviting him to California, ending with other diplomatic utterances such as "C. C." deals out on every such occasion when his services are available and of which he has an inexhaustible supply. It drew from President Harding the following response:

"I thank you, Mr. Chapman, very much. It is a great pleasure to me to send greetings to the wonderful state of California through the modern ways of long distance telephone system. I have had great pleasure in reading the invitations received a few days ago on the occasion of the opening of the first California Valencia Orange Exposition, and I am complying with the invitation with very great satisfaction. You Californians have been pioneers in all the enterprises that go out to capitalize the resources of the country. With your supreme confidence you have followed and successfully developed the markets everywhere of the most splendid fruits found anywhere. You have given us the incentive to develop our great possibilities in selling, financing and managing. I wish you and your exposition the greatest success that this enterprise deserves. I wish that I might be there. It would be a personal pleasure, for I know how wonderfully you do things, and hope to be in California during the present term. I thank you very much. If I only could come to the Pacific Coast this year, as I hope to, I will certainly take in all California that is possible."

The first thing that struck the visitor was the great size of the show. The writer had not expected such a large display. The next strongest point was the arrangement. It is safe to say no other orange show in California could so nearly be seen in its entirety as one entered the portals. This was a triumph in arrangement for which the management deserves great credit. The displays were numerous and some of them of great size. That of the American Fruit Growers, Inc., would in itself make a citrus show, for in addition to hundreds of boxes of fruits from every county in the Southland, they had the first prize feature display. An arched background composed of fruits had as a "forescape" a placid lake banked with green and golden fruits and in its midst a floating shell shaped barque bearing a life size wax figure of a woman holding the reins over three "blue geese" five feet high. It was a large, striking exhibit of most unusual attractiveness. As a result of the size of the exhibit and the excellence of the fruits this company captured a majority of the blue ribbons. Blue ribbons and blue geese harmonize grandly.



Typical Scenes at the Anaheim Valencia Show

Upper photo shows electrical fountain at main entrance; middle, American Fruit Growers blue ribbon winning feature exhibit; bottom, city of Anaheim feature display.—Photos by Cochems.

Next to citrus fruits the avocados were the major attraction, the first really commercial exhibit of avocados seen in California. Four growers had large displays: E. E. Knight, J. T. Whedon, Earl D. Gage and C. P. Taft, the latter also showing several named varieties of loquats. Other avocados were from Sherman Stevens, F. De Witt Smith and W. H. Sallmon, the latter sending a commercially packed box of four trays of Dickinson from Chula Vista, San Diego County.

Various farm machinery firms had displays on hand as usual. One new tractor (in name at least) was noted, and a new orchard cultivator of unusual promise, one that interested the orchardists present. The scheme for this new departure was hatched at Claremont, so it is strictly a "home brew." Several well known brands of fertilizers were present, in addition to the "prehistoric lime" from Torrance about which we have heard so much through the newspapers. In this booth were two large glass cases filled with bones from the age-old deposits, some presumed to be of prehistoric man. This "D. M. S." booth was in charge of Sexton and son, and the writer could not refrain from telling Fred Sexton that it was peculiarly fitting that sextons should have charge of the bones of the departed. The howlers for "hot dogs" and other refreshments had booths at every turn and with amusement and music booths in full operation it was a veritable canvas covered Coney Island. The whole show tended to keep visitors, old and young, interested during their every minute. The list of prize winners is here given:

Class No. 1, Sweepstakes, for the best 24 boxes of Valencia oranges—First, cup and $75 cash, won by the American Fruit Growers, Inc., of Fullerton: second award, certificate and $40 cash, won by the American Fruit Growers, Inc., of Yorba; third award, certificate and $20 cash, won by the Santiago Orange Growers Association of Orange.

Class No. 2, Sweepstakes, for the best 24 boxes of lemons—First, cup and $50 cash, won by the American Fruit Growers, Inc., of Fullerton.

Class No. 3, Sweepstakes, for the best and most artistic display of 12 boxes of seedless grapefruit—First, cup and $50 cash, won by the American Fruit Growers, Inc., of San Fernando.

Class No. 4, for the most artistic rack display of Valencia oranges, 40 boxes or more—First, cup and $25 cash, won by the Mutual Orange Distributors of Redlands; second award, certificate and $15 cash, won by the Anaheim Orange and Lemon Association of Anaheim; third award, certificate and $10 cash, won by the American Fruit Growers, Inc., of Fullerton.

Class No. 5, for the most artistic rack display of lemons, 40 boxes or more, regardless of variety or kind—First, cup and $25 cash, won by the American Fruit Growers, Inc., of Fullerton.

Class No. 6, for the best 12 boxes of Valencia oranges—First, $50 cash, won by the Anaheim Orange and Lemon Association of Anaheim; second, $25 cash, won by the Santiago Orange Growers Association of Orange; third, $10 cash, won by the Garden Grove Citrus Association of Garden Grove.

Class No. 6 (special), for the best 12 boxes of Valencia oranges entered by

(Continued on Page 711.)

Agricultural News Notes of the Pacific Coast

Northern California

Glenn County has 1,021 acres of olives.

The Fresno district fair will be held September 26 to October 1.

Hayward, Alameda County, will hold a big farm products show, August 11-14.

Two carloads of young trout are being planted in the streams of Butte County.

During April there were 1,353,693 chicks hatched at Petaluma, Sonoma County.

Yuba City, Sutter County, is letting contracts for the paving of streets in 28 city blocks.

Plans have been made for a Colusa County fair in September, to be held at Arbuckle.

The next farm bureau auction for Stanislaus County will be held at Modesto, May 31.

Santa Rosa, Sonoma County, has a hen's egg which measures eight inches each way around.

Glenn County farmers formerly growing rice only have this year planted heavily to corn.

Six hundred tons of prunes were shipped from Chico, Butte County, to Germany last week.

Cherries are being shipped from Newcastle, Placer County, at the rate of a car each day.

One hundred thousand cuttings of seedless grapes have been planted at Loma Rica, Yuba County.

Stanislaus County is planting heavily of sorghum and a new syrup plant has been erected at Turlock.

One day last week San Francisco held in storage 127,727 cases of eggs; same date last year, 104,992.

The Sebastopol Apple Growers Association, Sonoma County, report a 40 per cent drop of young fruit.

Rice fields in Glenn, Colusa and Tehama Counties aggregate about 90 per cent of the acreage planted last year.

The American relief administration has purchased 600 tons of Colusa and Glenn rice to be shipped to the starving Far East.

Dr. J. C. Whitten, from the University of California, has been investigating the strange death of fruit trees in Butte County.

The heaviest yielding fig orchard in the state is said to be owned and managed by a woman, Mrs. Birdie Hatch of Merced.

From Greenville, Plumas County, come reports that orchards in that county were not injured by late frosts and heavy fruit crops are expected.

At the end of the twenty-eighth week of the Petaluma egg laying contest the best record hen, owned by C. C. Boyson, had laid 155 eggs in 196 days.

Sour sap, owing to a mild winter and consequent lack of dormancy, with a cold spring, has killed thousands of fruit trees in Tehama and adjoining counties. Lime is being used.

Governor Stephens has issued a proclamation declaring the week of May 22 to May 28 Fire Prevention and Forest Protection Week, which is of especial value to northern counties with grazing ranges.

Central California

The new Modesto creamery is nearly completed.

Modesto shipped its first carload of soap east on May 10.

Porterville, Tulare County, is to have a new fig packing plant.

Oakdale, Stanislaus County, has struck oil in the first well drilled.

Prime hogs brought from $8.30 to $8.75 at last week's sales in Tulare.

Oakdale, Stanislaus County, is to have an official city planning commission.

Earlmart, Tulare County, is becoming an egg center; 47 cars left there one day.

Merced has a pullet that laid its first egg at five days less than four months old. Next!

The total output of Valencia oranges in Tulare County for 1921 is estimated at 1,500 cars.

Lindsay reports five-sixths of the oranges of Tulare County are shipped from that point.

Watsonville, Santa Cruz County, recently sent a full trainload of vinegar to eastern points.

The Durham state land settlement is to have a 20 acre recreation park and community center.

Porterville, Tulare County, has opened to the traveling public an improved commodious automobile park.

Poultrymen at Porterville, Tulare County, organized a poultrymen's association, with 56 charter members.

A four story 100 room hotel will be erected in Tulare, under the supervision of the Tulare board of trade.

The membership drive for the Stanislaus County farm bureau netted over 700 members last month.

Packing house employes at Lindsay, Tulare County, are all working overtime on shipping Valencia oranges.

The first 1921 box of fresh figs from Fresno sold in San Francisco in May for more than 36 cents for each fig.

Stanislaus County has a new stretch of railroad built to carry materials for the great Don Pedro dam about to be built.

The weather observer at Fresno states that April weather was the most unfavorable to agriculture for ten years.

Twenty certificates of birth of Japanese children in one block of Fresno's Oriental section were issued last month.

The planting of Blackeye beans in Stanislaus County is so heavy that local seed supplies have been exhausted.

Fire destroyed the Caruthers plant of the San Joaquin Valley Milk Producers Association on May 17. Loss $55,000.

The fruit men of the San Joaquin Valley met at Fresno last week and decided upon a ten per cent cut on farm wages.

The state agricultural department says the late frosts cut down the grape crop of the San Joaquin Valley about 30 per cent.

An advertising campaign with a fund of $50,000 was practically decided on during the week end gathering of San Joaquin Valley commercial secretaries. Publicity will be sought throughout the east to attract new residents and visitors to the valley.

Southern California

Ventura County has perfected plans for a county fair this fall.

Imperial Valley is shipping tomatoes at the rate of ten carloads a day.

The Ojai Valley, Ventura County, is now gathering its largest orange crop.

The first carload of cantaloupes from Imperial Valley were shipped on May 21.

The first watermelons were shipped from Calipatria, Imperial County, May 21.

The Imperial Valley shipped its first crate of blackberries May 12; first in history.

Oxnard, Ventura County, reported all bean planting finished just before the big rain.

The Moorpark Memorial Union High School, Ventura County, will be dedicated May 30.

Imperial County will pay cantaloupe inspector $8 a day, an increase of 50 cents over 1920.

Santa Ana has a toy factory part of each year, when the house is not making vegetable crates.

Ventura has a new town on the map and on the railroad, called Wadstrom, an oil shipping center.

San Diego County has just closed a long series of vineyard demonstrations under Prof. F. T. Bioletti.

San Bernardino County introduced its first oil well last week. It is a 500 barrel producer near Chino.

The Orange County farm bureau dairy department will hold a picnic at Orange County Park June 18.

H. M. Houser, Covina, raises big crops of cherries and claims the only lack in the south is cross pollination.

J. O. Shuey of Yucaipa, San Bernardino County, recently bought 2,000 White Leghorn chicks in San Gabriel.

The State Sunday School Association will hold its annual convention in Anaheim, Orange County, in October.

On the last day counted there were 115,582 cases of eggs stored in Los Angeles. Same date last year, 45,624 cases.

Horticultural Commissioner Waite of Imperial County reports the present canteloupe crop as the largest yet grown.

Orange County beet growers state the late rains have proved a great benefit to them; the yield will be above normal.

The world famous pianist, Paderewski, will meet with the Orange County Historical Society at the Modjeska ranch, May 28.

Anaheim, Orange County, has had the heaviest year of building in its history. The permits totaled more than a million dollars.

This week the largest graduating class of Indians from the Sherman Institute at Riverside faces the world. They number 35, from 15 different tribes.

The making of charcoal from walnut shells has developed into a sizable industry in Southern California. This charcoal is an ingredient of many chicken and hog mashes.

During April, Imperial County shipped 7,875 crates of tomatoes, 9,762 crates squash, 2,100 crates strawberries, 400 sacks peas, 160 sacks beans, 3,100 crates and 33 carloads asparagus.

The Coast and General

During the past six months Seattle has shipped 215 carloads of eggs.

Sixteen hens in the United States, all of them white, have laid over 300 eggs each during the past year and are entered in the select class of the egg laying league.

Several of the famous gold mines of Mohave County, Arizona, which have been idle for several years, are now being again opened and are producing gold ore.

Post office receipts at Phoenix, Arizona, for the first four months of 1921 show a substantial increase in spite of the business depression. The rate of decrease throughout the country is 8.24 per cent.

The state school fund of Arizona, totaling $536,841.90, has been apportioned among the 14 counties. Under the new law the future appropriations will be made according to the total attendance rather than upon the school census.

Thirty-one lumber mills in Arizona cut 121,160,000 board feet of lumber during 1920. Five of these mills cut 95 per cent of the total. The 1920 cut exceeds that of 1917 or 1918; the 1919 figures being withheld to be given later by the census bureau.

The supreme court of Arizona has held that the law providing for the tax on migratory flocks of sheep as well as goats, bands of horses and herds of cattle is invalid. This law provided 25 cents per head on sheep and goats and 50 cents on cattle and horses owned by non-residents.

Reports show that the rain and snowfall have been heavy in north central portions of Arizona, eight inches of snow and a half inch of rain falling at Flagstaff. This puts the ground in excellent condition for farming and relieved the water shortage on the ranges in that section.

The new Globe-Miami Highway, a state road which connects Phoenix with the mining towns of Globe and Miami, is a shorter route and was opened temporarily when the first car with the state engineer and party went over it May 12. The road will be formally opened for public travel this fall.

E. H. Crabb, president of the Arizona Cattle Growers Association, has just returned from the Northwest and advises that pasture is available for 500,000 head of cattle in Montana and Wyoming. Efforts are being made to work out some cooperative scheme whereby Arizona cattle may be fed in these states. It appears that cattle on the Arizona ranges are suffering from lack of food, while the abundance of feed in the Northwest will go to waste if it is not utilized.

L. M. Harrison, statistician of the department of agriculture for Arizona, gives out the information that there will be almost a total failure of the peach crop in Yavapai, Apache, Gila, Cochise and Santa Cruz counties. The Yuma County peach crop will be about normal and Maricopa County about 70 per cent of normal. About 50 per cent of the normal apple crop is expected in Yavapai and Santa Cruz Counties. In Cochise County the crop will be 25 per cent of normal. In Apache and Navajo Counties it will be almost a total failure.

Controlling Red Spider in Deciduous Orchards

By E. R. de Ong

THE demands for information regarding the progress of experiments on red spider control inaugurated in 1919 have led to the publication of this paper, which must be considered in the nature of a progress report, and recommendations herein made may consequently be altered by further investigations. The work has been conducted cooperatively with the division of pomology at the university farm, Davis, and in private orchards in Yolo, Sutter and Butte Counties.

There are three distinct species of plant mites, commonly called "red spiders," which are serious horticultural pests. They are: the common red spider, also known as the summer red spider, the two-spotted and the six-spotted mite, found chiefly on the prune, plum, almond and peach during midsummer; the brown mite, also known as the almond mite, which is common on the almond and prune in the spring and early summer; and the citrus red spider, a citrus pest but occasionally found on certain deciduous trees.

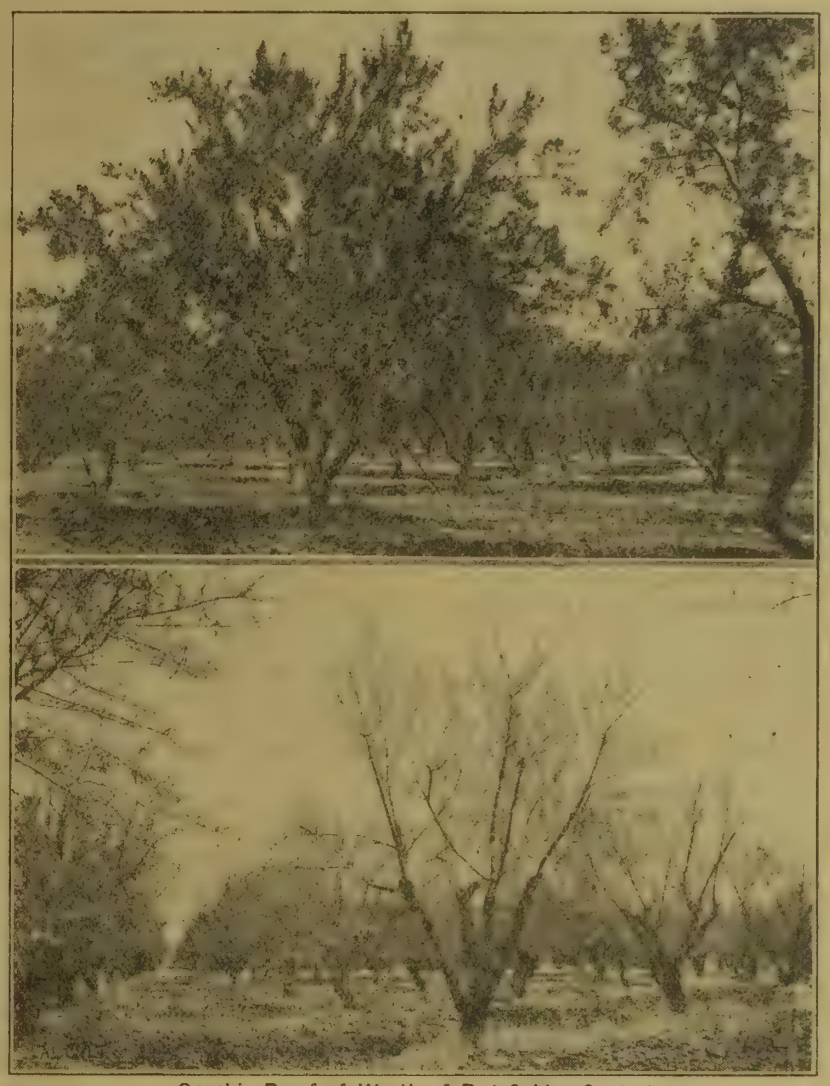
Red Spider

The common red spider (two-spotted mite or six-spotted mite) overwinters in the adult and nymph stage among leaves, in the soil or on the hardy plants such as wild morning glory and the cheese weed (mallow). After these plants have matured in the spring or summer or have been killed by the mite the latter migrates to orchard trees or other hosts where it may feed until fall.

This species of red spider feeds mostly on the under side of the leaf, spinning a noticeable amount of web. The eggs, invisible unless magnified, are scattered on the under side of the leaf or in the web, appearing at first colorless but at hatching time a faint color appears. The young mite is almost transparent while the adult is usually a greenish yellow, with one large or three small dark spots on each side of the body.

Citrus Red Spider

The mite is occasionally found on deciduous trees during the summer. It also spins a web but not in such quantities as the common red spider. The egg is a deep red and found on the leaf surface. This mite is a deep scarlet, with prominent spines arising from tubercles.



Graphic Proof of Worth of Red Spider Control

Upper picture shows almond trees where the red spider was controlled by spraying. Lower: almond trees defoliated by the combined results of drouth and red spider attack.

Brown Mite

This species is not a web spinner. It usually congregates along the leaf scars of the twigs through the day, while the other two species are found almost exclusively upon the blade of the leaf. The winter is spent in the egg stage on the older twigs and fruit spurs. There is no distinct migration from one host to another as with the common red spider, the entire year being spent on the same host. The egg is deep red, the young mite bright scarlet, and the adult reddish brown, usually showing a greenish tinge. The first pair of legs is decidedly longer than the other three pairs.

During the process of feeding the red spider extracts the chlorophyll (the green coloring matter of the leaf) as well as the sap from the leaves. This causes first a mottled appearance and finally a paling of the entire leaf surface and frequently defoliation. Trees so injured cannot produce sufficient starch and sugar to mature a normal number of buds for the coming year or those that are set may be weak.

Preventive and Control Measures

Kill out the winter growing weeds, such as wild morning glory and mallow (cheese weed), upon which the mite propagates in the early spring. Plow under such plants before they mature or are killed by red spider, for the latter then migrate to the orchard. Cover crops such as bur clover, peas, vetches and grains are not known to harbor the red spider and should be grown where practicable.

Keep the orchard as thrifty as possible, irrigate before the trees show any sign of suffering from drouth.

In regions where red spider injury is common, apply sulphur to the trees at the time when the attack usually

(Continued on Page 708.)

Avocado Registration Committee Reports

In order to determine the value of the various varieties of avocados the association has a standing committee whose duty is to secure chemical analyses, make records of bearing ability, hardiness, flavor, and general marketable qualities. A number of varieties were placed on the accepted list, later reduced to five: Spinks, Fuerte, Sharpless, Dickinson and Puebla. This list was not changed by the following report which was made at the annual convention in Pasadena. However, the committee gives valuable suggestions in its report which follows:

NUMEROUS requests have reached the committee to mention a variety of the Mexican race of avocados, equally hardy with the orange, that would be satisfactory for home use in dooryard planting in places where it would be too cold to raise the Guatemalan varieties. The Ganter has stood this test well for a number of years. The tree is vigorous, precocious and productive. The fruit is one of the largest of the Mexican type, averaging half a pound in weight, of a green color and in quality and flavor extremely good. Its defect, of a frequent cracking or decay spot at the blossom end, does not interfere with its home use and can be largely prevented if the fruit is not allowed to remain on the tree after it reaches maturity.

There has been expressed a desire for the discovery of a larger good Mexican fruit than those with which we are familiar in California. Such an one came into bearing last fall, producing a handsome fruit weighing a pound, black in color and of very fine flavor. It is growing in a frost free location, so we can only assume, until tested elsewhere, that it will be exceptionally hardy, like the other Mexican kinds. It is believed to be identical with the Gottfried introduced by the U. S. government into Florida some years ago. This tree is growing on the Spinks place, where he has also under observation a seedling of the Mexican race, which he has named the "Mission" and which produces a fruit equally fine in flavor and nearly as large in size. It is pyriform in shape, black in color, with a moderately sized seed, tight in the seed cavity, clear yellow flesh and no fiber.

It is a surprise and pleasure to learn in how many places and to what an extent Guatemalan seedlings are being grown with the hope of finding fruit of value to the industry. There are three separate places in each of which over a hundred such trees are under care and observation, besides numerous others having more or less trees under similar care. We are getting good results, as our report will show. In addition we have a sure gain to the industry from the fruiting this year in California of 12 out of 24 Wilson Popenoe introductions through the U. S. government from Guatemala.

On the invitation of Mr. Spinks, the varieties committee, by its three active members, assisted him on April 24 in picking and verifying the identity of these varieties, preparatory to his exhibiting them and cutting them at this meeting. All were sufficiently advanced to show that they correspond superficially to the government description, although only one, the Kanola, has matured here and been tested. The others are named as follows: Nimlioh, Benik, Mayapan, Cabnal, Ishim, Manik, Lamat, Cantel, Pankay, Ishkal, Tertoh. The Kanola is a heavy bearer of a round deep purple fruit, six to ten ounces in weight, with a very thick rough skin, a small seed and yellow flesh of rich flavor. A sample of this fruit from Mr. Shedden's place, submitted to Messrs. Chace and Church on March 24 for analysis, gave the following result: Total weight of fruit, 220 grams, approximately 7¾ ounces; percentage of pulp or edible matter, 63.6 ounces; percentage seed, 12.3; percentage skin, 23.7; percentage water, 70.22; percentage fat, 21.92; percentage protein, 0.96; percentage total sugars, 0.49; percentage ash, 1.32.

Of the sedlings that have come into bearing on the Spinks place five are considered especially promising, all having fruit from a pound to a pound and a half in weight. The one considered the most interesting has been named the "Alexandria." This fruit proved very fine in quality and flavor with a very small seed and the tree a strong grower.

Among a good many on the Huntington Estate, No. 46 is the most interesting, having very rich fruit.

On the Oakley place at Brentwood Park are a number of fine flavored Mexicans and Nos. 1, 2, 3 and 4 the more prominent among his Guatemalans.

On the Stevens place at Montebello his Nos. 1 and 2 test out well. At his place and also at La Habra and Whittier the No. 15 introduction of Stevens and Rideout has been on trial for several years, producing a fruit of extra fine, rich, nutty flavor, but too many of the fruits have the undesirable crooked, curved neck and the tree is too long in coming into bearing. The value of their introduction No. 2 is still undetermined.

(Continued on Page 708.)

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and LIVESTOCK and DAIRY JOURNAL

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
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Saturday, May 28, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

Of all the days observed in honor of the great and the true none are more sacred than is Memorial Day, which we observe next Monday. Established soon after the Civil War in honor of the heroes of that war it has become a day generally observed in honor of all our heroic dead. The time was when the day was all too much given to sports and hilarious proceedings. This spirit has not entirely passed but the day is generally considered one of our most holy days.

* * *

The boys are coming home. On Tuesday one of the great transports which had carried the boys over there returned with several thousand. They had made the great adventure and had given their lives for freedom in America and in all the world. It is fitting that at this memorial time these boys should be returned to their native land.

* * *

The federal reserve bank has estimated that 50 billions of dollars annually is paid by employers to wage earners. Forty of those 50 billions is required for living expenses of the laborers and their families. This leaves ten billions excess income. Owing to the great need of the country for electrical development and general commercial advancement the bank appeals to these laborers to place these funds at the service of the government, and all the people, by investing in government or other securities. One may now invest in government securities in any sum from 25 cents to an unlimited amount. However, the lowest interest drawing security issued by the government is the $5 war savings stamp. The 25 cent thrift stamp and $1 treasury stamp are for the purpose of exchange for the interest bearing security.

* * *

Southern farm papers are appealing for a reduction in the cotton output. "Everybody admits that an 8,000,000 bale crop of cotton this year will bring just as much money as a 12,000,000 bale crop. What, then, is the sense of planting, chopping, nurturing, picking and ginning 4,000,000 extra bales of cotton for nothing?" "In Heaven's name, let's plant only just enough cotton this year to pay taxes and absolutely necessary store bills and plant every other acre in food crops, feed crops, soil improving crops, gardens, pastures, orchards, watermelons and potatoes. Let's live well at home—with home made bread, meat, milk, butter, vegetables, fruits, chickens, eggs, watermelons, syrup and honey—and absolutely refuse to ruin prices of 1921 cotton and of cotton already on hand by planting, cultivating and picking 4,000,000 extra bales of cotton for nothing."

* * *

Railway people and commercial people generally have felt that the farmer was unduly concerned in this price reduction. "We are all hit with the same club, let's cheer up and be sweet." However, Herbert Hoover has made some investigations and he has called attention to the unequal progress in the various steps in the economic readjustment. Here are a few of his typical indexed numbers, 100 being 1913. Farm crop prices in 1921 are almost back to normal, being 115; farm meat animals are slightly better, 123; wholesale index — wholesale, mind—on all commodities, 162; railway rates, 166; building trade wages, 177; clothing, 192; fuel and light, 207; building materials, 212; house furnishings, 275. This disproportion of levels is what is causing discouragement and loss in nearly all agricultural lines.

* * *

The state convention of the California State Irrigation Association, is being held in Sacramento this week. The association is boosting and working for the great irrigation and power development plan which covers the northern and central portions of the state. The association members realize the stored up wealth which will be possible if enough people with vision may be brought to the position of looking into the Sierra Nevadas and then of voting for a state bond issue of two or three hundred millions with which to store the floods.

* * *

The percentage of the country's population which is engaged in farming has decreased from 87.1, which it was in 1820, to 32.9 per cent in 1910. In 1840 the percentage was 77.5; 1870, 47.5; 1880, 44.4; 1890, 39.2; 1900, 35.7. It is anticipated that the present census may show close to 30 per cent of the population as employed in agriculture.

* * *

It has been observed that young people may enjoy a trip to town over poor roads, but it is sometimes hard to get them to go home over the same roads. A farm that is ten miles out may halve the distance by good roads construction.

FREIGHTS REDUCED

Railways announce reductions of freight rates on certain commodities approximating 20 per cent on all transcontinental railways west of Chicago. This applies to only Pacific Coast terminals and is to meet water competition. "The new Eastbound rates will apply to beans, peas, canned salmon, canned goods, condensed milk," and some other commodities, but we understand citrus fruits are excluded.

FREAK RAIN

California's dry season has been put entirely out of joint by heavy rainstorm over the entire state. Humboldt and extreme northern counties received only comparatively light fall but the southern end of the state reversed the usual order of things and took to itself a precipitation ranging from one to 6.16 inches. Producing sections such as Santa Barbara received a precipitation of 1.46; Riverside, 1.6; San Diego, 1.15; Pasadena, 3.76; Long Beach, 2.09; Sierra Madre, 4.08; Santa Monica, 3.90; Pomona, 3.20; Palomar, 6.16; Anaheim, 3.26. But little alfalfa hay was caught, although a large quantity of grain hay has been seriously injured. Some estimate the injury as great as 100 per cent, at least 50 per cent of the crops being cut.

The storm was not of the April shower or thunder shower type but a regular continuous midwinter rain. The storm has broken all May records of precipitation.

SALES TAX

The excess profits tax is yielding large income to the government and is drawn from only those who have. It was claimed at one time that the profiteer only added that much more to his prices and passed on his excess to the consumer. That was true, then. It isn't so easy to add to prices today. The buyer has more to say than he had at one time. Ultimately the excess profits will fall exactly where they belong.

Hence fun in congress. "Repeal the tax and give us the sales tax." Take it off of those who have and put it on those who have not. The Federal Farm Bureau, the Grange, and nearly all of us, are speaking out in meeting. The Grange has issued a statement from which we quote:

"Sales tax fight is on. A fight to shift a billion and a half dollars of federal taxes from those best able to pay to those least able to pay is going on in congress. This is what the sales tax means. The ability and cunning with which the propaganda in favor of the sales tax is being spread through the press of the country makes it necessary that some clear statements of the real facts should be printed so that these facts may not be lost sight of.

"The fight at this time is centered in an effort to pass the Smoot Bill, which is a very carefully drawn measure providing for a tax of one per cent on every commodity turnover with a few exceptions. That is, when a farmer sells his wheat or hogs or milk, he is liable for only one per cent tax on what he gets. When the elevator, or a packing house or a creamery sells its product, they must pay one per cent tax. When the commission man, or the miller, or the wholesaler, or the retailer passes the product on, each must pay a one per cent tax.

"The theory of the tax is that each vendor will add the tax to the selling price so that it accumulates along with the other costs of doing business, until the consumers pay it all, which theory might work out if the price were established by the seller. The Smoot Bill is clever because nothing in this bill provides for the repeal of the higher income taxes and the excess profits taxes, but the simplest analysis of the bill shows that there is no possible reason for attempting to collect a billion and a half dollars sales tax unless it is also proposed to repeal these taxes, and of course that is the real reason for the tax fight. It is a plain question of somebody trying to escape their big taxes and unloading them on the whole public as consumption taxes."

It is possible our concern is without cause, for at the last moment comes dispatch from Washington, "Sales tax ditched. Proponents abandon hope. Union labor joins farmers in protest."

FIGHT ON DAIRYMEN

Some years since clubwomen and others of the city of Los Angeles put up a fight for higher milk quality. The sins of the careless dairyman and spread of disease from insanitary conditions were played up to a finish. New milk laws were enacted, a corps of inspectors and officials were put on the job and milk quality rose. This matter of milk quality has given to Los Angeles the reputation, as reported by the United States department of agriculture, for highest quality of milk of any city of its size in the world. The dairy restrictions were so rigid that many dairies unable to finance required improvements quit the game. The improved conditions required greater production expense. War prices caused other increase and milk prices advanced till the price of 18 cents for pasteurized was paid by the consumer. A recent cut to 16 cents was made by delivery men.

Now comes agitation for still further reduced prices. Club women, the mayor, the district attorney — everybody, almost—is "probing" and "children are dying" as a result of the "dairymen's greed." The club woman whose husband has perhaps grown rich farming the farmer has great pleasure in this "dairyman's greed" business.

But if Los Angeles is wise it will consider some things:

Los Angeles has the purest milk in the world! A statement not simply bunkum but reports by C. F. Hoyt, formerly with the federal department of agriculture, now with the state department as dairy specialist, prove our claims are not merely local. It costs more money to produce clean, pure, wholesome, rich milk than most of the present agitators can conceive.

High price of land: Few dairymtn have the high overhead of interest—or rentals—which is paid by California dairymen. We have advertised our wonderful blessings and people have come from all parts of the world until dairies have given away to mansions, or possibly the great tire or other manufacturies, until they have been crowded farther and farther from the center and rentals and interest payments have gardually increased.

Hay: It may be noted that in the last issue of the Cultivator No. 1 dairy alfalfa was quoted $5 lower in San Francisco than in Los Angeles. A difference of $5 per ton adds materially to production costs.

"Labor is lower": It is probable this is true, but not to the extent of two cents per quart cut already made and many a dairyman is compelled to pay the same price for his labor today that he paid a year ago.

Transportation: Much of the milk and dairy supplies is brought into the larger cities in trucks, yet sufficient must be shipped in over the railway to maintain needed quantity. It is but fair on the part of the agitator to consider that the dairyman who ships by railway is today paying 25 per cent more than he did 12 months ago.

But the trouble is that the present agitation is not intended as a campaign for cold blooded discussion of the situation of the dairymen and of an increased supply of purer, better, or possibly cheaper milk, but is more in the nature of a hysterical campaign in which strictest justice to both producer and consumer may not be secured.

An Open Letter to Every Fruit Grower and to the Members of the Organized Branches of the Industry in Particular

NOT OVER-PRODUCTION, BUT UNDER-CONSUMPTION, IS WHAT AILS YOUR BUSINESS TODAY.

In the past the fruit industry has experienced in cycles, seasons of depression—never from over-production, but always from under-consumption, without any constructive effort having been put forth, except upon the part of one or two individual organizations, to remedy the condition.

EACH OF THESE PERIODS OF DEPRESSION HAS CAUSED YOU LOSSES MANY TIMES MORE THAN THE COST OF THE PLAN I AM PROPOSING.

If you are a grower of fruit and nuts and are not affiliated with some one of the organized branches of your industry, YOU SHOULD CONNECT UP AT ONCE.

In my former letter I announced to you my plan of placing in the hands of every one of the fifteen million American housewives "THE STORY OF CALIFORNIA FRUIT FOODS," a book so gotten up as to be a gift prized by every recipient, so cleverly edited as to be intensely interesting, with recipes so compiled by the world's best culinary talent—simple, wholesome, economical, labor-saving—as to be an indispensable necessity to her.

The American housewife is the key to the consumption of your fruit products. She has a romantic interest in California and your products. She is confronted each day with the problem of providing a wholesome, attractive and economical diet for her household. The great majority of housewives but rarely use your products. She is ready and waiting at your door, if you will but place "THE STORY OF CALIFORNIA FRUIT FOODS" within her hands, advising her of their wholesomeness, their attractiveness and their economy in labor and cost.

It will of necessity devolve upon the organized branches of the industry to take the initiative in creating an organization that will put this over.

To put this plan over will require on your part an expenditure of not more than one cent out of every dollar of proceeds from your crop, over a period of three, and, at most, four years.

The loss to you from the present period of depression in the industry will cost you many times more.

THE ONE ABSOLUTELY INSURES YOUR FUTURE. THE OTHER IS GONE.

I am informed by an advertising expert that the average advertising expenditures of various well known commercial enterprises will average 2½ to 4 per cent of the amount of sales, and in the automobile industry from 1 to 1½ per cent, yet the average for the industry will fall short of 1 per cent. The additional expenditure required to put over the "Bergtholdt Plan," together with the continuation of the advertising expenditures now being made by the various branches of the industry, will make a total expenditure for advertising your products of not over 2½ per cent, which is still under the average minimum expenditure employed by every other successful commercial enterprise. The plan I am suggesting will connect your industry up directly with the one individual who absolutely controls the consumption of your product—THE AMERICAN HOUSEWIFE, AND THE RETAILER WHO DISTRIBUTES YOUR PRODUCT.

One dollar out of every hundred invested by you for a period of four years in putting this plan into effect is by no means an expenditure, but is an absolutely necessary investment in your present situation, and you will be repaid in increased proceeds from each year's crop several times the total cost. The value of your orchard property, and of every acre of land in California susceptible of fruit culture, will be automatically enhanced.

Contributions from growers not allied with any of the marketing organizations can be secured in the same proportion that you will pay, by a drive for their support.

This plan will add to the prosperity and wealth of California from Yreka to San Diego, and the aid of every allied industry and of every commercial body of the State also can be secured.

The co-operation of every jobber and every retailer can be secured, not alone to contribute in some portion towards its cost, but to place a copy of "THE STORY OF CALIFORNIA FRUIT FOODS" in the hands of every housewife, under the direction of your organization.

The organization that will put this over will comprise the best brains and executive ability at the command of the industry.

This organization also, while putting this over and directing the distribution of this book through your jobbing and retail channels, will be admirably equipped and SHOULD FUNCTION IN A MOST VITAL AND HERETOFORE OVERLOOKED PHASE OF THE DISTRIBUTION OF YOUR FRUIT PRODUCTS.

A department of this organization should be created for the purpose of making an expert analysis of the methods of the distribution of your products from your orchard to the ultimate consumer, and under a corps of experts, should function in the capacity of systematically instructing every retailer of your products in the United States how to specialize in the sale of California fruit foods; and should instruct him in methods of intensive modern retail salesmanship; and should devise means and methods that will make every retailer and every retailer's clerk an intelligent salesman of your products, and thus automatically, by increased efficiency eliminate profiteering and other abuses now prevalent.

Systematic efforts should be made to induce every retailer to specialize in the sale of California fruit foods and set aside a department for that purpose.

By means of the efforts of this department of aid to the retailer and jobber, the efficient and intelligent co-operation of these factors will be secured.

"THE STORY OF CALIFORNIA FRUIT FOODS" in the hands of every housewife—every retailer made an efficient salesman of your product—THIS IS THE BERGTHOLDT PLAN."

Commendable efforts are now being put forth by most of your organizations in the direct advertising of your products, but, as your sole reliance for informing the American housewife of the merits of your products and securing her co-operation in their use, I am convinced that you will agree that they fall short and do not reach the majority.

A recent survey of the various publications being used by several of your strongest marketing organizations shows that their advertising efforts are being expended mainly in ten publications, comprising the best of their kind, with a total circulation of 12,673,000.

Among these ten publications used, a number are duplicated to the same subscribers (my own household subscribes to five of them) and it is safe to assume that one out of five of these 12,673,000 subscriptions is duplicated one or more times. This would justify a reduction of twenty per cent to arrive at the total number of individual subscribers. A large proportion of two of these publications, having a subscription of over three million, that is, the Saturday Evening Post and Literary Digest, circulate among other than housewives. Allowing for this deduction and the duplications, it is safe to assume that these ten publications cannot circulate among more than ten million individual housewife subscribers, and most likely less.

The back cover page in these publications is the most effectiev advertising positions. It is conceded by experts that, out of every one hundred subscribers, a full page advertisement on the back cover page will be read by a minimum of twenty to a maximum of eighty readers, according to the interest, color and attractiveness of the ad. Therefore, not more than eight million out of the ten million subscribers referred to can be expected to ever read a full page ad on the back cover page.

The next choicest location in these publications is the first page following the full page editorial matter of the publication. This is the best inside page, and by advertising experts is rated at seventy-five per cent as efficient as the back cover page. For a full page advertisement on this page, one hundred per cent efficient as to display and subject matter, the highest anticipation of readers would be sixty out of one hundred, or six million readers out of the subscription list of the publications referred to.

Now it is not possible that the various fruit organizations employing these publications should each one always occupy this choicest inside full page. Nor is it possible that, for display and subject matter, the advertisement should always be one hunded per cent efficient; yet, to be conservative, we will allow that the advertisement of each one of your various organizations using these publications is read by six million housewives of the ten million assumed housewife subscribers to these publications.

As there are fifteen million housewives in the United States daily burdened with the problem of providing for their households a dietary wholesome, attractive and economical, each of them equally interested in California and in your produce, you will realize that but forty per cent are being reached by these publications, AND THESE ONLY IN FRAGMENTS.

Now I say by all means keep up your publication advertising, but make it more effective. Place in the hands of every one of the fifteen million American housewives "THE STORY OF CALIFORNIA FRUIT FOODS," edited and compiled absolutely one hundred per cent efficient, and you not only reach and secure the co-operation towards the consumption of your products of those whom you do not now reach, but you make of every one of the six million readers of your advertisements in the publications referred to an interested and intelligent reader of what in your advertisements you have to say.

"THE STORY OF CALIFORNIA FRUIT FOODS" placed in the hands of every housewife, will make your publication advertising many times more efficient, while your advertising can be made to increase the efficiency to every housewife of "THE STORY OF CALIFORNIA FRUIT FOODS." Each will prove indispensable to the other.

"THE STORY OF CALIFORNIA FRUIT FOODS" must be complete. This project must be put over collectively, every branch of the industry participating.

No other branch of the industry of itself will prosper for long alone. The permanence and the success of every individual branch of the fruit industry are dependent altogether upon the prosperity of the whole industry.

The extensive consumption of just oranges and almonds or of just prunes and peaches alone will not consume the tonnage of these crops that will be consumed of them under an extensive consumption of every fruit product.

While I grant that it is possible for some one of your organizations alone, by efficient distribution and efficient advertising, to successfully distribute their individual product, to a degree that you do not feel the need of co-opeating collectively to put this over for the benefit of the fruit industry and your product as well. Such an organization may, for the time being, prove efficient in its individual capacity, but it can hardly be rated as one hundred per cent Californian.

NATURE'S LAW

"Now this is the Law of the Jungle as
old and as true as the sky;
And the wolf that shall keep it may
prosper
But the wolf that shall break it must
die;
As the Creeper that circles the tree-
trunk, so the Law runneth forward
and back;
For the strength of the Pack is the Wolf,
and the strength of the Wolf is the
Pack." —Kipling.

This plan is being enthusiastically endorsed by growers everywhere, and by prominent factors in the industry.

Had this plan been in operation, many millions would have been saved the California fruit grower during the present period of depression.

Every dollar you put into this plan is not an expenditure but is an investment absolutely imperative and that will be repaid you ten-fold from the proceeds of each year's crop, and one hundred-fold from the assured prosperity of your industry in the future, aside from the enhanced valuation of your orchard acreage.

In the present situation it is imperative that an organization be created and the task begun.

IT WILL BE UP TO THE ORGANIZED BRANCHES OF THE INDUSTRY TO ASSUME THE INITIATIVE IN CREATING THE ORGANIZATION THAT WILL PUT THIS OVER.

It is absolutely up to you and me, as individual fruit growers, to set aside every other consideration and at once directly bring your voice and your influence to bear upon the management of the marketing organization with which you are connected to take action with other organizations to CREATE AN ORGANIZATION THAT WILL PUT THIS OVER.

Your marketing organizations are democratic bodies and your Boards of Directors will follow out your desires.

It is vital to your success as a fruit grower and to mine, that you do your part to this end, and that you persevere—don't let go—keep your shoulder to the wheel. I am doing mine. Your success and mine depend upon this project being put under way at once.

J. E. Bergtholdt
Secy. and Mgr.

Silva-Bergtholdt Co.
Newcastle, Cal.

In The Orchard

In the orchard, where insect pests infest the tops of the trees, a powerful sprayer is always necessary.

The American Beauty Dust Sprayer was designed to meet this very need. Its powerful blast forces dry insecticides to all parts of the tree, penetrating the center of every leaf and blossom cluster, thereby giving greatest protection.

In the control of Aphis, Thrips, Mildew, Red Spider and other pests *"Calispray"* dusts and the American Beauty Dust Sprayer are unequalled for economy and efficiency. The machine is operated by one man and places the dust only where needed and in its most efficient form. In orchard work 15 acres a day may be covered, with larger acreages in field or vineyard.

For best results use *"Calispray"* dusts made in our own factory — a brand, ready prepared, for every insect pest.

Through dealers or direct from us

THE CALIFORNIA SPRAYER CO.
6001-11 Pasadena Avenue
Los Angeles, California

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THE STANDARD FOR QUALITY
They Give Satisfaction Wherever Planted

CITRUS TREES

Grown from selected buds on sour orange root. They are the best that money can buy.

AVOCADOS

All of the recommended varieties budded on hardy Mexican Seedlings.

FEIJOAS

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Send for our descriptive price list and let us figure on your requirements whether it be for one tree or a thousand.

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PROMPT DELIVERY
Write for Catalog and Prices
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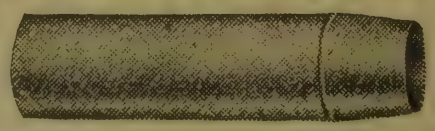

When Writing Advertisers Mention California Cultivator.

SUGGESTIONS FOR THE CONTROL OF RED SPIDER IN DECIDUOUS ORCHARDS

(Continued from Page 705.)

begins. In the Sacramento Valley this is the last of June or the first part of July. This date may be varied by local conditions or in different parts of the state, however the treatment should never be delayed until the attack becomes serious. Sulphur may be applied either as a liquid spray or as a dust. The latter method requires less time but should be repeated one or more times, while one thorough application of a liquid spray at the very beginning of an attack will frequently control the spider for the season.

Sulphur as a liquid spray may be prepared by mixing the dry sulphur with glue water or flour paste or the commercial forms of "sulphur pastes" or "wettable sulphurs" may be secured. The manner in which the mixture is prepared seems to be less important than the amount of sulphur which is used. Experimental results indicate that about five pounds of sulphur would be used per hundred gallons of spray mixture. The formula for the sulphur-glue water mixture is: Formula I. Sulphur (flowers or sublimed) 5 pounds, dry glue (dissolved in 1½ gallons of hot water) ¾ ounce, water 100 gallons. Mix sulphur and glue water into a thick paste and rub through a sieve into the spray tank with the agitator running. Flour paste may be substiuted for the glue water, using two pounds of the dry paste or three pounds of the wet paste such as is used by bill posters. Water is added to the paste and the five pounds of sulphur stirred in according to the directions given above. Apply these materials very carefully and on prunes give special attention to wetting the under surface of the leaf. On large trees, 20 to 28 feet tall, eight to ten gallons or more of spray will be necessary to thoroughly cover every leaf, particularly if applied with a gun. Careless or scanty spraying will only check the attack and on account of the rapid increase and dispersal of the mite a reinfestation soon occurs.

For heavy infestations of red spider use the following combination of lime-sulphur solution and sulphur: Formula II. Lime-sulphur (31 to 34 degrees Baume) on (almonds, 2 gallons; prunes and peaches, 1 gallon); flour paste (wet 3 pounds, dry 2 pounds); sulphur 5 pounds; water to make 100 gallons.

The combination spray acts much quicker than where sulphur alone is used and is of value chiefly when the attack has become severe and it becomes necessary to check the spider as quickly as possible. Flour paste will act as a spreader for the lime-sulphur solution and hence is preferable to the glue water formula. Dry lime-sulphur five pounds to 100 gallons may be substiuted for the liquid lime-sulphur solution if desired. Barium-sulphur is a new compound which will probably be found as efficient as the above materials.

Lime-sulphur solutions are more or less caustic and hence should be used at a temperature below 100 degrees Fahrenheit if possible. However, a slight injury to the foliage is preferable to an unchecked attack of red spider.

Dusting with dry sulphur has been advocated commonly, but in the last two years has frequently been less successful than formerly. It has the advantage of speed, it being possible to cover 20 or 30 acres a day with a power blower, but since two or more treatment are usually necessary, dusting may finally require as much time as liquid spraying. The prevailing winds of summer make it very difficult to apply sulphur as a dust thoroughly, and also have a tendency to shatter the material off from the leaves.

Dusting sulphur will flow more freely in applying it and be just as effective if a ten per cent filler of hydrated lime or powdered kaolin is added. Larger amounts than ten per cent of filler retard somewhat the action of the sulphur, while a 50-50 solution is decidedly inferior. The control of citrus red spider is similar to that of the common red spider. It sometimes, however, attacks earlier in the season and for this reason spraying might have to be done in May or June.

The most effective control for the brown mite is winter spraying with crude oil emulsion, 12 per cent lime-sulphur solution, 1 in 10, or dry lime-sulphur solutions at recommended strengths. The latter solutions were most effective when applied just prior to blooming, while the oil spray is probably safer if applied at least three or four weeks before blooming, and when the trees have not been subjected to drouth or drying winds. The oil emulsion has a higher killing efficiency than the lime-sulphur solution but since the latter are of value as a fungicide and in controlling the twig borer (Anarsia lineatella) they will probably be most desirable in almond orchards. The distillate oils, which have been tested, when prepared as emulsions or miscible oils, have in all cases proven inferior to crude oil.

Spring and summer control of the brown mite is similar to that of the common red spider. Lime-sulphur solution prepared according to Formula II is more satisfactory for spring use than sulphur used alone. Dusting with sulphur proved of little value until summer temperatures were reached.

AVOCADO REGISTRATION COMMITTEE REPORTS

(Continued from Page 705.)

We have examined interesting trees and fruit on the properties of Willard Smith, Villa Park; Mrs. Ida Shaffer, Pasadena; Dr. Miles, Alhambra; Mrs. Titus Phillips, Alhambra; C. F. Wagner, Hollywood, and others.

Some good fruit measure up so well otherwise to the desirable qualities required in a good avocado that we regret it when we find them disqualified for general use by the presence of a seed much too big and out of all proportion to the size of the fruit. Such fine fruit are the California grown by Milo Baker at Hollywood and the Cady by C. F. Cady, Los Angeles.

Two of the original West India Garden introductions have come into bearing with fine fruit maturing in the spring. The Montezuma, a green fruit with a thick granular skin, dull yellow flesh, free from fiber, or with only a very slight discoloration and the flavor of the best, good and rich, weight of one sample 18 ounces, seed 3 ounces, and the other fruit the Schmidt, with a green color, thick skin, deep, clear yellow flesh, free from fiber and the flavor smooth and rich; weight of one sample 20 ounces, seed 2 ounces.

At our fall meeting many fine fruit of his No. 1 Seedling were exhibited, cut and tested from his tree at Whittier by Charles H. Hamburg. It is a variety which he has now decided to call the "Quaker." The strong growing tree, ten years of age and 30 feet in height, with spread of 25 feet, comes from a seed sent him from Guatemala. It had a few fruits the previous year and 50 in 1920. Buds taken from it and put into other stock have taken well and made strong, healthy growth. The fruit is large, green in color, up to a pound and a half in weight, with seed of medium to small size, thick skin, clear cream colored flesh and excellent flavor and quality, a slight bitterness showing in one test.

The Anaheim, from a tree grown by E. C. Dutton at West Anaheim, on property now owned by Otto G. Keup, was exhibited at the last annual meeting, and five fruit were afterward tested by the committee. They ranged in weight from 24 to 18 ounces and the seed from 3¾ to 2¼ ounces. The fruit was light green in color, with a thick skin and attractive appearance, clear yellow flesh with a very small amount of fiber discoloration and good rich flavor in three specimens. The other two were not so good and were thought to be immature.

The Hoff, grown by J. E. Hoff at Hollywood, is a large strong tree from a seed planted in 1911. It had a few fruit in 1916 and 1917, in 1918 it had 35 fruit, in 1919 50, in 1920 100. The fruit is pear shape, green in color, with a thick skin, weight 12 to 20 ounces, with a small seed. It matures in the fall but remains on the tree without dropping. The fruit tested was picked January 14, samuled January 20, and found in excellent condition. It weighed 16 ounces, seed 2½ ounces. The color of the flesh was a clear, bright yellow, no fiber and the

flavor and quality extremely good. The following is an analysis of this fruit made by Mr. Chace in December: No. 142, analyzed November 15, 1920; specific gravity of fruit, 1.0013; seeds, 17.46 per cent; pulp, 76.17 per cent; skin, 6.28 per cent; water, 71.13 per cent; ash, 1.51 per cent; protein, 2.23 per cent; fat, 18.47 per cent.

The Billingsly. A large tree on the property of Ray Billingsly, Villa Park, Orange County. A spring fruit weighing 10 to 16 ounces. Weight of three fruit sampled 10½, 13 and 16 ounces. Weight of seed 1⅝, 1¾ and 1¾. Fruit pear shape to oval. Color light yellowish green, turning partially brown. Flesh clear, bright yellow with merely a trace of fiber, quality excellent, with a good, rich and agreeably distinctive flavor.

The Butternut, from a budded tree on the Ferguson place, North Whittier Heights, tested March 6, 1921; weight 12 ounces, seed 2 ounces. Shape round oval, skin thick, granular inside, leathery outside; color dark red, smooth and glossy, with a finely webbed appearance. Attractive looking. Flavor and texture good.

The Monroe, on the place of B. H. Sharpless at Santa Ana, is a green pear shaped fruit of fine appearance and good flavor and quality, weighing 14 to 18 ounces, a moderate sized seed and clear yellow flesh. Tree a good bearer.

The Knight variety has come into bearing with another fine fruit added to the credit of the introducer of the Queen and Linda. It is a very promising round green fruit. The fruit as well as the tree has excellent appearance and as to quality it is still under observation.

The Queen and Linda have been so widely planted that we now are in the way of receiving the experience with them from a large number of growers.

The Sherman Seedling No. 1, grown by E. Goodell Sherman, Hollywood, comes from a seed brought from Honduras and planted in 1910, according to an old diary of Mr. Habersham. Eight fruit, maturing this spring, form its first crop. They are very large and handsome, weighing from 20 to 30 ounces, with seed from 3½ to 4½ ounces, of an elongated pyriform shape and smooth yellowish green leathery skin. The seed in some of the fruit is slightly loose in the cavity, and the flesh is yellow with a very little fiber discoloration, not enough to be objectionable, remarkably smooth in quality and the flavor very fine and agreeably rich. The character of the wood growth in young trees is now on trial in several orchards.

The Lyon. The description of the Lyon given in the last annual report of the committee applies equally today. The report is absolutely correct, fair and impartial, and can easily explain how the extreme difference of view arises as to the value of the Lyon. It has none to those who have lost quantities of weak young trees and find shriveled fruit under those that remain. On the other hand, the remarkably large crops it produces, per tree and per acre, cause others to believe these troubles can be conquered and the variety become the poor man's friend, as a Monrovia grower calls it. Mr. Rideout has found that a sport or a bud variation has produced for him a selected tree, different from the others, maturing its fruit earlier and in tests to date giving healthy young trees. A fruit picked from this tree in January, 1920, was sampled by some of the committee the first week in February and the flavor found to be good.

The Dickey A is on the market, attractive in appearance and confirming its previous reputation of the possession of a fine rich flavor and a very small seed.

Three varieties claim consideration as winter maturing avocados; Dutton, Tiger and Dorothea.

The Dutton, grown by E. C. Dutton at West Anaheim on the place now owned by Otto Keup. Tree vigorous and productive, with crop off the tree before the following season's blossom. Crop matured from January onward last year, February onward this year. Fruit large, a pound or over, shape pyriform, color purple, skin thick and granular, seed medium to large. Two fruit sampled in March, 1920, weighed 15 ounces each, seed 3 ounces and 2¾ ounces, and doubtless were overripe as the flesh was dull yellow with discolorations around the seed, some fiber and flavor only fair. No samples were available this year, the fruit not being obtainable at proper maturity. Two other tests made in March, 1920, from fruit picked in February bring different and very favorable reports. Mr. Kinman writes he found the fruit submitted to him exceedingly palatable and first-class in every way, seed a little large but not excessively so, and a little bit of fiber at the blossom end. Dr. Coit writes he took the samples to Prof. Jaffa for analysis and testing and they found the fruit of "good size, texture and quality and it in every way gave us a very favorable impression. I was particularly pleased with the flavor. I think you are warranted in feeling proud of the fruit." The analysis showed 16.2 per cent of fat.

The Tiger, grown by Clair Bishop at Highland. Tree an upright grower and heavy bearer of fruit, weighing from 10 to 16 ounces and maturing from January onward. A sample fruit picked February 20 weighed 10½ ounces, seed 2 ounces. We find the seed ranges from 2 to 4 ounces. A fine looking pear shaped fruit, with a rough thick skin, purple in color. Flesh clear light yellow, of an average avocado flavor. Some fruit showed considerable brown fiber. This tree was produced from a seed received in 1914 from J. B. Walker of Hollywood and had a crop of 200 fruit the present season. It originated farther inland than any other variety of which we know and stands the hot dry air of the interior valleys admirably. Much better than other Guatemalan varieties growing near it.

The Dorothea, grown by A. W. Miller, Hollywood, from a seed of the well known Miller tree and believed to be a cross from one of the Mexican race. The tree is vigorous and productive. Crop 1918, 16 fruit; 1919, 30; 1920, 250. It blooms January and February, ripens mainly in December and January. Three samples, picked and tested in January, weighed 12 ounces, 8¼ ounces and 8 ounces; the seed respectively 1 ounce, 1 ounce and 1¼ ounces. Color light green with many yellow spots, skin leathery, flesh clear attractive yellow of good texture, no fiber and excellent flavor.

The committee report is based not alone on our own judgment but on the experience of the different avocado growers covering all parts of Southern California.

Letters for the committee or samples by parcel post for testing should be sent to the chairman at Upland.—Chas. D. Adams, chairman, T. U. Barber, Wm. Hertrich, C. F. Kinman, L. B. Scott.

OLIVE ASSOCIATION MEETS

The annual meeting of the California Olive Association, representing 800 growers and the majority of packers in the state, was held Monday, April 18, 1921, in San Francisco. All of last year's officers were reelected and the board of directors upon their reelection gave the advisory board power to act. After considerable discussion the assessment for the coming season was fixed at $7.50 a ton for all olives handled by packer members.

Financiers representing bonding houses of California have made a complete survey of business and financial conditions in the Salt River Valley of Arizona and report them to be excellent in spite of the general depression and the unsatisfactory markets for cotton.

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E S S E X

ESSEX MOTOR CARS

Read What "Hard Drivers" Write of Essex Reliability

They say that under severest service the Essex stays solid, tight, and free of noises, with little or no repair outlay.

And note their economy experience. Some have owned six, eight, or more cars previously.

Their next car will also be an Essex. They say that.

The Essex does not grow old, because it is rigidly built. Adjustments are provided to take up wear. Thus it is always firm, quiet, smooth and easy riding.

Your dealer will gladly explain wherein Essex duplicates costly car construction.

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G. G. SAWTELLE, Pawhuska, Okla.

"Have driven my Essex 16,400 miles. Had driven eight different makes of light cars, and none would last me a season. I drive a car hard—bad roads, all weather. Upkeep has been practically nothing. Its remarkable performance and the satisfaction it has given has led to many more Essex sales as I believe I have been instrumental in selling more Essex cars than any of your salesmen. I have never been bothered with squeaks or rattles."

A. I. BRUETT, A. I. Bruett Piano Co., Milwaukee

"Drove Essex 20,354 miles in 7 months. Gas consumption averaged 19 miles to the gallon. Twenty-four gallons of oil were used. No repairs whatever were made during this period, and the engine was not cleaned until approximately 12,000 miles had been covered.

"I have driven cars for the last 6 or 7 years. Cars, with me, have to do exceptionally heavy service, and this year will be the first I have ever used the same car for the second season, as I am doing with my Essex.

"My work as a travelling salesman, necessitates covering four Canadian provinces. Part of my way lies through the Metepedia Valley; the roads are so narrow that it is necessary before starting to remove the windshield and top and to bandage the body and mud-guards with heavy cotton in order to keep the finish from being destroyed by the branches and bushes at the sides of the roads.

"Naturally it would be hard to sell me anything but an Essex in the future—not only for endurance, but for getaway, 'pep' and all around performance."

P. E. GUAY, Sherbrooke, Quebec

ESSEX MOTORS, DETROIT, MICHIGAN

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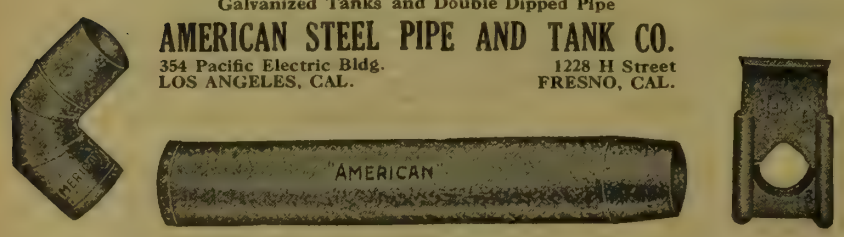

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Some of the Accomplishments of the Legislative Committee

By R. N. Wilson

THE biennial legislative battle is over; the final rush and crush is passed; the smoke screen is lifting and results are beginning to show in their true light.

To the observant farmer the accomplishments along agricultural lines must be highly gratifying; for unquestionably greater progress has been made during the past year than ever before. The advancement is notable in that it has been far broader than

R. N. Wilson

the mere passage of bills. From the viewpoint of one who has been in close touch with legislative proceedings, some of the outstanding developments would seem to include the following:

The careful correlation and focusing of the legislative activities of 60,000 farmers.

The creation of greater harmony and a closer working relationship between various farm organizations.

Through a series of meetings the farmers came into more intimate touch with their college of agriculture and state department of agriculture, and, as a result, were able to obtain far more adequate support for these institutions.

A considerable number of well digested, constructive bills, which do not smack of class legislation, were passed.

The passage of several vicious bills was blocked.

The farmers, for the first time, maintained a permanent representative at the capitol.

Prompt and thorough information as to legislative progress during the session was provided as never before.

A confidence was established among the legislators which should aid materially in advancing future legislation.

The results obtained are not purely a matter of luck, not because public sentiment has recently leaned toward the farmer, although the value of the latter item should not be underestimated.

Some 18 months ago the commodity organizations, realizing that the legislative portion of their business should be permanent, organized the agricultural legislative committee, employing one man to devote his entire attention to legislation. Largely to the careful and persistent work of this organization, with the fine cooperation of other farm organizations, must the successful accomplishments be credited.

A new development in the legislative field was sprung by the farmers last fall when they made a careful investigation of the activities of the college of agriculture and the state department of agriculture. This work was done by six different groups of farmers representing 27 different farm organizations with a membership of approximately 100,000 members. Through this investigation the farmers not only gained a far more intimate knowledge of the activities of these great institutions, but they arrived at a thoroughgoing knowledge of their needs from the farmers' standpoint. These data were effectively used as a basis of information for the legislators time and again during the session. It will be remembered that following the farmers' investigation their conclusions were presented to the university regents, the budget board and the governor in a most forceful manner and there are many evidences that this presentation has not yet been forgotten.

Measures Blocked

Not the least part of the zest of life is furnished by clashes with those who do not think as we do, and a few serious clashes with those who proposed bills diametrically opposed to the farmers' interests were inevitable.

It is true that some of the most vicious bills, including the imitation milk bill and three bills stipulating unreasonable resuirements as to labeling and storage of food, were never brought out of committee, partly due to the fact that the farmers were on guard. Agriculture represents both capital and labor but was aligned with neither of them, nor was it burdened with their antagonisms. The sharpest skirmish came with capital over the oleomargarine bill, which was backed by a powerful subsidiary of the Standard Oil Company. After two heated arguments in committee, the bill was finally passed on to the floor of the senate with the assistance of the votes of some of the senators representing rural communities. It is now a well known fact that the oleo bill finally passed the senate under a compromise agreement that it would go no further and the rural members voting favorably on the bill in committee ultimately voted against it on the floor.

A clash with labor came over a bill introduced by the Egg Candlers Union, which would have required that all eggs sold at retail must be candled. Even the back yard enthusiast, who sells to his neighbors, would have been compelled to candle his eggs before each sale was consummated. A very clever demonstration of candling eggs and the possible findings in the way of rotten eggs, fertile eggs, etc., was made before the committee of agriculture in the assembly and made a very favorable impression. The poultry interests maintained that the measure was entirely impractical and the facts were so strongly on their side that when the bill was voted upon on the floor of the assembly many of the regular adherents of labor failed to support it.

The Long Bill, which would have forced farmers to market their products regardless of price, slipped unexpectedly out of the judiciary committee, to which committee it should never have been referred. This measure was an exact duplicate of the law placed on the statutes in Montana in 1919, and similar to laws in a few other states, but apparently the author did not realize its full portent. When this was shown him, he first asked that the bill be amended and later agreed that its passage would not be urged.

Important Cooperative Bills

Among the bills of most fundamental importance to agriculture, which, by the way, were the first agricultural bills signed by the governor, are senate bills Nos. 590 and 591, clarifying many of the points concerning our present cooperative laws which had been open to question following opinions expressed by the attorney general. One of these opinions was to the effect that cooperative organizations had no authority to make a profit for their members. That such funda-

mental questions should be definitely settled was vitally important, and the attorney general concurred in this belief. Geo. E. Farrand, who, together with Senator Harris, drew the bills which were afterwards submitted to the cooperative marketing organizations, has commented upon the measures as follows:

"The bills are intended to make more clear existing statutes concerning cooperative, non-profit corporations and associations. They do no more than recognize as lawful the acts which many, in fact most, cooperative corporations and associations in California are now doing. The changes in the laws made by these bills in substance are to make it more clear that such cooperative corporations or associations may, as incident to their marketing, handle such business as is necessary in manufacturing by-products or preparing the products of their growers for market, and to make it definite that such corporations and associations may have assets, though they are precluded from issuing shares of capital stock, and to acquire and own real and personal property, including shares of stock in other corporations. These changes remove any doubt as to the authority of these corporations and associations to conduct their business activities for their members for the profit of the members, or to use or employ any of their facilities in rendering incidental services to others, all, however, to be for the purpose of enabling such associations to be totally cooperative and to act at cost for their members.

"Certain other technical changes are made in the statute with reference to the manner of voting, and the like, but these do not affect the substance of either of the present titles under amendment.

"Insofar as the borrowing of money is concerned, the issuance of bonds and securities, the bills bring these associations and corporations under the jurisdiction of the commissioner of corporations, so that no likelihood of danger to the public interest is involved in recognizing the clear right which these associations and corporations have always thought they had to borrow money, and to evidence such money borrowed by appropriate note, mortgage, deed of trust, or other security."

Pure Seed Bill

Another measure of general interest is the pure seed bill, which passed after many years of vicissitudes. Almost the identical bill was passed last year, carrying an appropriation of $14,000, but unfortunately this was divided into two appropriations, invalidating the bill. At this session Senator Rigdon placed the body of the law in one bill and an appropriation of $15,000 in another, both of which were passed by the legislature and are now awaiting the governor's signature as this is written. California has become the dumping ground for poor seeds from other states where more stringent laws have been in effect, which situation should be entirely remedied by the pure seed law. In its present form the measure is satisfactory to farmers and seedsmen alike and promises large financial savings to all concerned.

THE PRESIDENT OPENS VALENCIA SHOW

(Continued from Page 703.)

packing houses under a commercial brand—First, silver cup, won by the American Fruit Growers, Inc., Lindsay; second, certificate, won by the American Fruit Growers, Inc., of Fullerton.

Class No. 7, for the best 12 boxes of lemons—First, $25 cash, won by the American Fruit Growers, Inc., of Orange.

Class No. 8, for the best eight boxes of Valencias—First, cup, won by the Anaheim Orange and Lemon Association of Anaheim; second, certificate, won by the American Fruit Growers, Inc., of Yorba; third, certificate, won by the American Fruit Growers, Inc., of Placentia.

Class No. 9, for the best four boxes of Valencias—First, gilt banner, won by the Anaheim Orange and Lemon Association of Anaheim; second, certificate, won by the American Fruit Growers, Inc., of Lindsay; third, certificate, won by J. R. Ragan of Orange.

Class No. 10, for the best four boxes of lemons—First, gilt banner, won by the American Fruit Growers, Inc., of Orange.

Class No. 12, for the best commercial pack on one-box lot of Valencia oranges (full boxes with cover on)—First, cup and $10 cash, won by J. R. Ragan of Orange; second, certificate and $5 cash, won by the Santiago Orange Growers Association of Orange; third, certificate, won by the Stewart Fruit Company of Anaheim.

Class No. 13, for the best commercial pack of one box lot of lemons (full box with cover on)—First, cup and $10 cash, won by the Anaheim Orange and Lemon Association; second, certificate and $5 cash, won by the American Fruit Growers, Inc., of Lindsay; third, certificate, won by the American Fruit Growers, Inc., of Fullerton.

Class No. 14, for the best feature display without mechanical action, entered by chambers of commerce or citrus fruit associations—First, cup and $75 cash, won by the Anaheim Orange and Lemon Association of Anaheim; second, certificate and $50 cash, won by the Anaheim Citrus Fruit Association of Anaheim.

Class No. 16, for the best feature display entered by individuals, firms or corporations—First, cup, certificate and $75 cash, won by the American Fruit Growers, Inc., of Los Angeles; second, certificate and $25 cash, won by the Stewart Fruit Company of Anaheim; third, certificate and $15 cash, won by C. C. Chapman of Fullerton.

Class No. 16-A, a special prize for the best feature display having mechanical action, entered by individuals, firms or corporations—Prize cup and $50 cash, won by the Pacific Electric Company of Los Angeles.

Class No. 17, plate of table displays, best plate of Valencias (five specimens)—First, certificate, won by the Anaheim Orange and Lemon Association of Anaheim; second, certificate, won by Fred Koch of Etiwanda; third, certificate, won by J. E. Cunningham of Anaheim.

Class No. 20, best plate of Valencias (12 specimens)—First, prize ribbon, won by the Anaheim Orange and Lemon Association of Anaheim; second, the Santiago Orange Growers Association of Orange; third, Fred Koch of Etiwanda.

Class No. 21, best cluster of oranges—First, certificate, won by A. E. Walkup of Orange; second, certificate, won by Walter Leiffers of Olive; third, certificate, won by W. L. Tadlock of Anaheim.

Class No. 22, best cluster of grapefruit—First, certificate, won by C. C. Chapman of Fullerton; second, certificate, won by Mrs. M. D. Livingston of Anaheim.

Class No. 23, citrus fruit by-products (commercial)—First, $15 cash, won by Hushmans family of San Gabriel; second, $10 cash, won by the Amberglass Products Company of Monrovia.

Class No. 24, for the best general displays of citrus fruit by-products made and entered by individual—First, $10 cash, won by Mrs. R. N. Allen of Anaheim; second, $5 cash, won by Mrs. M. D. Livingston of Anaheim.

Judges were H. E. Collins of Rivera, C. D. Hubbard of Carpinteria and J. A. McGregor of Fontana. A. S. Bradford of Placentia was chairman of the awards committee.

BROWN ROT ON DECIDUOUS

This disease is on the increase. From the experience of the past with the disease in citrus orchards and from a few observations of different orchard treatments on brown rot, the indications are that Bordeaux or lime-sulphur treatment will probably prove to be satisfactory control measures. This latter remains, however, to be confirmed by experiments. Observations show rather conclusively that this season's brown rot is decreasing in activity with the change to bright and warmer weather. However, it seems advisable to take measures that may prove adequate for control. Because of the lack of definite information some suggestions may not be amiss at this time.

Fall Spray Nursery Stock

The manner in which the infection seems to have taken place and the subsequent development of the disease would indicate that a fall spray of Bordeaux on all nursery stock would be a good form of insurance.

Soil Infection Possible

Evidence is at hand indicating that there is considerable soil infection in nursery yards. If this is correct and if weather conditions are favorable for development of the disease in these yards next year it may be very desirable to change the place for heeling in the trees where it can be done conveniently. If it is not practical to change yards it would probably be advisable to plow or spade up the land and spray the soil one or more times in the late summer or early fall with a good strong Bordeaux mixture.

SUTTER COUNTY PLANTINGS

A report received from Harry Stabler, county horticultural commissioner at Yuba City, indicates increased activity in 1921 new orchard acreages. A total of 2,457 acres was newly planted to fruit trees, which added to 682 acres of grapes planted out this year makes a grand total of 3,139 acres.

In spite of the fact that most of the mines of Arizona are closed or working only a few men, the assessments of mining property are based on a five year average production.

Walla Walla, Washington, recently shipped to Canada two carloads of rhubarb and 12 carloads of spinach.

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One-piece Piston Rings
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because: they don't permit oil to enter the combustion chamber where it will be burned up without accomplishing *anything.* They keep oil down in the crank case and on the cylinder walls where it belongs. And at the same time Gill Piston Rings hold *all* of the gas in the firing chamber. None of it escapes past them. None of it condenses, and works down into the crank case where it thins the lubricating oil and makes it worse than useless. Gill Rings prevent that.

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Identify the Gill One-piece Piston Ring by the joint, but do not measure its merit by the joint *alone.*

Gill Service is nation wide. There are more than 2,000 stocks of Gill Piston Rings in the country. Some one of these dealers is located near you to supply you with whatever size you may want and the number you want *when* you want them. If your garage or repairman or accessory dealer doesn't happen to carry Gill One-piece Piston Rings tell him to get them from his jobber or from the nearest of our 39 Branch Offices.

Was His Reasoning Sound?

IT WAS a pleasure to spend an evening with him. An organization of which he is a member had a representative in the city of Washington during last days of the Wilson administration and the beginning days of the Harding administration. He was exceedingly anxious to know how the new administration at Washington would meet the present and oncoming problems. A question of more serious moment to him, however, was how congress would meet the problems confronting it. He is no bolshevik—he is not even a socialist. He claims to be a patriotic, law-abiding American citizen. He lives it. He teaches it. He was—but wait, let him tell his own story.

"Why is the congress of the United States so slow, so conservative, so inefficient, so non-progressive, so devoid of initiative in meeting and solving great problems? It would seem that the representative law making body of the greatest republic on earth should be strong, virile, active, energetic, progressive, emphatic and irresistible in welcoming and meeting and solving great world problems; but if is exactly the opposite. Why? Here is the answer:

"Congress is dominated by lawyers. Look at the following table:

	Congresses	
	66th 1919-21	67th 1921-23
Lawyers	298	298
Bankers	29	26
Farmers	19	21
News publishers	20	20
Manufacturers	14	16
Teachers	12	13
Merchants	12	12
Insurance	11	11
Real estate	14	11
Physicians	2	4
Owners public utilities	7	5
Clerks	....	....
Ministers	1	1

"I am making no stricture against the profession of law. I am merely stating that congress should not be dominated by such a large majority of men who, of necessity, must have the 'lawyer type of mind.' Let me explain what I mean by the 'lawyer type of mind';

"Suppose one man lets his pigs or his chickens get on his neighbors' property and destroy his growing crops. The aggrieved party goes to a lawyer's office. What does the lawyer do? Turns to his books. Studies law and custom and usage and precedent as it has been from the time when the mind of man runneth not to the contrary. Always backward looking, always hemmed in by what has gone before, always bound by established and proven and accredited facts.

"The world needs the lawyer type of mind, but in connection with it, the world needs another type of mind, the flying machine type of mind, and the congress of the United States will never blaze a pathway through the forest of the ages toward the fixed star of permanent stability and helpfulness for all mankind without raising its eyes sometimes from the beaten path for its feet to the unbeaten path of the skies. What we want, in congress and out of congress, is men of vision, men of initiative, men who are not bound by the red tape of custom, men who are eager to undertake and accomplish the impossible."

GROWING SUGAR BEET SEED

One of the first requisites of a permanent and satisfactory beet sugar industry is an adequate supply of seed of good quality. It has been scarce and as a result the production of sugar beet seed in the United States has made rapid progress during the past few years. The present annual requirement in this country is approximately 16,000,000 pounds, of which about 50 per cent is now produced within the nation's borders. With the continued development of the sugar beet industry more and more seed is required each year, but it is confidently expected by specialists of the United States department of agriculture that eventually the total American requirement will be grown in this country.

Investment Required Large

The development of this industry, according to the bulletin, has been greatest in the irrigated sections of Colorado, Montana, Utah and Idaho, and special reference is given in the bulletin to the growing of sugar beet seed in this region. The industry is best adapted to large operations, the investment required for special machinery being so great that the business is not really profitable on less than 100 acres. It is to the growing of sugar beets on a large scale that the instructions in the bulletin refer.

The sugar beet plant is a biennial and the roots do not, under normal conditions, send up seed stalks and develop seed until the second year. Beets of small size are grown the first season, are stored in pits known as silos during the winter, transplanted in the spring, and the seed is harvested at the end of the second season.

Only small sized roots not over 16 ounces in weight are used for commercial seed production. The eight ounce beets are usually considered the most profitable. These are known among seed producers as stecklings.

Roots for commercial seed production are usually started about the same time as beets intended for factory purposes, though some growers have had better success by starting their stecklings a little later, as in June. July sowings may be satisfactory if conditions happen to be just right, but usually contain a large percentage of roots too small for profitable handling. To keep the roots from growing too large, seed is generally sown at the rate of 10 to 16 pounds per acre and the plants are left unthinned. It is important that the seed be of highest quality and, because an even stand is highly desirable, the bulletin recommends that germination tests be made. Roots standing in open, exposed places are apt to develop too large to make good stecklings. This crop should be cultivated and kept in a vigorous growing condition until harvest.

Beet roots naturally start quickly and early cultivations are very important. If the soil is not stirred after the first irrigation, the earth frequently shrinks away from all but the lower part of the roots, resulting in a drying up of the beets and a decided unevenness in the maturing of the crop.

In arid sections, all seed crops may safely be cut while the foliage is still green and before the seed balls have become dry enough to shatter. Harvesting must be done quickly to prevent shattering of seed. The stalks are cut close to the ground with hand sickles and immediately shocked in bundles about 30 inches wide at the top. In 10 to 20 days they are usually dry enough to thrash or stack.

The yields of sugar beet seed in the Rocky Mountain states average approximately 1,000 pounds to the acre, with a range of 300 to 3,000 pounds.

NEED FOR STANDARDIZING CONTAINERS

TO eliminate fraud in the marketing of fruits and vegetables by the substitution of short measure packages at full measure prices is one of the principal objects of specialists of the United States department of agriculture now making a study of the hundreds of different types of containers now in use. For example, baskets which contain seven-eighths of a bushel are frequently used as bushel baskets, it being difficult to detect the short measure. In Farmers Bulletin 1196 from the bureau of markets the specialists discuss the need for standard containers for fruits and vegetables and describe how the public is sometimes defrauded because of the many types and sizes of containers now in use.

Since the passage of the federal standard barrel law in 1915 there has been steady progress in the work of

A Time Saver on the Farm

INTERNATIONAL Motor Trucks are big time savers on the farm. One farmer living ten miles from town makes the round trip with an International in less than three hours. It used to take a whole day with horses.

There are fewer chores than when horses do the hauling. The sturdy, reliable International requires little attention. Unsurpassed International service prevents delays and assures low cost operation. This saving in time alone makes the International truck more than worth its cost on the farm.

The four-cylinder block-cast, valve-in-head engine has abundant power and sturdiness to meet all farm hauling demands. Every part measures up to the rigid standard of quality set by International engineers. Capacities range from 1,500 to 10,000 pounds. Body types include grain-tight boxes, stock racks, hay racks and other styles.

Let the nearest International Motor Truck dealer show you why International trucks increase farm profits.

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eliminating unnecessary and deceptive sizes from the list of containers used in marketing fruits and vegetables. The passage of the United States container act, establishing standards for grape baskets, berry boxes and small till baskets, followed in 1916.

Multitude of Sizes Increases Cost

The serious lack of uniformity of containers increases the cost of marketing because of the greater expense of manufacturing a large number of unnecessary styles and sizes and by breakage in transit, which is sometimes directly attributable to the difficulty of loading odd sized containers. There are in common use at present about 40 sizes of cabbage crates, 20 styles of celery crates, 30 lettuce crates or boxes, 50 styles and sizes of hampers, 15 styles and sizes of round stave baskets and marketing baskets varying in size from 1 to 24 quarts, whereas relatively few standard sizes would satisfy all demands of the trade. In many cases the 6 quart market basket, the 14 quart peach basket, the ⅞ bushel bean hamper and the 5 peck lettuce hamper are confused with peck, half bushel, bushel, and 1½ bushel baskets.

AMOUNT OF DYNAMITE NEEDED TO BREAK BOULDERS

Everyone admits that large rocks in fields that are cultivated are bad from every standpoint. Yet we see big boulders on farms wherever we go. "How much dynamite would it take to break up that rock?" (pointing out a stone in one of his fields), is a question often asked by a farmer of someone he thinks has had experience in blasting.

This is a question that can be answered with some degree of accuracy. Different kinds of rock are of varying degrees of hardness The shape of a boulder also has a bearing on the subject. For instance, a smooth, round stone is harder to break than a flat one.

There are three methods employed by practical blasters to break boulders: Mudcapping, which means laying the explosive on the stone and covering it compactly with stiff mud; snakeholing, meaning to tunnel or bore under the boulder, loading the charge in the dirt up against the under side of it; and blockholeing, which means drilling into the stone itself and loading the charges in the hole.

Mudcapping requires the least labor, but the most dynamite; blockholing, vice versa. Snakeholing is the 50-50 method as between labor and dynamite.

As a general rule, it may be stated that a boulder of average hardness, 1½ feet in diameter, may be broken with a pound of 50 per cent straight N. G. dynamite, if mudcapped; with ⅓ pound in a snakehole or with ⅛ pound in a blockhole. A 2 foot boulder could be snakeholed or blockholed as economically as the 1½ foot stone, but it would probably take ½ pound more dynamite to mudcap it. A 3 foot stone would take 2 pounds for a mudcap, ¾ pound for a snakehole or ¼ pound for a blockhole. A 4 foot rock is usually too big to break with a single mudcap shot, and will take about 2 pounds of dynamite for a snakehole blast or ⅜ of a pound for a blockhole. A 5 foot boulder would need about 3 pounds for a snakehole shot and ½ pound for blockholing.

It is best for a green hand at boulder blasting to make trial shots. For instance, try a stone with the charges suggested above. Watch the result. It may show it is necessary to increase the charge somewhat or may be that less dynamite can be used.

Tamping is the important feature of boulder blasting. If the tamping is compact, the minimum amount of dynamite will be necessary and the work is most certain to be successful in every way.

MAPPING LIGHTNING ZONES FAVORED BY FOREST EXPERTS

The time worn theory that "lightning never strikes twice in the same place" has been modified by forest experts of the United States department of agriculture to this extent: Lightning very often strikes in nearly the same places. It has its zones, in other words, where its appearance may usually be counted on with each electrical storm.

With the accumulation of data on causes and locations of fires in the national forests, these lightning zones could be mapped out and protective measures introduced — such as fire lines, regulated grazing and cleaning out of dead trees—which would more or less automatically control lightning fires at the start, the foresters believe. If these lightning zones were so mapped they would doubtless show a markedly close relation to certain types of topography, and sometimes more or less localized sections of many forests.

Next to campers and sparks from locomotives, lightning ranks third as the source of fires in the national forests. The records of the forest service of the department show that for the years 1914-1918, inclusive, lightning caused on the average 30 per cent of all fires reported. However, during 1920, a very unusual season, over 50 per cent of the 6,078 fires that occurred in the national forests were set by lightning.

NATURE GUIDES IN YOSEMITE

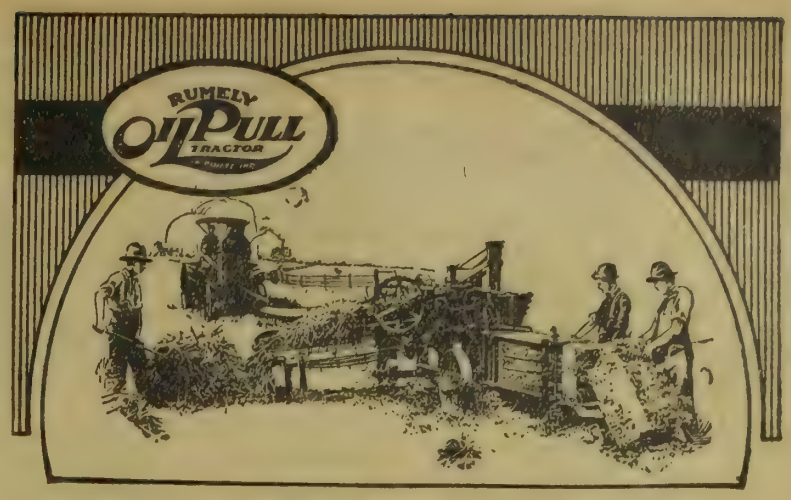
Dr. H. C. Bryant of the University of California, who knows intimately Sierra trails, will be at Yosemite national park again this year on Nature Guide Work. Dr. Loye H. Miller of the Los Angeles branch of that institution will entertain visitors with his imitations of wild bird music. Last year these scientists conducted nature study field excursions. They directed sleeping bag trips into the high Sierras which are Yosemite's back-of-beyond. They kept office hours in Yosemite Village to answer questions. They also conducted a wild flower show continuously throughout the season. They assisted 27,047 visitors to a better knowledge of the miracles of Yosemite's out-of-doors. This will be offered again under the joint auspices of the national park service and the California fish and game commission.

The California Nature Study League which is cooperating in this work will again have compact nature study libraries to assist Yosemite visitors.

CALIFORNIA'S AVOCADO SCOUT

A recent letter from Wilson Popenoe, government plant explorer in quest of things good to eat, written from some little village in a practically unknown region of Southern Ecuador, said he felt about as much out of the world as he ever had felt or believed he would feel, that he was going over some trails which explained why the country could not advance, to say nothing of the other reasons. He is finding many new fruits of undoubted value, all of which are forwarded to Washington, to be later distributed to those applying who will properly care for and report upon their development.

A well kept garden in summer means a well filled larder in winter.



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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Loan to Ex-Soldiers

There are newspaper reports that the state legislature has passed bills relating to loaning money to ex-soldiers and sailors. When will these funds be available and who has charge of it?—Subscriber, Corona.

After the legislature passes bills, it is necessary for the governor to approve them. They usually do not go into effect until 90 days after approval, so that at the present time none of these bills are laws of the state. It would probably be necessary for you to wait until summer before any definite information could be had.

Tax Exemption

How much property is a person allowed free of taxation? An automobile is jointly owned and I also own a mule. Can the tax collector require me to pay taxes upon both? — Subscriber, Thermal.

The only exemption from taxes generally prevailing is $100, the amount of furniture and fixtures in the home. The tax is not against the individual, but against the property. In the case of the auto, for any payments which you would make you would be entitled to collect one-half from the joint owner.

Trees on Line

I agreed with my neighbor to put in a row of trees upon the property line, each putting in one-half of the trees. I have put in my half row, but feel sure that my neighbor does not intend to put in his. I understand that my neighbor will have a right to one-half of the fruit growing on these trees. Is this correct and is there any way to avoid this difficulty?—Subscriber, Los Angeles.

In the case of trees planted on property line, each party in the absence of some contrary agreement is presumed to own one-half of the trees thereon planted and is thereby entitled to one-half of the fruit. The trees cannot be removed without the joint assent of the parties. Doubtless, a written contract acknowledged and recorded could be drawn which would entitle you to the whole of the fruit of the trees on this line. Such would be necessary in view of the fact that it is a grant of interest in real property.

Wind Break

A neighbor is planning to set out a wind break of eucalyptus trees two feet from the line. It is well known that beans do not grow within 15 to 20 feet of such trees—often further. Can we do anything to prevent him from planting these trees? Can we compel him to plant further from the line?—Subscriber, Santa Paula.

In a case in the state of Vermont, an injunction was issued preventing the planting of trees where it was shown that the roots and branches would be a serious injury to the lands of the plaintiff. In this county it is difficult to tell just what the decision of the court would be, as there are many conflicting decisions. A case is now pending in the appellate court which will probably determine the law in this state.

Orphan's Fund

A widow with three children from 12 to 16 years of age has a small unimproved ranch, from which her income is very small. Would she be entitled to a mother's pension? If so, how much and where should she apply?—Subscriber, Tulare County.

There is an appropriation both by the counties and by the state for assistance for the maintenance of half orphans maintained by the mother. The amount of this assistance is not to exceed $20 per month per child, one-half of which is paid by the state and one-half by the county. The mode of invoking this aid is to file a petition with the county board of supervisors, setting forth the facts in full, as to the necessity of aid. It is well to have this petition verified by the mother and also by five citizens of the county. It is thereupon filed with the board of supervisors, which has an investigation made and then makes such order as it deems best in the circumstances. If the board refuses aid, the mother has the right to appeal to the state board of control.

The boys are "knockin' um dead"

To produce large crops of quality fruit, trees and vines must be free from insect pests. It takes less money to clean your trees now there's only a few bugs, than it will when there's millions of 'em.

There's a dry spray for every one of the pests, and the "boys that know what's what are using NICO-DUST DRY SPRAYS, for Nico Products knock 'em dead.

Neither is it necessary to use expensive machinery to apply these dusts. It is possible to cover 15 to 20 acres in a day as well as to completely dust trees 20 to 25 feet high. Just use one-man hand operated Sprayers. They are sure shooters.

Every day delayed means shorter crops and poorer quality, so don't hesitate longer, but see any of the following dealers for NICO-DUST DRY SPRAYERS today:

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Culver City Feed Co., Culver City.
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Manteca Seed & Grain Co., Manteca.
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Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention

Eleagnus in Coachella

Editor California Cultivator: I note your letter from Peter Bisset in the issue of May 7 re Tamarix and Eleagnus (page 617) wherein he says no Eleagnus has been distributed in Coachella Valley. I received 16 plants four years ago (some of the varieties introduced by Frank N. Meyer from China and Turkestan). These have grown vigorously and fruited the past two years with no care and very little water. I propagated some this spring from cuttings. They root very easily, grow fast, and, if pruned, make a shapely small tree. They are very ornamental, with silvery foliage and profusion of small, yellow, heavily scented blossoms in spring. The wood is hard and dense, making excellent firewood. Can send you cuttings if you wish them. Winter is the best time to root them as they are deciduous.—W. F. A. McIntyre, Thermal.

PLANTINGS IN KINGS COUNTY

County Horticultural Commissioner L. O. Haupt of Hanford, in a recent report says: "The planting season has closed showing a heavy planting of trees and vines, especially the latter. Shortage and high price of vines curtailed the planting somewhat. The following were inspected and planted besides stock grown by the growers themselves which was not inspected: Apricots, 25,956; peaches, 33,141; prunes, 22,777; miscellaneous (trees), 5,286; grapevines (rooted), 1,189,652. The Tilton was the principal variety of apricots planted; Lovells lead in the peach varieties, while prunes were limited to the French variety almost entirely. About half of the vines were Thompson Seedless, as this variety was the only one that could be secured at reasonable prices."

Bee Hives---Transferring

By Henry Perkins

I AM frequently asked which size of hive is best, an eight or a ten frame. I invariably answer that it is largely a matter of choice on the part of the beekeeper. The bees seem to do equally well in either size. There is this difference: the eight frame brood chamber being one-fifth smaller than the ten frame size, requires less bees to occupy it and therefore will require a super sooner in the spring.

During the heavy brooding and extracting season the eight frame hive will require two supers when the ten frame hive may need but one. If the flow is a heavy one all strong colonies should be supplied with two supers irrespective of size. I think the main reason why some beekeepers adopt the eight frame hive is that they are lighter and handle easier. This is quite an item, especially to the migratory beekeeper. Ninety-five per cent of the hives used in California are the ten frame size. Whichever size is adopted the other should be eliminated, for they don't work well together. The eight frame super is too narrow for the ten frame brood chamber and vice versa. I would advise the beginner to buy his first hive already put together and equipped with full sheets of comb foundation. With a correctly assembled hive as a pattern to work from it is a simple matter to put up others from flat material. A new hive should be given two coats of paint. White is the best color.

To transfer a colony from a box hive to a standard hive is not as difficult as some suppose. It should not be attempted except when bees are strong and during a flow. Set the new hive with full sheets of foundation cover off beside the box hive. Now pry the bottom off the box and set it on the top of the new hive. Close the spaces that may occur with strips of wood so as to compel the bees to use the hive entrance. Examine them in about ten days. If conditions are right you will find that they will have begun work on the foundation in the hive. When several combs are nicely drawn it is time to smoke the queen down and put on a queen excluder. To do this make several openings in the top of the box through which to blow smoke. Smoke vigorously for several minutes, meanwhile pounding on the box. Now lift the box a few inches and give it a jounce or two and the chances are ten to one the queen will be in the hive. Put on the queen excluder and restore the box to its original position above the queen excluder. In three weeks time all the brood in the box will have hatched and the combs will be filled with honey. The colony will now be installed in the new hive where it can be easily handled. The box may now be disposed of and a super put on in its place. It must be remembered, however, that this system will only work during a good flow and good weather.

One very common way of accumulating bees is by means of decoy hives. An old hive makes the best decoy. If you use new hives for decoys put an old comb or two in each one to give them the beehive scent. Set them in a grove, or, better yet, up in the crotches of trees, not too many in one place. There is no rule to go by in placing decoy hives. Some places seem to be luckier than others. I have placed as many as ten decoys in one eucalyptus grove and caught a swarm in every one, while in another grove near by I did not get a one. It is useless to put out decoys except just before the swarming season. I am often asked how to hive a swarm. It is easy. Let them settle first. Don't smash up the wash tub to bring this about. They will settle anyway before taking flight, 99 times out of a hundred. Now put a comb of brood in a hive with a full set of frames and set it so the swarm may be shaken down at the entrance. They will go in without any coaxing. If they settle on the limb of a tree too high to reach, get a basket and a ladder. Shake them into the basket and dump them in front of the hive as before described. If they return to the limb it is evident that the queen is still there.

Efficient Production of Extracted Honey

By G. W. Bercaw

WE have found the following method of producing extracted honey on a commercial basis the most practical for Southern California, assuming, of course, that there is a constant flow of nectar under normal climatic conditions. This plan, however, might not work out so well in colder climates.

Towards the closing down of the active period, or when the rainy period commences, put a full depth super hive over the brood chamber, or lower story. Do not disturb the brood chamber during the last extracting for the season, this extra super to be provided with full drawn combs ready to fill with brood, honey or pollen, as the colony may feel inclined to do during the winter season when it is warm enough for activity, and towards the spring time. Do not put queen excluders between these two supers, but allow bees and queen full access to both portions of the hive, above and below, in order that both may be filled as much as possible with brood at the very earliest flow in spring time, which in some localities is as early as February.

Keep a close watch over them, and as near as a person can estimate the time before a heavy flow of honey, allow about 21 days, and then put a queen excluder between these two super hives, allowing all the brood and stores in top hive that you possibly can, taking each frame out and shaking it at the entrance of the colony, making sure that the queen is in the lower story of the colony, this shaking process to be done after the excluder is put between, getting and keeping the queen below without fail

As the young bees emerge these combs will be filled with honey and other stores, thereby increasing the capacity of the colony. This operation will produce an extra strong colony of bees, boiling over, so to speak, with queen below and excluder between the queen and the upper story, and when the flow comes these bees will fill the upper story in ten days so long as they do not cast a swarm of themselves and the flow in the fields is on. It might not all be capped over within this time, but rest assured nature has taught them when to cap it. This capping will depend largely upon the state of the weather and rapidity of evaporation: if this part of the operation (capping) seems slower than it should be, give them more space to work in by adding another super hive over the one already on.

When putting queen excluders on it is a good plan to examine the lower story for excessive amounts of drone comb and work it in to the upper super as much as possible. If full frames are removed they may be replaced with full sheets of comb foundation, and the good judgment of the apiarist will have to be depended upon.

It is presumed by the writer that all beekeepers who take good care of their yards work the drone combs into the surplus department, or upper story, with the worker combs below in the brood raising department of the colony.

Perhaps a great many drones will appear in the second super after excluder is placed between, but by occasionally raising the hive cover they will all escape and not return to it. These drones are an essential part of the apiary, if of good stock, where young queens are mating more or less every day during the early part of the season.

We have given this plan compre-

(Continued on Page 727.)

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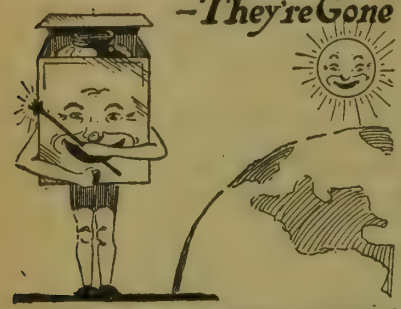

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While countless ages roll along,
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Your matchless deeds extoll'd in song
Shall consecrate this holy day.
—St. Paul Pioneer Press.

HOW TO MAKE A DRESS FORM

THE greatest difficulty of home dressmaking is fitting one's self. This is largely overcome by having a satisfactory dress form. A form which is a perfect likeness of the figure may be made by using a knit undervest as a foundation and covering it with several layers of gummed paper.

As the person for whom the form is to be made must stand during the process, the dress form should be made quickly. To do this the services of two to six people are needed. It is essential to have all materials and equipment at hand and conveniently placed before beginning to make the form.

Materials Required

Cheap, tight fitting, knit undervest with high neck and short sleeves.

Material to form collar foundation. (Muslin or knit pieces from bottom of shirt or sleeves may be used.)

Large roll gummed paper ½ to 1 inch wide. ("50-pound" quality is most satisfactory. This may be secured at most first class stationery stores.)

Pieces of cardboard about 18 to 24 inches.

Water container and sponge. Pencil. Needle and thread. Scissors. Yardstick. Washbasin and towel. Tapeline.

Directions for Making

As the dress form is to be made on the figure the model should wear comfortable shoes with heels the height she usually wears. She should remove her outer garments, see that the underclothing is smooth and well fitting, then put on as a foundation for the dress form a tight fitting undervest with high neck and short sleeves.

To make it easier to remove the form when finished, cut off buttons and buttonhole strips from undervest and sew up the opening.

Record waist measure.

Cut half the roll of gummed paper into 6 to 18 inch strips with diagonal ends. Cut four longer strips to define the long lines of center front and center back and an additional long strip for the waist.

Paste a strip of gummed paper around the waist to form a tight belt. Paste a strip vertically on each side one-eighth inch from center line of front and back (see Fig. 1). The quarter inch spaces thus made may be left partly uncovered so that it will be possible to cut through them easily and remove the halves of the dress form.

Except for these quarter inch spaces, paste strips of gummed paper over the entire vest. When pasting the strips, let them overlap from one-half to two-thirds the width of the strip. (See Fig. 1.) Make the strips smooth and press them firmly in place. It may be necessary to clip the edges of the strips in some places to make them smooth. Extend the form to cover a small portion of the upper arm, having the model hold arms slightly away from her sides. This may be done by bending her elbows a little and resting her hands on the lower part of the hips.

Add a second layer of paper, placing the strips at an angle to the first strips. Make the dress form firm enough to retain its shape by adding as many more layers as are needed.

Unless the shirt already has a collar attached, cover the neck with a piece of material, fitting it carefully and attaching it to the form with gummed paper (Fig. 2). Cover this collar foundation with strips one-half inch wide, placing them perpendicular to the neck line. Allow them to extend one or two inches below it.

Mark the hip line so that it will be an equal distance from the floor all around (Fig. 2). Measure the distance from the hip line to the floor and record this measurement. Draw short lines at intervals across the center

front and back as a guide for joining the halves of the form (Fig. 3).

Cut through the quarter inch spaces left uncovered in the center front and back of the form (Fig. 3). Carefully remove the halves.

Cut along the marked hip lines.

Hold the halves of the form up to the light to find the thin spots. Reinforce them with additional paper.

Measure the waist line on the halves of the form.

If the waist measure of the form is larger than the recorded waist measure, cut a strip equal to one-quarter of the difference from each side of the front and back.

With short strips of gummed paper join the halves of the form, matching them at the pencil lines. Reinforce the center lines with vertical strips of gummed paper.

Trim the edges of the neck and arms and bind them with short strips of paper one-half inch wide.

To make a base for the form, place it upright on the piece of cardboard and trace around the bottom of the form. Cut the cardboard on this line and fit it into the bottom of the form, trimming off the edges of the cardboard if necessary.

Attach the base to the form with short strips of gummed paper.

The Cultivator Patterns

3121. Child's Dress with Bloomers—Cut in 4 sizes: 4, 6, 8 and 10 years. Size 8 will require 3¼ yards of 36 inch material for the dress and 1¼ yards for the bloomers. Price 10 cents.

3524-3284. Ladies' Costume—Blouse 3524 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3284 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. To make the dress for a medium size will require 8 years of 36 inch material. Its width with plaits extended is about 2½ yards. TWO separate patterns 10 cents FOR EACH pattern.

3519. "Tiny Tots" Play Garment—Cut in 3 sizes: 6 months, 1 year, and 2 years. A 1 year size will require 2¼ yards of 27 inch material. Price 10 cents.

3344. Dress for Work or Porch Wear—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size requires 6 yards of 36 inch material. The skirt with plaits extended measures about 1¾ yards. Price 10 cents.

3370. Girl's Blouse Suit—Cut in 4 sizes: 8, 10, 12 and 14 years. A 12 year size will require 3⅞ yards of 38 inch material. Price, 10 cents.

3514. Misses Dress—Cut in 3 sizes: 16, 18 and 20 years. An 18 year size will require 5⅛ yards of 40 inch material. The width of the skirt at the lower edge is about 2½ yards. Price 10 cents.

3507. Ladies' Corset Cover—Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. A Medium size will require 1⅞ yards of 36 inch material. Price 10 cents.

3510. A Comfortable Apron—Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. A Medium size will require 6¾ yards of 27 inch material. Price 10 cents.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH

How to Order Patterns

Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cents) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS; we guarantee safe delivery of all patterns.

CATALOGUE NOTICE

Send 15c in silver or stamps for our Up To Date Spring and Summer 1921 Catalogue, containing over 500 designs of Ladies', Misses and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various, simple stitches) all valuable to the home dressmaker.

PATTERN DEPARTMENT
California Cultivator
Los Angeles

For use in fitting waists the form may be placed on a table. To make it convenient for fitting dresses or skirts it is necessary to mount the form on a standard. Make the standard the exact height of the distance from the hip line to the floor.—Dept. Home Economics, Ohio State Univ.

EGG BREADS FOR SPRING BREAKFASTS

Eggs and milk are plentiful and now is the time to make egg breads. The milk and eggs that go into muffins and cakes are not lost; you get it all back in the bread. There is more food in cornmeal muffins than in wheat biscuit and less meat can be served with such breads.

Below are suggestions for seven breakfasts and recipes for seven egg breads.

Sunday

Cornmeal Waffles, Honey, Rice and Milk: One-half cup cornmeal, ½ cup flour, 1 tablespoon melted butter, ½ teaspoon soda, 1 cup boiled rice, 2 eggs well beaten, 1 teaspoon salt, 1 cup sour milk. Sift together the flour, soda and salt; add the other ingredients and beat thoroughly; have irons hot and well greased.

Monday

Corn-rice Muffins, Baked Potatoes, Chicken Hash: One cup cornmeal, 1 cup boiled rice, 1 cup milk, 2 eggs, 1 tablespoon fat, 1 teaspoon salt, 2 teaspoons baking powder. Mix cornmeal, rice, milk and shortening together; beat five minutes; then add well beaten eggs, beat two minutes, then add the baking powder. Bake in hot greased muffin tins or in shallow pan. Boiled hominy may be used in the above recipe instead of rice.

Tuesday

Buckwheat Muffins, Boiled Hominy, Bacon: One cup milk, 1 tablespoon fat, 1 tablespoon syrup, 1 egg, 1 teaspoon salt, 4 teaspoons baking powder, 1 cup wheat flour, ⅞ cup buckwheat flour. Sift dry materials together. Add to the cup of milk the melted fat, syrup and beaten egg. Combine these two mixtures, stirring lightly without beating. Bake about 30 minutes in a moderately hot oven.

Wednesday

Spoon Bread, Baked Potatoes, Salt Fish: One cup white cornmeal, 1½ cups boiling water, 1 cup sweet milk, 1 teaspoon salt, 2 teaspoons baking powder, 2 eggs. Sift meal into a bowl. See that the water is boiling vigorously. Pour over the meal, stirring at the same time. When lukewarm, add the sweet milk, the well beaten egg yolk and beat thoroughly. Add the baking powder and last fold in the stiffly beaten whites. Pour into a hot well greased baking dish and bake in a moderately hot oven 30 minutes. Serve from the baking dish with a spoon.

Thursday

Rice Crumpets, Syrup, Oatmeal: One and one-half cups milk, 1 tablespoon fat, 3 eggs, 1 teaspoon salt, 2 teaspoons baking powder, 1 cup boiled rice, 1 cup cornmeal, ½ cup flour. Combine as for muffins. Cook on hot greased griddle.

Friday

Barley Muffins, Hash Brown Potatoes, Bacon: One cup milk, 1 tablespoon fat, 1 tablespoon syrup, 1 egg, 1 teaspoon salt, 4 teaspoons baking powder, 1 cup wheat flour, 1½ cups barley flour. Follow directions for making buckwheat muffins.

Saturday

Oatmeal Muffins, Creamed Potatoes, Scrambled Eggs: One cup milk, 1 tablespoon fat, 2 tablespoons syrup, 1 egg, 1 teaspoon salt, 4 teaspoons baking powder, ½ cup wheat flour, 1¼ cups oatmeal. Sift the salt, baking powder and the flour together, mix in the oatmeal. Add to the cup of milk the melted fat, syrup and beaten egg. Combine these two mixtures, stirring lightly without beating. Bake about 30 minutes in a moderately hot oven. Use granulated oatmeal or put rolled oats through food chopper.

It isn't wise to speak the truth at all times. Silence is often more satisfactory.

HOUSEHOLD QUERIES

Another Poem Requested

Would some of the subscribers of the home department please send the words of the song, "The Mill Never Grinds With the Water That Has Passed." I am very anxious for the words of that song.—Subscriber, Long Beach.

We presume the poem given below written by Sarah Doudney, afterwards Mrs. Clark, is the one requested. Other references to grinding with water which has passed are found in Turkish and Persian Proverbs by Trench. One in particular is:

"Oh, seize the instant time; You never will
With waters once passed by impel the mill."

Another reference in the works of Herbert: "The mill will never grind with water that is past."

The authorship of the song has been claimed by several writers. However, Miss Doudney is now recognized as the author. The song written by her is:

THE LESSON OF THE WATERMILL

By Sarah Doudney

Listen to the watermill
Through the live-long day,
How the clicking of its wheel
Wears the hours away!
Languidly the autumn wind
Stirs the forest leaves,
From the fields the reapers sing,
Binding up the sheaves;
And a proverb haunts my mind
As a spell is cast:
"The mill cannot grind
With the water that is past."

Autumn winds revive no more
Leaves that once are shed,
And the sickle cannot reap
Corn once gathered;
Flows the ruffled streamlet on,
Tranquil, deep and still;
Never gliding back again
To the watermill;
Truly speaks that proverb old
With a meaning vast—
"The mill cannot grind
With the water that is past."

Take the lesson to thyself,
True and loving heart;
Golden youth is fleeting by,
Summer hours depart;
Learn to make the most of life,
Lose no happy day,
Time will never bring thee back,
Chances swept away!
Leave no tender word unsaid,
Love, while love shall last;
"The mill cannot grind
With the water that is past."

Work while yet the daylight shines,
Man of strength and will!
Never does the streamlet glide
Useless by the mill;
Wait not till tomorrow's sun
Beams upon thy way,
All that thou canst call thine own
Lies in thy "today;"
Power and intellect and health
May not always last
"The mill cannot grind
With the water that is past."

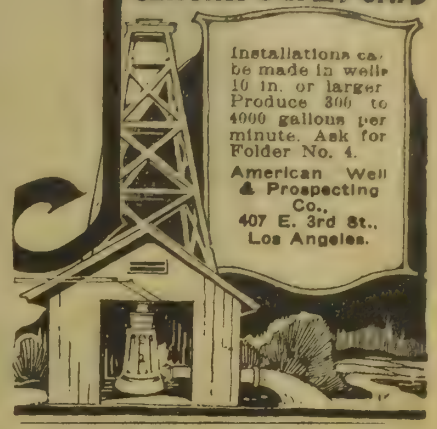
Oh, the wasted hours of life
That have drifted by!
Oh, the good that might have been,
Lost without a sigh!
Love that we might once have saved
By a single word.
Thoughts conceived but never penned,
Perishing unheard.
Take the proverb to thine heart,
Take and hold it fast,
"The mill cannot grind
With the water that is past."

DOLLARS VS. IDEAS

You have a dollar,
I have a dollar,
We swap.
Now you have my dollar,
And I have your dollar,
We have neither gained a whit.

But you have an idea,
And I have an idea,
We swap.
Now you have two ideas.
And I have two ideas.
That is the difference between
Dollars and ideas.

JOHNSTON TURBINE CENTRIFUGAL PUMPS



Installations can be made in wells 10 in. or larger. Produce 300 to 4000 gallons per minute. Ask for Folder No. 4.

American Well & Prospecting Co.,
407 E. 3rd St., Los Angeles.

RAISE GUINEA PIGS FOR U.S.

We supply stock and buy all you raise. Laboratories need thousands - big money — easy to raise.

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DR. J. A. ROBERTS LABORATORIES
6634 Sunset Blvd. HOLLYWOOD, CAL. — Dept. QC

Let the SUN give you plenty of HOT WATER

DAY & NIGHT

SEEMS impossible, doesn't it: But a DAY & NIGHT Solar Heater will actually deliver an abundance of piping hot water in your home every hour of the twenty-four, because it concentrates and stores the heat of the sun's rays. Thousands of successful installations in Southern California provide actual proof.

Think of the saving in gas this system insures you—fully three-fourths of your expense of heating water. Think what a necessity the DAY & NIGHT is if you have no gas supply. Adapted to country or city home—mansion, bungalow. Can be installed in new buildings or old; no expense after first cost. Write for illustrated folder giving detailed explanation of the DAY & NIGHT. Address Dept. E.

Day & Night Solar Heater Co.
632 Metropolitan Bldg., Fifth and Broadway
Los Angeles

When crops begin to move

When crops begin to move marketward, highways are crowded with busy trucks carrying the wealth of the soil to millions of waiting consumers.

Every truck should be correctly lubricated; every truck should give every ounce of power and save every valuable hour to work well done. But you cannot expect maximum service from your truck unless it *is* correctly lubricated.

Zerolene is Correct Lubrication,—a high-quality lubricant in a grade for each type of engine. Get a Zerolene Correct Lubrication Chart. Follow its recommendations. Get full service from your truck engine.

STANDARD OIL COMPANY
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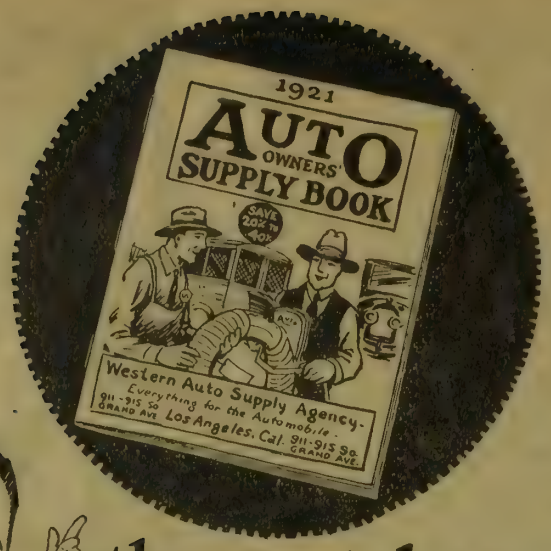
The Standard Oil
ZEROLENE
For Motor Cars

A grade for each type of engine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AUTO OWNERS' SUPPLY BOOK
Western Auto Supply Agency
Everything for the Automobile
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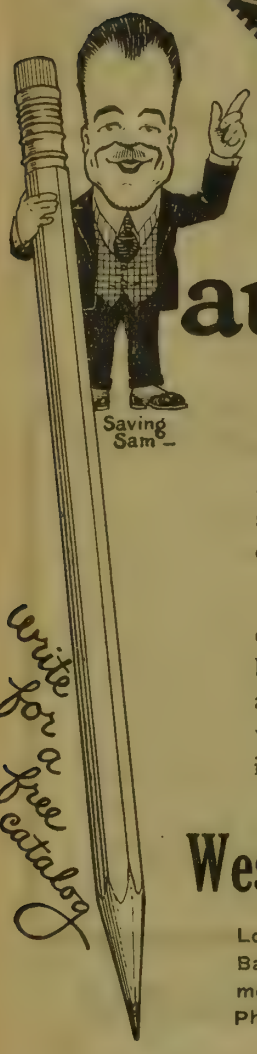

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Our "same-day" mail order service and our 20% to 40% lower prices made possible by huge buying power gives you the same advantages as the man in the city, no matter where you live. Try us on one order. Satisfaction guaranteed.

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The Fresno Dust Sprayer

Unexcelled for Efficiency and Durability
Simple—Mechanically Perfect
LARGE CAPACITY
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REGULATED SIFTER

Fresno sprayers sold over 7 years ago are still in use with no replacements needed. The bellows is on top and can be easily mended or replaced when desired. A large-sized discharge hose and pipe are furnished so that the most effective work can be accomplished.

If your dealer cannot supply you, order or write us.

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We Are Prepared to Sign Five Year Contract for

LEMONS

at $30.00 Per Ton. Oranges $40.00 Per Ton
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Apply in Person

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When Writing Advertisers Mention California Cultivator.

The New Pacific Dehydrators League

By Arthur W. Christie

INTEREST in dehydration, which gradually awakened during the late war, has recently grown phenomenally. During the past two years about 150 new dehydrators, with an aggregate capacity of 1,350 tons per charge, have been erected in California, and these figures will be considerably increased in 1921.

This year California expects the largest fruit crop in her history. Probably the severe April frosts have seriously reduced expected production in certain sections, but this may only be a blessing in disguise. There is no escaping the fact that the profitable disposal of the 1921 fruit crop is a serious problem.

Financial conditions in the canning industry are such that many canneries will be unable to operate this year and those which will operate can do so only on fruit prices about one-third of last year's prices. The total amount of fruit which will be canned is expected to be 25 per cent less than in 1920.

The fresh shipment of fruit east will probably exceed any previous year, but this increase will be small in proportion to the increased production. Shortage of refrigerator cars and other transportation facilities, coupled with high freight rates, necessarily limit fresh shipment.

After a review of the entire situation it seems inevitable that a larger quantity of fruit must be dried than ever before. This is a logical disposition of the surplus crop because dried fruits can be produced, transported and marketed much more economically than in any other form. Unfortunately, many sections are insufficiently provided with sun drying facilities, especially trays. At present prices efficient dehydrators can be erected just as cheaply as to provide the land, trays, tracks, etc., necessary to dry an equivalent quantity of fruit in the sun. In addition to this we have the added advantages of dehydration in furnishing a cleaner, better product under controlled conditions. The year 1921 will emphasize the importance of dehydration to California horticulture.

The canners as well as the producers of sun dried fruits have already realized the importance of organization in the standardization and marketing of their products and are now reaping the benefits of their foresight.

If dehydrated California fruits are to attain the importance their quality merits two considerations are of paramount importance, namely: Standardization of the products of various plants; introduction of the products to the trade.

Realizing the necessity for action a group of representative dehydrator operators recently met in San Francisco and organized the "Pacific Dehydrators League." The objects of this league, which is copied very closely after the very successful Canners League of California, are to bring in closer touch those persons engaged in the dehydration of fruits, vegetables and other food products, to diffuse accurate and reliable information on dehydration, and to procure uniformity and certainty in the production and marketing of dehydrated products. The charter members of the new organization are: A. R. Sprague, Caladero Products Company, Atascadero; J. B. Howell, National Ice and Cold Storage Company, San Francisco; C. Grange, Grange Dehydrating Company, Yountville; S. M. Simon, Burbank Canning Company, Burbank; J. T. Cowles, Setchell de Journell Company, Santa Rosa; W. H. Ewell, Ewell Fruit Company, Watsonville; E. D. Valliant, prune grower, San Martin; L. A. Walton, fruit grower, Yuba City; Fred Brandt, Brandt Dehydrating Company, Healdsburg; R. L. Puccinelli, Puccinelli Dehydrating Company, Los Gatos; M. S. Yamasaki, California Evaporated Products Company, Los Angeles; C. A. Shephard, National Ice and Cold Storage Company, Gilroy.

At the first annual meeting on March 29 the first seven of the above representatives were elected as a board of directors from which the following officers were elected: J. B. Howell, president; C. Grange, first vice president; J. T. Cowles, second vice president; C. A. Shephard, secretary-treasurer; A. R. Sprague, C. Grange, J. T. Cowles, executive committee.

E. D. Valliant will represent the league in negotiations with dried fruit packers, W. H. Ewell will deal with apple problems, and S. M. Simon represents the league in Southern California.

The initiation fee was fixed at $100 and monthly dues at the rate of 10 cents for each $1.000 of capital in plant investment, minimum dues being $2.50 per month.

The league has already started active work not only in securing additional members but in planning helpful assistance to its members during the coming season. The University of California, as represented by Professor W. V. Cruess and the writer, has been made an honorary member in order that the league might keep in close contact with the investigational work in dehydration.

The formation of this league is unquestionably a step in the right direction and it is hoped that the league will grow in strength and service to the dehydrators of California.

All persons interested in dehydration are urged to get in touch with the Pacific Dehydrators League, the office of which is located in 406 Postal Telegraph Building, San Francisco.

EAT MORE CALIFORNIA FRUIT

The Bergtholdt idea is given new impetus by endorsement by some of California's largest producers. Mr. Hecke of the state department of agriculture, Mr. Daniels, state market director, the governor and others are fully endorsing it. We are glad to quote from letters as follows:

Governor Wm. D. Stephens

"Your plan is a good one, worthy of encouragement and adoption. If the housewives of America can be educated to realize the quality and value as food of California fruits — fresh, dried or canned—the demand for them will grow to such proportions as will, with fair and just freight rates established, insure the profitable cultivation of every acre of California soil adapted to fruit raising."

Geo. H. Hecke, Director of Agriculture

"I congratulate you upon coming to the front with a workable scheme for making more widely known the good things that inadvertently so many millions never see, hear of, nor use.

"It occurs to me that you are not advertising California fruits in the ordinary way, but in carrying out your plan you are going to tell housewives of the wholesomeness and goodness of these products, call them to their attention, and after they are introduced and once sampled they will advertise themselves. Science has determined that the fruit portion of a meal is as essential to the well balanced ration as meat, bread and vegetables.

"The California department of agriculture is advertising California fruits, and that is the most acceptable way from the consumer's point of view. Through the standardization regulations the purchaser, even at a great distance, is assured that 'what he orders he will get'—full measure, properly matured, well packed, fresh and wholesome.

"I agree heartily with your plan and wish you success."

Gilbert B. Daniels, State Market Director

"Any wisely conceived and concerted movement that will add to the cooperative marketing efficiency of the state of California naturally attracts the thought and interest of this office.

"To not only establish a market for the products of our orchards but to stabilize land values, to develop the fruit growing districts and put them on a solid basis, is a movement worthy the best thought of all California.

"Therefore, it is with more than the usual amount of interest that I unqualifiedly endorse the movement suggested by the editorial comment of the agricultural and horticultural press of this state. Be assured that you can count upon this office in promoting the idea in whatever degree possible."

AMERICAN DELEGATE TO ROME

William H. Stevenson, vice director of the experiment station of the Iowa State Agricultural College, has been appointed permanent delegate of the United States to the International Institute of Agriculture at Rome, according to an announcement just made by the United States department of agriculture. The appointment became effective May 1, and was made to fill the vacancy caused by the resignation of Dean Thomas F. Hunt, president of the State Agricultural College of California, who served as the United States member of the permanent committee of the institute while he was on sabbatical leave from the university.

It is planned that Prof. Stevenson will spend two or three weeks at the department of agriculture in Washington in order to become familiar with its organization, work and officials, and to get suggestions for the improvement and development of the service of the International Institute of Agriculture at Rome which will be of great interest and value to farmers and business men of the United States and other countries.

As the permanent delegate of the United States, Prof. Stevenson will be a members of the permanent committee of the institute, which is made up of one delegate from each of 61 member countries. This committee constitutes a board of directors which meets periodically to plan and carry out the work of the institute. The board is charged especially with carrying out the program outlined by the general assembly of the institute, which meets every two years. The permanent delegate will look after the interests of the United States, such as improvements in reporting crop conditions, production and prices of agricultural products in all countries, and in working out world tables showing surplus or deficiencies in crops. He is also one of the United States representatives at the biennial meetings of the general assembly.

PREVENT FIELD AND FOREST

Abundant and warm winter rains extending well into spring have made this an exceptionally good growing season in every section of California. Along every road and highway and covering the hills and valleys is a luxuriant growth of grass, grain and hay, all of which will be dry within a few weeks. Then it will burn like tinder. Any burning match, cigar, cigarette or tobacco will start a fire that will spread rapidly, soon get beyond control, and cause the destruction of much forage, grain, hay, timber, improvements and watershed cover.

During 1920 there were over 2,100 field and forest fires in California, of which about 700 were caused by lightning. The other 1,400 were caused by tourists, hunters, campers and others and nearly all of them could have been prevented if people had only been careful. The grain destroyed would have fed over 80,000 people a year and the timber burned would have built 5,000 good houses. The other property and commodities destroyed were worth more than the grain and timber. Very few of the lightning fires destroyed any property, leaving careless people to be charged with the whole loss.

Be careful in order to prevent field and forest fires—that is the slogan. Everyone is helping to boost it—the United States forest service, the state board of forestry, the schools, the automobile associations, the California Forest Protective Association, farmers, timber owners, merchants, resort managers and county supervisors.

CARGOES OF GIFT CORN

Bearing in her hold the first of the gift corn donated by the farmers of America through the American Farm Bureau Federation to relieve the starving in Central Europe, the steamship Gdansk of the Polish-American Line slipped her moorings at the Brooklyn Army docks, New York, recently and steamed out New York harbor on the first lap of her voyage to Danzig, Poland. No demonstration, save for the goodbyes of friends of her more than 800 passengers—mostly Poles returning to their native land—marked the sailing of the Gdansk on the farmers' errand of mercy.

The Gdansk's cargo consisted of 37,500 bushels of American grown corn in the form of corn flour, especially ground by a New York mill.

ROEDING IN JAPAN

A card to the Cultivator from an obscure village in Japan reads: "I wish you could be with me for a few days to enjoy visiting the many beautiful spots. There is such a variety of plant life and such a variety of scenery one cannot but help enjoying a spot like this—away from the bustle of the larger cities.—Geo. C. Roeding."

Coachella Valley onion shippers are not only going to grade their crop in accordance with U. S. standards this season but have decided to tell the trade through an extensive advertising program the superior merits of their product. An advertising fund is already available for use this season and it is planned to create an assessment of one-fourth cent per crate to continue advertising in the trade papers next year. This crop, reaching the Eastern markets about three weeks or a month after the Texas onion crop has started, always meets with considerable competition, but this year with the use of federal grades, a careful inspection system and a national advertising program, there is no question but that the Coachella Valley onions, which are really of superior quality, will compete more favorably than ever with the Texas crop.—H. H. W.

Warranted to Give Satisfaction

Gombault's

Caustic Balsam

Has Imitators But No Competitors

A Safe, Speedy, Positive Remedy for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs and Lameness from Spavin, Ringbone and other bony tumors. Cures skin diseases or Parasites, Thrush, Diphtheria. Removes Bunches from Horses or Cattle.

As a Human Liniment and Antiseptic for external use it is invaluable.

Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price $1.75 per bottle. Sold by druggists, or sent by parcel post, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

By Waries Professor Grand Champion

Indiana State Fair. Dam, King Orion Lady 2nd. Litter mate to King Orion Cherry, second prize junior yearling boar state fair.

Weanling boar pigs $25.00 each.

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Livestock Auctioneer
40th & R Streets Sacramento, Cal
Write or Wire for Sales Dates

USE SHIRE HORSES

Breed your mares to Shire Stallions, good Shire Geldings are in demand. Get some registered Shire Mares.

Shire owners, record colts young, fees are double after one year old. Prepare Shires for fall shows, premiums are very liberal this year. For information on Shires write

W. G. Lynch, Secretary, American Shire Horse Association, Tonica, Illinois.

California Breeders

have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

California Breeders Sales & Pedigree Company

C. L. Hughes, Sales Mgr. Sacramento, Cal

3 Bulls—Service Age

Advanced Registry Dams. Sire's dam a 34-lb. show cow. Guaranteed healthy and right in every way. Prices Reasonable.

LOS ANGELES COUNTY FARM
Hondo, California

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PRICES REDUCED

But there has been absolutely no reduction in quality of material and workmanship. We furnish printed instructions for erection with every tank and if our tanks are erected in accordance with our instructions we guarantee a Tight Tank.

We will ship you immediately on receipt of order any standard Remco Tank of the dimensions or capacities shown below, at the new prices here listed.

WATER AND OIL TANKS

Made from 2-inch Clear Air-dried Redwood

Capacity Gal.	Capacity Bbls. 42 Gals.	Outside Dimensions Diameter feet	Diameter inch	Height feet	Height inches	Shipping Weight Pounds	Price
500	12	5	5	3	11	440	$27.20
750	18	5	9	4	11	580	34.85
1,000	24	6	6	4	11	655	39.95
1,500	36	7	1	5	11	830	51.00
2,000	48	8	1½	5	11	975	59.50
2,500	60	8	4	6	11	1,145	68.85
3,000	71	9	1½	6	11	1,270	78.20
3,000	71	8	5	7	11	1,290	78.20
4,000	95	9	10½	7	11	1,555	98.60
4,000	95	9	2½	8	11	1,580	98.60
5,000	119	10	11	7	11	1,745	111.35
5,000	119	10	3½	8	11	1,790	111.35
6,000	143	11	4	8	11	2,010	125.80
7,000	166	12	1½	8	11	2,160	134.30
8,000	190	12	3	9	11	2,375	147.90
10,000	238	13	7½	9	11	2,770	170,00

All prices are for tanks complete, ready to erect, K. D., F. O. B., Pittsburg, Cal.

The above tanks are standard sizes. We design and manufacture tanks of all sizes up to 650,000 gallons capacity and tanks of special shapes to meet all requirements.

Remco Tanks are banded with round steel hoops and malleable lugs. Keep water cool—free from taint or odor.

REMCO PIPE PRICES HAVE ALSO BEEN REDUCED

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Los Angeles Office: 308 East Third Street

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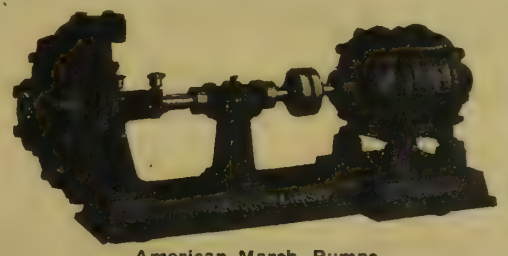


American-Marsh Pumps
(closed runner)

Cost less than any other style of pump—cost less to maintain. No end thrust trouble. Nothing to make trouble. Only 15 parts including ring-oiling bearings and base plate. Belted or Motor Driven.

Write for Bulletin No. 24

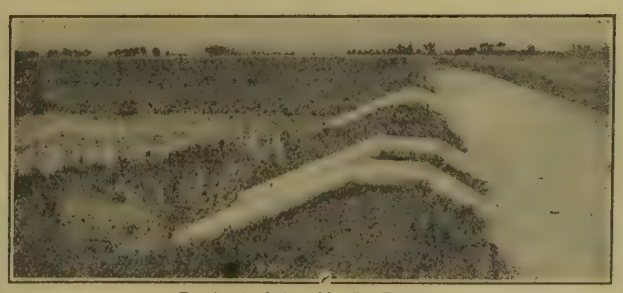
Let us know your water needs. We are also agents for Kewanee Water Supply Systems: Luitwieler Deep Well Pumps; Hill Deep Well Pumps.

SIMONDS MACHINERY COMPANY
117-121 New Montgomery St., SAN FRANCISCO

Dealers — If we are not represented in your locality, write for our profit-making proposition.

The "SIPHON SYSTEM"

It Takes the "Gate" Out of Irrigation



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IRRIGATING SIPHON CO. P. O. Box 654 **Woodland, California**

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BURR FARM——AGEE BROS

60---REGISTERED HOLSTEINS---60

GUARANTEED BREEDERS—TUBERCULIN TESTED
SOLD ON MOST LIBERAL TERMS

Thursday, June 9, at 10 A.M.
at Burr Farm, Los Angeles, Cal.

Most of the offering is made up of fresh and heavy producing young cows, with a few heifers well along with calf, and only two or three open heifers. The females include:

A 27 POUND JUNIOR 3 YEAR OLD daughter of It, out of a 27 lb. 3 year old daughter of the century sire Changeling Butter Boy. Now fresh and on yearly test.

A 27 POUND granddaughter of Johanna McKinley Segis, now on yearly test and bred to King Korndyke Pontiac 20th.

A 26 POUND COW that milked 711 lbs. in 7 days. Now on yearly test and bred to King Pontiac Tola Ormsby.

A 25 POUND COW, now on yearly test and bred to King Pontiac Tola Ormsby.

TEN OTHERS with records above 20 lbs. butter in 7 days, and several with yearly records up to over 740 lbs. butter.

MANY OF THESE CHOICE FEMALES are in calf to King Korndyke Pontiac 20th, Sir Veeman Korndyke Pontiac, King Pontiac Tola Ormsby, Toyon Fayne Valdessa, or Sir Manuel Hengerveld, each of which is out of a 30 to 36 lb. dam or a dam that made over 1,000 lbs. butter in one year, or both.

EIGHT YOUNG BULLS IN THE OFFERING

Four of these are sired by Toyon Fayne Valdessa, every one out of an official record dam, one each by Sir Veeman Korndyke Pontiac, Segis Pontiac Abbekerk, Sir Veeman Helena Korndyke, and King Pearl Segis Pontiac, out of high class dams.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

TERMS OF SALE: One-third cash, balance in twelve equal monthly payments with approved note and livestock insurance on deferred payments, but arrangements for credit must positively be made before sale, otherwise terms are cash.

Auctioneers:
Rhoades & Rhoades
Los Angeles

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Calif.

DISPERSAL SALE
50 Registered Holsteins 50
H. A. De Wolf Herd
Ripon, Cal.
Tuesday, June 14, 1921

It will be remembered that when the foundation of this herd was laid some years ago Mr. De Wolf was a prominent buyer of some of the better things in a number of the good sales. The present herd although not large in numbers is made up of choice individuals, including a splendid lot of young granddaughters of the good bull Sir Skylark Ormsby Hengerveld.

The offering will consist of forty females and ten bulls, including the two herd sires, one of which is a son of Sir Skylark Ormsby Hengerveld and the other a son of King Mead of Riverside.

Watch for details later, but write for catalog now.

Auctioneers
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

FOR SALE

REGISTERED HOLSTEIN FEMALES

Tuberculin tested and sold on money-back guarantee.

Yearling and Two-year-old Heifers

bred to freshen during the summer and early fall to sons of

KING SEGIS PONTIAC

whose sons have sold for more money than those of any other bull of the breed
P.S.—Can also spare a few fresh cows of high production.

Work Out Dairy Marketing Plan

Delegates from 21 states and 61 cooperative dairy marketing organizations were present at the National Milk Marketing Conference held in Chicago, May 3 and 4, at the call of the American Farm Bureau Federation. The resolutions, passed without a dissenting voice or vote, provide as follows:

The president of the American Farm Bureau Federation, with the advice and consent of the National Milk Producers Federation, was authorized to appoint a committee of 11 men, representative of the dairy industry of the United States, to study the various dairy marketing organizations, provide plans for marketing organizations in organized territory, strengthen existing organizations, recommend plans for the correlation of the various dairy products cooperative marketing activities in a national way, and consider such other problems as may be deemed of value in the interest of the producers and the consumers.

The American Farm Bureau Federation was requested to appoint a dairy marketing specialist to cooperate with the Committee of Eleven and to function in the interests of marketing dairy products in general.

The American Farm Bureau Federation, in cooperation with state farm bureau federations and milk producers organizations, was requested to undertake a producers advertising and publicity campaign designed to increase the consumptive demand for dairy products.

The Capper-Volstead bill, clarifying the federal laws so as clearly to authorize the cooperative marketing of farm products, was endorsed.

Congress was asked to amend the warehouse act to include dairy products and thereby permit better marketing and financing.

A protest was filed against present freight rates on agricultural products, and the senate investigation was commended.

The manufacture of butter substitutes out of vegetable oils was opposed as injurious to the development and health of present and future generations.

Legislation was urged to prevent the manufacture and sale of filled milk and to prohibit the replacement of 40,000 American dairy cows by the "cocoanut cow of the South Sea Isles."

An hourly wage was demanded for the farmer and his help that will comport with the hourly wage of equally skilled labor in other industries, and a tariff was urged giving the products of the farm protection equivalent to that accorded the products of the factory.

The appreciation of the milk producers of the country was voiced to the American Farm Bureau Federation for calling the conference and inaugurating a movement for the more extensive and intensive organization of dairy farmers in cooperative marketing associations.

Secretary J. W. Coverdale of the American Farm Bureau Federation called the conference to order and was elected permanent chairman. A two day program had been carefully worked out by R. C. Pollock, E. B. Heaton and S. W. Tator of the American Farm Bureau Federation staff covering the cooperative marketing plans in vogue for the large cities, for cities of less than 75,000 population, and for small towns; the problems in unorganized territory; the cooperative marketing of butter and cheese, and the disposal of skimmilk and whey. The gathering proved one of the most vital marketing conferences ever held, and it is believed that its ultimate effects will be far reaching.

Report of C. C. A. Marketing Committee

This is the most critical time of the year for the cattlemen of the state of California. Some owners are apparently being forced to sell at the reduced prices offered by the packers. If possible, hold your cattle. There is no surplus of beef cattle in the state, and if owners will hold off selling for a month or perhaps less than a month the supply will be spread out over the proper time and seven cents for cows and eight cents to eight and one-half cents for steers will be realized for number 1 fat cattle.

Week ending April 30, 1921: Number of cattle slaughtered in San Francisco. 5,500; Oakland, 900. Week ending May 7, 1921: Number of cattle slaughtered in San Francisco, 4,525; Oakland, 750; Los Angeles, 2,525. Week ending May 14, 1921: Number of cattle slaughtered in San Francisco, 3,125; Oakland, 1,400; Los Angeles, 2,770; (674 from Idaho).

The above figures show a decrease each week in the receipts of cattle in San Francisco and an increase in Oakland and Los Angeles. Chicago price today is ten cents higher than a week ago. Prices in eastern northern markets have advanced steadily since April 28.

No contracts are being made. Only day to day or week to week "buys" are being brought into the market centers. From every channel and every source of information we are assured of this fact: There is a shortage of beef cattle in California.

Do not ship on consignment under any circumstances. Do not be misled by prices quoted in the daily papers f. o. b. San Francisco and other central markets, as in many cases their price quotations are erroneous, inasmuch as packers pay the same or higher prices in the country the same day. Do not offer half fat cattle for sale as beef as this invariably has a tendency to depress the market. Report to R. M. Hagen, Secretary, 224 Sharon Building, San Francisco, any sales of beef cattle.

Last week fat grass steers sold f. o. b. Los Angeles at eight and one-half cents for May and June delivery. Also fat steers sold f. o. b. Anaheim at eight and one-fourth cents last week Veal sold last week at Anaheim at ten cents. One car veal is being delivered to Los Angeles this week at 12 cents. In Imperial steers have recently sold at eight cents f. o. b. cars there. Los Angeles buyers have recently been operating as far north as Stockton and it is expected that buyers from Portland and Seattle will be in the market for California cattle in the near future.

GOATS AND GOATS

By Dr. C. P. De Langle

Probably the most numerous milk goats in the country are those which can claim no pure bred ancestry and are known as natives or common goats. "Native," however, applied to a goat that can trace no ancestry is a misnomer, as only the wild goats of the mountains are really natives, and these have never been domesticated. Among our common goats we find all colors, sizes, and sometimes traces of individual breeds of typical races. Some of these have furnished fine specimens. Beside the Mexican goat we have the Catalina Island and the Guadalupe goat, some of which have proven good milkers, and when all the does are bred to pure bred bucks they have developed into fine grades which are profitable for home or dairy use. Although these goats are multicolored and of varying shape the great majority are white, and though generally spoken of as scrubs they have furnished individuals giving 3 to 5 quarts per day and over. They are not profitable when giving less than one quart. They make good foundation stock when selected nearest to the breed desired and crossed with pure breds.

There are other types of goats that have been imported from time to time. The Alpine are claimed to be the greatest milkers of any in their native land. Then there are Spanish goats, goats with very short ears, a few scattered representatives of the Scandinavian and German goats, the most numerous being the Guggisburger, and many others all having some good points. But none are to be compared with the adopted type in this country, the Swiss breeds and the Anglo-Nubians, and all their variations which have been found to be the best dairy animal for domestic purposes. They are indeed man's best friend and the most intensive and economical milkers here.

Feeding Pigs

As the season of the year which brings a great percentage of the year's pigs approaches we naturally find the subject of the rationing of young pigs an interesting one. Little pigs do not need any feed other than their mother's milk for the first two or three weeks of their lives. When they have reached this age they will begin to nibble on shelled corn, a little of which should be fed them in a place outside the pen. By the time they are from three to four weeks old they may be fed a small amount of skimmilk in which has been mixed a little ground feed, such as shorts. They should have a trough of their own where it cannot be reached by the mother.

The amount of mixed feeds and shelled corn given small pigs may be increased till they are ten weeks old, when they should be weaned. When they are deprived of their mother's milk, which up to their weaning time supplies the basis of their nourishment, it is very important that they be fed a ration capable of producing the most rapid growth and best health. At the time of weaning the feed should not be greatly changed except to increase the amount until the pigs have become accustomed to the loss of the mother's milk. If pasture is available the quantity of corn may be increased. If the pigs must be kept in a dry lot, a larger proportion of soft feeds should be used.

It is to be remembered that the purpose in feeding pigs from the age of two months up to the age of six or seven months is not to fatten them but to cause them to grow large frames and develop good constitutions. If they are fattened too early it stops their growth and reduces their vitality, thereby making it unprofitable to continue feeding them up to full maturity. Growing hogs, therefore, require muscle and bone making feed instead of a ration that will fatten them. They need exercise to promote their growth and give them strong, vigorous frames for the taking on of fat. For these reasons pasturage should supply the basis of the young hogs' ration. Clover, alfalfa, peas, rape, vetch and other succulent plants are the cheapest and best feeds for the period between weaning and fattening time.

To this green feed will be added a certain amount of corn or other grain in order to make a balanced ration, but the poorest and most expensive way to grow pigs is to shut them in a dry lot and feed them a ration of corn alone. The farm lacking well arranged hog pastures is not ready for the business of making money out of pork. No matter what other ration may be fed pigs, milk is always desirable for milk is highly palatable and contains more of the necessary food elements than any other feed.

The following are suggested as rations suitable for growing hogs that have, in addition, access to good pasturage:

1. Corn, 60 per cent; shorts, 30 per cent; tankage, 10 per cent.
2. Corn, one-third; wheat, one-third; ground oats, one-third.
3. Corn, one-half; shorts, one-half.
4. Corn, 60 per cent; shorts, 20 per cent; linseed oil meal, 20 per cent.
5. Corn, one-third; milk, two-thirds.

My experience has shown that if pigs must be fed in dry lots, ration No. 1 will produce double the gain that can be secured from corn alone. —M. Stroud in Farmer's Guide.

NUMBER OF GOATS

Before the great war France had about 1,500,000 milk goats; Spain, 3,000,000; Italy, Switzerland, Germany, Austria, the Balkans and Greece have all bred large numbers. But the herds were sorely depleted during the war, and it will be some years before they can be built up to the high standards that had been reached before the war. Argentina has 4,000,000; Brazil, 10,000,000; India, 30,000,000. In the United States we have been slow to recognize their value, and the number of registered and thoroughbred animals is comparatively small—only a few thousand. The first importations were made in 1904, and some of the best stock now in this country are descendants of these early importations. Importation of goats has since been greatly restricted by the bureau of animal industry, department of agriculture.—Sherwood in Angora and Milk Goat Journal.

CARE OF MILK AND UTENSILS

First and most important in caring for milk is cleanliness. The stable, cow and clothing of the milker should be clean as well as the utensils. Milk is clean when taken from the cow and great care should be taken to keep it clean. We should be sure water used in the milk house is clean and pure. The milk house should be well screened and kept free from dust. All utensils, including separator, should be scalded and sunned daily. Milk should be strained through several thicknesses of cheese cloth and cooled quickly. Milk also keeps sweet much longer when cooled quickly. The cow should be brushed and the udder washed and wiped dry before milking. Also the cow should not be fed while being milked. The hooded milk pail helps keep out dirt, and milk cans should be kept covered—Missouri Farmer.

CHOICE SHORTHORNS FOR STRALOCH FARM

A carload of Shorthorns has just arrived from the East, consigned to Straloch Farm, Davis, of which Mr. C. Harold Hopkins is the proprietor. These cattle were bought from well known Eastern herds by J. I. Thompson. One yearling bull is included, Braywood Collynie, bred in Scotland and imported by Wm. Hartnett. He is a Broadhooks, sired by the Duthie bull Collynie Victor Star, whose full brother went to the Argentine some five years ago at 3,500 guineas. He will be used as the junior herd sire, following California Model. Among the cows is a two year old Potts' Emma heifer with a white heifer calf secured from R. N. Marshall of Iowa, in whose herd Imp. Gartly Lansdowne is making a great record. There are two heifers in the lot, one a Marr Beauty and the other a Broadhooks, that were in the first prize young herd at practically all of the central Western state fairs last year. These two and three others are by Choice Cumberland, bred by the Millers of Missouri, and who was undefeated in his class, and senior champion in 1916. His get were first and second at a very considerable number of the leading state fairs last year. Another daughter of his, a Jealousy, is a full sister to a Cumberland cow shown so successfully last year by the Millers. Outstanding among the others are a roan Orange Blossom, a red Lady Dorothy, two Marr Missies and two Clippers, one of the Clippers being sired by Radium. There are three six year old cows in the shipment, each one of which has raised one or more outstanding show calves. Eight head are mated to Villager's King, an outstanding son of Villager, and rated one of his very best breeding sons.

The addition of such choice material will greatly strengthen the Straloch herd, which already contains a distinguished collection.

SIMPLEX SILO

pronounced by agricultural experts "scientifically correct"

Two Kinds of Saving

25% Reduction in the Price of the SIMPLEX is only one of them

The first saving in buying a Simplex Silo is the 25% reduction in price. The second is the year-after-year saving of ensilage, due to the fact that the Simplex is built scientifically correct.

The one-piece staves of the Simplex eliminate end joints and prevent spoiled silage through leakage. The Clear Oregon Pine gives its inner walls a smoothness that makes air pockets and honey-combing impossible.

The Crisell Tangent Top automatically keeps the Simplex in a true circle. The steel hoops and Patent Interlocking Anchorage System bind the Simplex rigidly to its base, giving it strength to resist inside pressure and high winds.

These points, complying with scientific requirements of what a correct silo should be, plus the 25% reduction in price, make the Simplex the soundest silo investment on the market today. To know complete details will actually mean money in your pocket when you are ready to buy a silo. Mail the coupon now.

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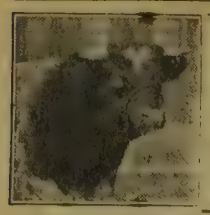
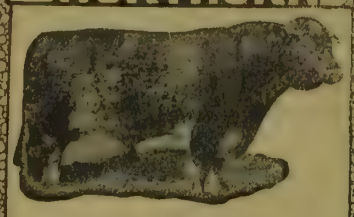


There Is Your Profit

A Shorthorn steer will have much greater weight and much better quality than a common steer and sell for several cents more per pound—in many instances returning to the seller more than double the common steer.

AMERICAN SHORTHORN BREEDERS' ASSOCIATION
13 Dexter Park Ave., Chicago, Ill.

CALEDONIA SHORTHORNS



Imp. Caledonia

When You Want Shorthorns

Be certain to visit our herd. It is generally admitted that no herd in America has three better herd bulls than we own in **Imp. Caledonia, Pine Grove King and Gainford Matchless.** We can at all times supply foundation material at prices based on sound values.

CALEDONIA FARMS
WEST SACRAMENTO, CALIF.
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Rosebud Shorthorns

A Choice Herd of Fifty Females Headed by Miimar Stamp a Cruickshank Secret

FOUR BULL BARGAINS:

We have for sale at real bargain prices four extra good yearling bulls that are well bred and of good color. These calves are just right for the range man who wants to improve his cattle. Visit our herd or write for prices. Satisfaction guaranteed.

Edinger-Johnson Company
Hood, California

NOVEMBER 2

is the date of my

Fourth Public Sale of Shorthorns

30 Scotch Females
10 Scotch Bulls

All of My Own Breeding

W. M. CARRUTHERS
Live Oak Cal.

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PRODUCTION COMBINED WITH INDIVIDUALITY

Sir Ormsby Skylark
Sire of the World's Champion Cow

Records Made by Sir Skylarks' Daughters Last Year in Our Herd

	Butter
Daffy Orm. Sky., Jr. 2	804 lbs.
Joy Orm. Sky., Jr. 2	920 lbs.
Mabel Orm. Sky., Jr. 2	870 lbs.
Rag Apple Orm. Sky., Jr. 2	919 lbs.
Vera Orm. Sky., Jr. 2	864 lbs.
Carrie Orm. Sky., Jr. 2	720 lbs.
Lady Panzie Sky., Sr. 3	1042 lbs.

Duchess Skylark Ormsby
1,506 pounds of butter in one year

We are offering young bulls out of some of these cows, sired by sons of Sir Pietertje Ormsby Mercedes at farmer's prices.

MAXWELL FARMS
Ranch Near Universal City Office: Garden Court, Hollywood

HOLSTEIN *Fred Hartsook* **CATTLE**

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

Italian Vineyard Company
Big Type Berkshires

Some dandy young boars for herd headers. The choicest breeding and ready for service.

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Alex. M. Wilson, Supt. Guasti, Cal.

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The Willows Ranch

Home of Big Type Poland China Hogs. This Herd Noted for Size and Quality. Correspondence Invited

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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

June 9, Burr Farm and Agee Bros., Burr Farm, Los Angeles.

Shorthorns

May 25, Caledonia Farms, West Sacramento.

May 26, Howard Vaughn, Dixon.

Herefords

May 27, Finnell Stock Farms, Galt.

The annual ram sale conducted by the California Wool Growers Association will be held at the university farm, Davis, June 16 and 17. It is planned to offer several hundred head of rams, together with a number of ewes, representing the various breeds.

V. F. Dolcini of June Acres Stock Farm, Davis, has been doing some official testing in his small Holstein herd and reports the following results: A junior four year old daughter of King Korndyke Sadie Vale 22d, 22.75 pounds butter; two senior two year old daughters of Sir Imperial Snowball, a grandson of Rag Apple Korndyke, made 12.50 and 11.3 pounds of butter eight months after calving; a senior two year old by the same sire made 17.10 pounds and a junior three year old made 17.63 pounds; another junior three by the same sire made 20.36 pounds butter from 431.5 pounds milk.

William Carruthers of Live Oak has claimed November 2 as the date for his fourth public sale of Shornhorns. It is Mr. Carruthers' intention to offer 30 head of females and 15 bulls of his own and all of Scotch breeding.

The Sunny Brook Ranch, Willits, owns a half-sister to Pietertje Prospect Colantha, the bull that sold for $27,000 in the recent Brentwood Sale. This cow, Cantata Domino Sir Skylark 3d, being by the same sire, Dutchland Governor Sir Colantha. She recently dropped a bull calf sired by the Sunny Brook junior herd sire, Ensign Korndyke Model Pontiac, a son of Chimacum Spring Farm Pontiac and Korndyke Model Hartog 2d, the 27.5 pound sister to Lady Aaggie Echo Hengerveld, world record three year old.

McCloud Bessie Quidee, a Holstein cow owned by the McCloud River Lumber Company, Sisson, has recently completed a seven day record of 31 pounds of butter from 600 pounds of milk, and a 30 day record of 124 pounds of butter from 2,793 pounds milk.

L. W. Wing Jr., manager of the Elkhorn Farm, Watsonville, reports the sale of three Ayrshire heifers and a bull to the K. F. & L. Company, Hawaii. The bull is Ithan's Secretary of Elkhorn, a son of Highland Ithan, the grand champion at several of the leading fairs in 1919. The heifers include Elkhorn Heatherflower, Elkhorn Thistledown and Elkhorn Patricia. The first two heifers were in the Elkhorn show herd of 1919.

Segis Pietertje Prospect, the world's record milk producer, owned by Carnation Stock Farms, Seattle, has freshened again after completing her wonderful production of over 37,000 pounds of milk in one year, and on official test has increased her former seven day butter record to over 39 pounds.

Adirondac Wietske Dairy Maid, the famous Holstein cow owned by Bridgford Holstein Company, Patterson, recently dropped a fine heifer calf by King Segis Alcartra Prilly, thus a full sister to the yearling heifer that sold for $4,500 in the recent Brentwood National Sale. She is now on official test and at the present writing had enough to her credit to give her an average of over 39 pounds butter in seven days for her last three consecutive freshenings, an average that is unapproached by any other cow in the world. She is also credited with three consecutive seven day records above 800 pounds of milk, and is starting off fully as well as last year, when she made nearly 1,300 pounds of butter in 365 days.

Miss Valley Mead De Kol Walker, the famous dam of King Korndyke Pontiac 20th, Sir Aaggie De Kol Mead, and Prince Aaggie Mead, owned by A. W. Morris & Sons, Woodland, has just freshened, dropping a heifer calf to the service of Sir Pietertje Ormsby Mercedes 43d, the son of Sir Pietertje Ormsby Mercedes, formerly owned by Toyon Farm Association.

In anticipation of a large entry list in the livestock show at the Southern California Fair at Riverside, the directors have voted to increase the premium list by the addition of one place in each class. This makes the prizes in the aged classes $20, $15, $10 and $5 for the four places and will materially increase the prize money of the lucky ones.

H. H. Kildee of Ames, Iowa, has been invited to judge the dairy cattle and an Eastern judge for the hogs is being sought.

R. N. Clapp of Nuevo has just received a very nice Holstein cow in a shipment from the East. She is Nancy Calamo Korndyke and was sired by Paul Calamo Korndyke, who was many times grand champion at the national show. She is out of Nancy Spofford, a great show cow. The young cow is a show cow herself, having been undefeated at the national as well as at all the big Eastern shows as a junior calf, junior yearling and two year old. She has never been tested but should make a good record as she is a half sister to Nancy Lucy Hengerveld, the 40 pound Maxwell cow.

Alex Wilson of the Italian Vineyard Company has shipped a fine fall boar, which he calls Guasti's Leader Champion 23rd, to the Arcady Farm at Roundout, Illinois. The youngster combines the Grand Leader and Laurel Champion blood lines, being by Grand Leader's Grandson and out of a Laurel Champion sow. His new owner is Arthur Meeker, who is vice president of Armour & Co. The young boar is a very good example of the type of Berkshire so much in demand.

GROWING AND FEEDING ROOTS

There are thousands of small farmers—dairymen, feeders and others—who should grow and feed roots to stock. As a rule this class does not appreciate the value of roots in the ration of milk cows, feeder steers and sheep. Roots are primarily intensive crops, large quantities being grown on small areas. Larger farmers with their silos do not need roots for their stock in the same sense that smaller farmers do.

The roots best adapted for stock feeding are beets, carrots and turnips. Beets are the standby with cattlemen and some poultrymen. The varieties grown for this purpose are in the mangel and sugar beet classes. Mammoth Long Red gives the largest yield and the flesh is deep red. Golden Giant is a yellow mangel much relished by stock and poultry. Of the true sugar beets, Giant White is probably best for stock feeding. This yields almost as heavily as the true mangels and the roots contain a larger percentage of nutritive feed.

Carrots are a crop less easily harvested, as a rule, but one variety, White Belgian, grows one-third above ground and is not difficult to dig. This is worth growing as a change from the beet ration. We like, also, to feed carrots to the horses. When not working hard in the winter the grain ration can be lessened if carrots are available for feeding. Yellow Belgian is another variety used only for feeding to stock.

We do not consider turnips of so much value as mangels and carrots, but they are so easily grown that farmers will do well to consider them to feed to the young stock and also to the sheep. We have also fed them to the dairy cows without any ill effects. Turnips are exceptionally easy to grow. Prepare the ground in early August in the northernmost states and sow the seed broadcast. Farther south the work may be done later. Purple Top Globe is a quick growing variety. Cowhorn is another. The yellow sorts like Yellow Stone and Purple Top require a longer season for development.

Any soil that will produce a good crop of corn will grow mangels and carrots. It is well to plant the seed in May, in order to give the roots a whole season for development. These are intensive crops but when consid-

erable acreages are grown it is necessary to economize in labor as much as possible. For this reason, then, the rows should be far enough apart to use the horse cultivator. Ground not naturally full of weed seeds will produce a crop without much hand work. Sow the seed thinly and hack out spaces so the plants will finally stand ten inches apart in the case of mangels and eight inches in the case of carrots. Common carrots may be grown closer together. It may be necessary to pull a few weeds and surplus plants by hand, but the cultivator and the hoe in hand can do the most of it. Turnips of the rutabaga class can be grown in about the same way as mangels and carrots. The land does not need to be as rich, however, and rutabagas do best on new land just plowed

I have fed all kinds of roots to cows giving milk without any unpleasant results. Even turnips can be fed daily without harm to milk or butter, we believe. Our method is to feed a half peck or a little more just after milking in the morning. It is the heavy feeds of roots which cause the milk to show an undesirable flavor. Right feeding is harmless in this respect. Heavier feeds may be given to the steers, young stock and horses. For horses carrots are the best feed. Mangels are probably best for sheep.—C. H. Chesley in Indiana Farmer's Guide.

SELLS DUROCS

Renewed interest in Guernsey cattle has caused W. H. Dupee of Santee to sell his entire herd of Edgemoor Durocs to Cash and Kyne of Perris. The herd included the great young boar Royal I Am, which Mr. Dupee bought from Donald Graham, and High Sensation Lady, the gilt purchased from the Winsor Ranch last year. There were 168 head in all, including some litters by Scissors and 11 beautiful junior yearling gilts, seven of which were out of the Winsor gilt by Great Sensation 3rd. Mr. Dupee has a shipment of 26 two year old Guernsey heifers on the way out from the East to supplement the 40 head now on the place.

He has very recently been offered a price far above that ever paid for a Guernsey bull for the young bull, Masterpiece of Edgemoor, which he is keeping to head his herd. Masterpiece was sired by Royal Rose King of Edgemoor, who was by Imp. Itchen May King, the grand champion at the 1920 National, and was out of Balladia, who made 934 pounds of fat and is the state champion aged cow for the breed. He is out of Jessebel of Edgemoor, a 748 pounds two year old daughter of Ne Plus Ultra, and therefore combines many of the great May Rose blood lines.

CHAMPION OF ARIZONA

Theresa Belle 3d, owned by the University of Arizona, is making a great record. She made 117 pounds milk in a day, and is now on year test and going strong. She freshened November 20 and was started on test November 24. In four months she has made 11,933.3 pounds milk, 336.5 pounds butterfat. Her official records are 790.5 pounds milk, 29.37 pounds butter in seven days, 3,258.3 pounds milk, 123.57 pounds butter in 30 days.

Theresa Belle 3d was bred by F. W. Allis of Madison, Wisconsin, and was purchased with a number of other cows by the University of Arizona in 1917. To give some idea of the record this cow is making, we publish the monthly score of her production:

	Pounds		
	Milk	Butterfat	Butter
Nov., 7 days	453.5	19.17	23.9625
Dec.	2946.4	97.098	121.3725
Jan.	3342.8	99.744	124.43
Feb.	2639.6	79.821	99.775
Mar., to 28th	2551.	70.663	88.325

—Holstein-Friesian World.

Hogs that are given skimmilk, tankage or leguminous pasture commonly possess strength of bone sufficient for heavy feeding. Feeding additional mineral supplements, however, increases the strength of bone.

Through the feeding of mineral supplements to swine it has been found possible to prevent much of the loss caused by breaking down of hogs before or when they are sent to market.

ANNOUNCEMENT

SIR AAGGIE DE KOL MEAD 286173

We have sold to Mr. Fred Hartsook, Lankershim, Calif., a half interest in **Sir Aaggie De Kol Mead,** founding a plan which we are confident will result in substantial results in Mr. Hartsook's herd, in our own herd, and that will be of very large benefit to the many breeders who have introduced the Aaggie Acme-De Kol of Valley Mead breeding into their herds within the past few years.

It will be remembered that only a short time ago we announced the sale to Mr. Hartsook of a half interest in **Sir Prince Aaggie Mead.** The latest transaction involving the interest in **Sir Aaggie De Kol Mead** thus makes it possible for both Mr. Hartsook and ourselves to have in our herds in constant service a son of **Miss Valley Mead De Kol Walker,** each one sired by a bull carrying the strongest Aaggie Acme breeding.

Miss Valley Mead De Kol Walker now has three sons in active service, the two mentioned above owned by Mr. Hartsook and ourselves, and **King Korndyke Pontiac 20th,** owned by Burr Farm, Los Angeles.

King Korndyke Pontiac 20th has nearly a dozen good sons heading high class breeding herds in California and Nevada, including the $41,000 bull **King Korndyke Pontiac Acme,** heading Anita M. Baldwin's herd at Santa Anita Rancho.

Sir Aaggie De Kol Acme, sire of Sir Aaggie De Kol Mead, has even a larger number of sons heading high class breeding herds in California, New York, Kansas and other states.

Breeders have been attracted to this line of breeding strictly upon the merits of the Aaggie Acme and De Kol of Valley Mead families as producers and proven transmitters of great production, and this blood is now so firmly placed in so many good breeding herds that individuals carrying it possess a stable and substantial value that is not present in individuals whose family connection in the breed is not so well regarded.

You may link your own herd up with these popular and valuable families through the use of a herd sire bred strongly in the Aaggie Acme-De Kol of Valley Mead lines. Let us talk it over with you, for perhaps we have on hand right now just the young bull that will fit most profitably into your breeding herd.

A. W. Morris & Sons Corporation
Woodland, California

HIS DAM

Miss Valley Mead De Kol Walker 250936

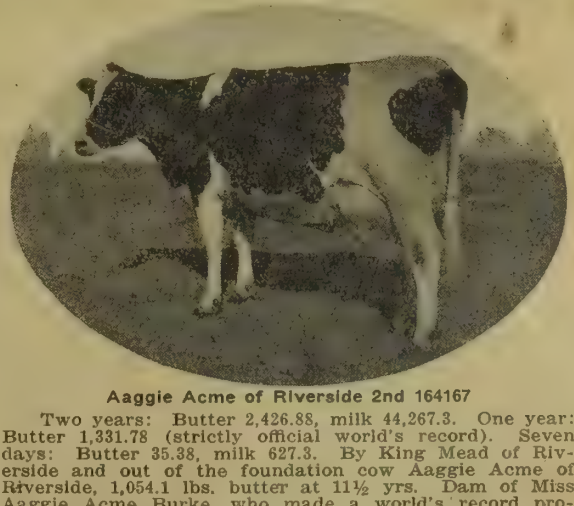
Two years: Butter 1,903, milk 38,986.7. (Records made at 2 and 3 years of age, both short years because of calving within 12 months of previous freshening.) One year: (At 3 years) Butter 1,113.58, milk 21,975.8, second highest butter record in class when made. Seven days: (At 3 years) Butter 36.81, milk 688.6. Won California Dairy Cow Competition over all ages and breeds as a junior 3 year old. Broke world's records eight months after calving both as a 2 and 3 year old. Widely rated as one of the breed's greatest females.

HIS SIRE

Sir Aaggie De Kol Acme 185724

12 A. R. O. daughters, his first five to finish 305 day records averaging well over 600 lbs. butter and over 16,000 lbs. milk as first calf 2 year olds. His sons head many good herds, including the $9,250 Sir Aaggie Mead, owned by W. J. Higdon, the $11,000 Sir Aaggie Mead De Kol, owned by Arfmann & Amos, New York, and others that have sold well up into four figures. One of his daughters topped the F. W. Kiesel females, and ten of his young daughters sold for an average of over $800 in the same sale. He is the first bull in California to have sired 100 living daughters, and they promise to be real producers. He is sired by a son of Aralia De Kol and is out of the great dam shown below.

HIS SIRE'S DAM



Aaggie Acme of Riverside 2nd 164167

Two years: Butter 2,426.88, milk 44,267.3. One year: Butter 1,331.78 (strictly official world's record). Seven days: Butter 35.38, milk 627.3. By King Mead of Riverside and out of the foundation cow Aaggie Acme of Riverside, 1,054.1 lbs. butter at 11½ yrs. Dam of Miss Aaggie Acme Burke, who made a world's record production of 24,338.9 lbs. milk as a junior 2 year old, making 1,034.66 lbs. butter, third highest for age in the breed, only 1,000 lb. junior 2 year old in California, and as a junior 4 year old she made 35.38 lbs. butter from 726.4 lbs. milk in 7 days and is again on yearly test. She is the dam of the $41,000 bull King Korndyke Pontiac Acme.

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The Wolf Rathbone Company, Patterson, Cal., operate a large dairy. Naturally they have done everything possible to raise milk production per head.

The results they have secured with Pure Hawaiian Molasses are interesting to every man who has cows. The letter says further:

"We ran out of Molasses for several days and found that the cows fell off in milk production about 15% at first, later increasing to about 11% below the flow when Molasses was fed. When Molasses was again fed, the cows slowly returned to the former flow of milk, or nearly so."

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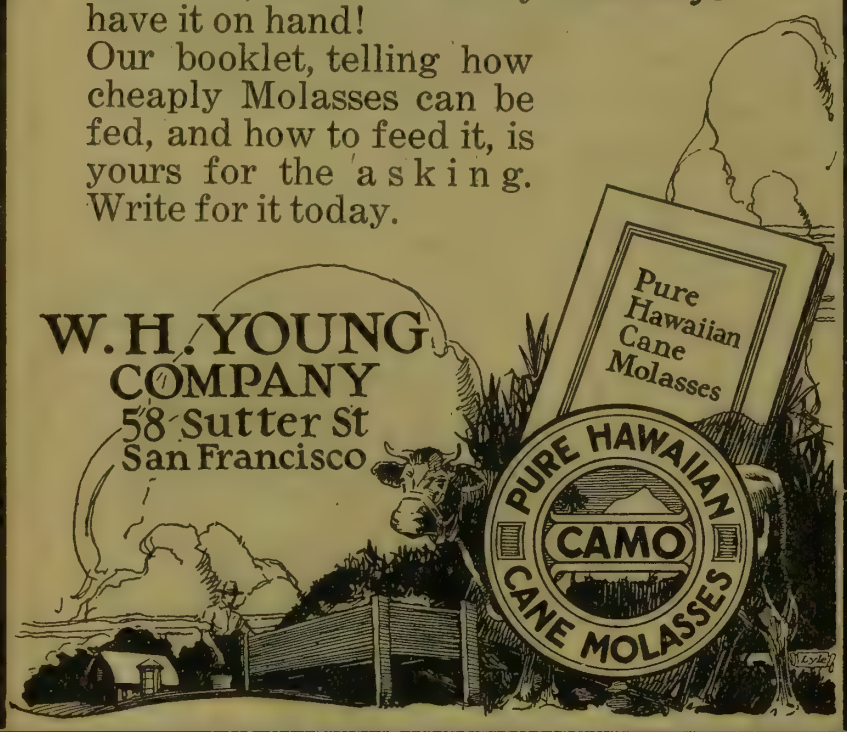

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Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

April Winner of Cultivator Prize

By F. W. Woll

FIVE grade cows owned by J. A. Genzoli of Loleta, Humboldt County, had the highest average production of butterfat for grades in the state dairy cow competition during the month of April, viz: 83.04 pounds, and the California Cultivator prize for this month was therefore awarded to Mr. Genzoli.

The production by the individual grades for the month was as follows:

	Age Yr.-Mo.	Days in Milk	Milk Lbs.	Butter Fat Prct.	Fat Lbs.
Blue Spot	5-11	22	1896	4.9	92.90
Maggie	5-0	36	1383	6.1	84.36
Jill	5-0	25	1434	5.7	71.74
Fannie	7-0	17	1488	5.4	80.35
Sarah	5-1	27	1686	4.5	75.87
Average		25	1577	5.3	83.04

These cows are described by the owner as "common," but whatever their breeding may be, their production is certainly very uncommon. They stand first among groups of five grades in 26 different dairy herds that competed for the California Cultivator prize the past month. Of this number the average production of all but four came above 50 pounds of butterfat for the month, and only one fell below 40 pounds. Five grades produced, on the average, over 50 pounds of butterfat in the herds owned by the following dairy farmers: J. A. Genzoli, Loleta, 83.04 pounds; Arden Dairy, El Monte, 75.63; N. Hauk, Alton, 69.74; Leo Christen, Waddington, 68.75; H. L. Wakeham, Santa Ana, 67.06; Napa State Hospital, Imola, 66.87; Eug. Biondini, Ferndale, 66.50; W. F. Early, Grizzly Bluff, 65.31; Peter Iversen, Grizzly Bluff, 65.23; Earl Graham, Compton, 62.36; M. L. Pontoni, Arcata, 63.05; W. B. Gries, Ferndale, 62.10; W. Terkelsen, Ferndale, 61.68; Giacornini & Pedotti, Waddington, 61.49; J. B. Harbers, Waddington, 60.60; Adohr Stock Farms, Van Nuys, 58.50; F. F. Pellissier, Whittier, 58.05; El Mirador Dairy, Pasadena, 56.76; Los Angeles County Farm, Hondo, 53.76; S. H. Green, Grimes, 53.34; R. H. Walrath, El Centro, 53.02, and J. C. Broady, Palm City, 51.58.

These and other dairy herds that competed for the Cultivator prize the past month represent widely separated sections of the state, showing that no one locality has a monopoly on good cows. This is the first time that the prize has gone to Humboldt County, but it is not likely to be the last judging by the showing made by herds in this county during the past month.

158 Willowmead Holsteins Average $220

One hundred and fifty-four head of Holstein cows and heifers and four bulls were sold in the Willowmead sale at Sacramento, May 18-19, for a general average of $220. In view of the fact that the entire lot was sold without having been tested for tuberculosis, and only a small number having official records, the average was regarded as fairly satisfactory. It is doubtful if there has ever been a sale in this state in which such a large number of cattle were absorbed by so few buyers, 17 being represented in the sale list. However, the bulk of the offering was taken by seven buyers.

J. R. Bush of Merced was the heaviest buyer, taking an even 50 head at prices well over the average of the sale. C. A. Fisk, Bryte, a new man to enter the business, selected 29. Dr. E. J. Weldon of Sacramento took 17 of the better young things. Thos. Gordon of Hanford bought 13. R. Potter and R. Zangl of Los Angeles secured 11 and ten head each.

No unusual prices characterized the sale. The top price was $750, which was paid by Mr. Bush for the good cow, Minnewawa Louise 3d, with a 32.28 pound seven day record to her credit. The same buyer paid $625 for the 26 pound Copa De Oro Sairy Aaggie Jane, and $525 for the 24 pound Salambo Korndyke 2d.

Practically the whole offering carried the service of one or the other of the two Willowmead herd bulls, Colony Zarilda Newman, son of Zarilda Clothilde 3d De Kol, holder of the world's strictly official milk record of 33,427 pounds, or Prince Echo Sylvia Segis, a grandson of the famous May Echo Sylvia.

The sale included the entire milking herd owned by Mr. McGillivray, who still owns over 300 head of registered females.

The sale was managed by C. L. Hughes of the California Breeders Sales and Pedigree Company. Col. Ben A. Rhoades of Los Angeles wielded the hammer and was assisted from the ring by Col. John Davis of Manteca.

A representative list of sales follows:

3. Minnewawa Louise 3d, July, 1912, 32.28 lbs., 7 yrs.; C. J. Sullivan, Sacramento, $750.
4. Ruby Louise Pietertje Burke, Oct. 1915; C. A. Fisk, Bryte, $450.
5. Minnie Mecthilde Louise, Sept. 1914; C. A. Fisk, $450.
7. Fairy Princess Colantha, Sept. 1913, 20.05 lbs., 2 yrs.; R. Zangl, Bellflower, $380.
8. Princess Helena Pontiac Burke, Dec. 1915; J. R. Bush, Merced, $260.
9. Lady Bettina Korndyke, June 1913, 15.53 lbs., 2½ yrs.; C. A. Fisk, $200.
10. Dora Clay Korndyke, June 1913, 17.52 lbs., 2½ yrs.; R. Zangl, $295.
11. Dora Korndyke Pontiac Burke, Jan. 1917; R. Zangl, $225.
12. Carlotta Colantha Johanna, Nov. 1913, 17.16 lbs., 2 yrs.; C. A. Fisk, $200.
13. Johanna Jean Pontiac Burke, Feb. 1917; C. J. Sullivan, $345.
14. Inka Tritomia Maiden, July 1914; E. J. Weldon, Sacramento, $475.
15. Korndyke Juliana Colantha, Sept. 1914; C. J. Sullivan, $265.
16. Katrine Beauty Korndyke, July 1913; R. Potter, Los Angeles, $285.
17. Kathleen Korndyke Elsa, Sept. 1914; Thos. Gordon, Hanford, $210.
21. Hazel Irene Pontiac Burke, Mar. 1917; J. R. Bush, $210.
29. Tubie Snowflake 4th, Feb., 1919; Thos. Gordon, $205.
33. Duchess Grizelda Korndyke, July 1915; R. Potter, $200.
36. Bonnie Aaggie Colantha, July 1915; R. Potter, $315.
39. Jessie Pearl Pontiac Burke, Dec. 1915; C. J. Sullivan, $250.
40. Ruda Belle Pontiac Burke, Feb. 1916; R. Zangl, $275.
41. Sugar Queen Topsy Pontiac, Dec. 1914; R. Zangl, $400.
43. Lady Grace Topsy, Oct. 1915; C. A. Fisk, $225.
45. Duchess Topsy Pontiac Burke, Sept. 1917; J. R. Bush, $200.
46. Valley Mead Topsy, Oct. 1915, 19.40 lbs.; R. Zangl, $305.
47. Valley Mead Amy, Sept. 1915; Thos. Gordon, $260.
48. El Prado Edith, Nov. 1914; Thos. Gordon, $225.
51. Bonita Louise Pontiac Burke, Oct. 1917; J. R. Bush, $450.
52. Louise Korndyke Pontiac Burke, Sept. 1916; J. R. Bush, $340.
53. Louise Korndyke Pet, Oct. 1913; E. J. Weldon, $290.
54. El Prado Pansy, Oct. 1913; C. J. Sullivan, $275.
55. Korndyke Bonita Louise, June 1912, 20.43 lbs.; C. A. Fisk, $435.
56. Fidorence 2d, July 1914, 27.58 lbs.; J. R. Bush, $385.
58. Salambo Korndyke 2d, Sept. 1915, 24.03 lbs.; J. R. Bush, $525.
60. Modjeska Crane 3d, Oct. 1913, 21.61 lbs.; J. R. Bush, $300.
61. Nagy Korndyke Mooie 2d, Oct. 1914, 23.05 lbs.; J. R. Bush, $325.
62. Korndyke Butter Boy Mooie, Mar. 1917; C. A. Fisk, $225.
63. Queen Modjeska Mead, Mar. 1914; J. R. Bush, $350.
64. Queen Mead Walker, Feb. 1917; Thos. Gordon, $425.
65. Mapessa 3d, Oct. 1915; C. A. Fisk, $335.
66. Queen Mead Mapessa, May 1914; J. R. Bush, $300.
67. Johanna Witsend 2d, Nov. 1913; J. W. Schultz, Elk Grove, $225.
68. Flcedes Sandy 2d, Jan. 1914, 20.95 lbs.; C. A. Fisk, $225.
71. Salambo Korndyke Butter Boy, April 1917; R. Potter, $285.
75. Queen Mead Mapessa 2d, Dec. 1915; C. A. Fisk, $225.
77. Modjeska Crane 4th, Oct., 1914, 28.45 lbs.; J. R. Bush, $310.
79. Flossie Korndyke Pontiac, April 1916, 21.11 lbs.; C. J. Sullivan, $250.
84. Copa De Oro Sairy Aaggie Jane, Aug. 1913, 26.13 lbs.; J. R. Bush, $625.
85. Carlotta Aaggie Mona, Mar. 1915, 22.34 lbs.; C. A. Fisk, $225.
86. Tritomia Grace, Feb. 1914; R. Zangl, $300.
87. My Lady Cayvan, Jan. 1913; E. J. Weldon, $325.
88. Mapessa Mooie 2d, Mar. 1912; J. R. Bush, $235.
89. California Bess Colantha, Aug. 1915; J. R. Bush, $245.
90. Tubie Pietertje Crane, Nov. 1912; R. Zangl, $200.
91. Queen Jetty, Feb. 1914; E. J. Weldon, $240.
92. Copa De Oro Holland Queen 2d, Nov. 1914; 20.94 lbs.; J. R. Bush, $200.

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94. Novena La Polka, Feb. 1915; J. R. Bush, $200.
96. Jessie Clay of Willowmead, Nov. 1915; E. J. Weldon, $200.
97. Queen Jetty Madrigal, Oct. 1916 R. Zangl. $300.
98. Parthenea Marilla of Willowmead, Oct. 1916; J. R. Bush, $200.
101. Sleepy Colantha Pontiac Burke, Feb. 1917; C. J. Sullivan, $300.
103. Lady Wayne Segis Pontiac, Mar. 1917; Thos. Gordon, $240.
104. Parthenea Lady of Willowmead, Sept. 1917; R. Potter, $290.
105. Cantata Pietertje of Willowmead, Sept. 1917; J. R. Bush, $200.
106. Korndyke Estella of Willowmead, Sept. 1917; J. R. Bush, $275.
107. Aaggie Bonnette Pontiac Burke, Oct. 1917; J. R. Bush, $275.
108. Inka Tritomia Pontiac Burke, Aug. 1917; Thos. Gordon, $305.
110. Legendary Tirza 2d, Nov. 1914; J. R .Bush, $200.
114. La Polka Holland Queen, Aug. 1916; J. R. Bush, $200.
115. Lady Wayne La Polka, April 1915; R .Zangl, $315.
116. La Polka Katrina, Jan. 1915; J. R. Bush, $225.
121. Dotty Zozo Pontiac, Sept. 1917; J. R. Bush, $325.
122. Colantha Magda of Willowmead, Aug. 1917; R. Potter, $200.
131. Copa De Oro Katine Mercedes, May 1911; J. R. Bush, $235.
132. Hartog Zozo Holland, Nov. 1912; R. Zangl, $260.
134. Copa De Oro Lady Holland 2d, June 1912; J. R. Bush, $200.
136. Lady Snowflake Cayvan, Jan. 1915; J. R. Bush, $250.
137. Lady Wayne Tirza, April 1915; J. R. Bush, $200.
138. Tuebie Snowflake 4th, Oct. 1914; R. Potter, $355.
139 . Lady Snowflake La Polka, April 1915; J. R. Bush, $360.
140. Lady Madrigal Snowflake, July 1915; J. R. Bush, $200.
142. Tirza La Polka Lady Holland, Mar. 1916; J. R. Bush, $390.
144. Tirza Holland Aaggie, April 1916; J. R. Bush, $200.
145. La Polka Tuebie Tirza, April 1916; J. R. Bush, $260.
147. Ruda Belle Tritomia, Jan. 1915; C. A. Fisk, $220.
152. Princess Mapessa Walker, May 1917; R. Potter, $260.
155. Yolo Mooie Princess, Dec. 1917; E. J. Weldon, $200.
166. Clothilde Pennant Hengerveld, Aug. 1918; M. F. Silva, $285.

WHEN A PURE BRED IS NOT A PURE BRED

By R. P. Royce

The ever present and persistent pessimist who delights to make himself and others miserable by holding that there is no new thing under the sun may be disturbed to learn that his contention is no longer tenable. It has remained for the legislature just closed to bring to light a striking example of a brand new shining "thing," the like of which the world has never known. You see, for a good long time, in fact ever since the establishment of the first breed of livestock, the world in general and the livestock people in particular have been laboring along under the impression that they had a fair working knowledge of what constituted a pure bred animal. It has been the accepted impression that a pure bred animal was the offspring of sire and dam both of which were eligible to registration in the recognized herd, stud and flock books. Of course that application came about through universal and modern acceptance of the term. So far as we know there is no reference to the term in the early written records of history or literature. Neither has the term been established by agreement among modern nations. It just came to be accepted that p-u-r-e-b-r-e-d meant an animal whose sire and dam were eligible to registration, just as c-o-r-n meant corn and c-o-w meant a female bovine. Now comes Senator Rigdon, chairman of the agricultural committee of the senate, with a bill duly passed "to improve the quality and regulate the number and use of bulls running upon the open range" which says that "no person shall permit to run upon any open range of this state any bull over eight months of age that is not a pure bred bull of recognized beef breed . . . for the purpose of this act the term 'pure bred bulls' is hereby defined as bulls bred in a herd of one of the recognized beef breeds, the ancestral sires of which must have been registered bulls of the same breed for at least four generations, and the dams of which must have been cows of the same breed of good quality."

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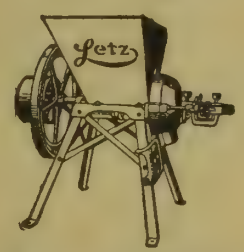

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Baby Chicks—You are looking for the largest returns for your "Baby Chick Money." To get this you want chicks that will live, have vitality and will produce. Our Anconas are all from first class Hoganized stock. The White Leghorns are all mated to roosters from trapnested stock of 229 eggs or better. Now we also have especially good layers in the R. I. Reds, Fancy Dark Reds, Fancy Anconas and Barred Rocks. Our stock will produce the eggs. We have as well an equipped hatchery as there is, and know how to hatch strong sturdy chicks. May and June prices on White Leghorns are $16.00 hundred, $150.00 thousand. Anconas, R. I. Reds, Barred Rocks, $19.00 hundred. $180.00 thousand. Fancy Dark Reds and Fancy Anconas, $24.00 hundred. All chicks are sent Prepaid by Special Delivery Parcel Post. Can give immediate delivery, or will return your money at once. ORANGE COUNTY HATCHERY, Santa Ana, California.

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SPECIAL LOW CHICK PRICES FOR JUNE

White Leghorns by hundred or thousand, 10 cents; Brown Leghorns, 12 cents; Buff Leghorns, 13 cents; R. I. Reds, 15 cents; Black Minorcas, White or Barred Rocks, 16 cents each. If less than hundred ordered add one cent to price. Delivery by insured parcel post, 50 cents hundred extra. Order at once and we will ship promptly. Quality chicks, well hatched and priced right, is what you get from THE MISSION HATCHERY, Campbell.

Petaluma Hatchery. Established 1902. Capacity 30,000 chicks a week. White Leghorn chicks from heavy laying free range stock after May 15th, 15c each, $13.00 per 100, $120.00 per 1,000. Brown Leghorns one cent more than White Leghorns. We positively guarantee safe arrival and full count of good strong chicks and no questions asked. L. W. Clark, Proprietor, 615 Main Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from heaviest laying (hoganized) stock. Safe delivery; live vigorous chicks guaranteed. No money in advance; pay on delivery. Price from May 15 to June 30 $3.50 per 25, $7.00 per 50, $12.50 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh St., Petaluma, California.

Ten Weeks Old Hudson White Leghorn Cockerels—Bred from our 200 egg hens. California winners in three Pullman, Washington, contests. We won "SPECIAL PRIZE" on pullet No. 3 for April in present Missouri National Egg Laying Contest. $1.50 each, $15.00 per dozen. CHAS. HUDSON, ESCONDIDO, CALIFORNIA.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California

Booking Orders For Eggs from our wonderful utility and prize stock of Bronze turkeys, geese, Pekin ducks, Muscovy ducks, White King pigeons, Partridge Plymouth Rocks, White Leghorns, White Wyandottes, guineas. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W C Smith, Prop., Corning, California

White Leghorn Baby Chix for May and June delivery from heavy laying, Hoganized stock. Safe arrival of full count, live, strong chix guaranteed. $12.50 per hundred; $120 per thousand. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks—"Only the best," May and June delivery. White and Brown Leghorn, R. I. Reds, Barred Rocks. Safe arrival guaranteed. All vigorous chicks from good layers. Send for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67-D, Palo Alto, California.

Santa Cruz Chicks — White, Brown and Buff Leghorns, Anconas, Minorcas, Barred Rocks, Reds, Buff Orpingtons, White Rocks and White Wyandottes. Write for 1921 folder with price list. B. W. Archibald, Soquel, Santa Cruz County, California

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. Eggs from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route 3, Box 47, Hanford, California.

Baby Chicks from my carefully selected, heavy laying strain of purebred S. C. White Leghorns, June and July delivery, $12.00 per 100; special reductions on lots of 300 or more. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Todden, Los Gatos, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. F. W. Nicholson, Wasco, California.

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Annual Sale — Chicks, Eggs, Pullets, Breeders. Most profitable season for buying, everything reduced. Chicks grow quickest into layers; eggs hatch best; time yet breeders clear their low cost. Get Best for Less! Our early maturing, heavy winter laying 180-290 egg Leghorns, Reds, Anconas, Rocks, Minorcas, Wyandottes, Andalusians, Ducks (turkeys) often clear customers $5. 140,000 electrically hatched. Write, Profitable Poultry, 19 North Fair Oaks, Pasadena

"Watch Us Grow" Baby chicks. We are now booking orders for May and June at reduced prices: White and Brown Leghorns, R. I. Reds, Barred Rocks, Anconas and White Wyandottes. E. W. Ohlen, Campbell, California.

For Sale—Baby chicks every week. Barred Rocks, R. I. Red, Black Minorcas, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. **Tobener** Hatchery, Route 2, Box 300, San Jose, California.

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

For Sale—White Wyandotte eggs, $2.00 per 15, $9.00 per 100. Mrs. Flora Cox, Anaheim, California.

MISCELLANEOUS

For Sale—Used Fumigating Tents
13-62 and 64 ft.
15-54 ft.
18-46 ft.
We have contracted to have our fumigating done by another party, so have no further use for these tents. Prices very reasonable. Charles C. Chapman Ranch Fullerton, California.

For Sale—Orchard Heaters at a Bargain. 6,000 6-gallon Huntoon orchard heaters complete. 500 Hislop orchard heaters complete. These heaters are as good as new never having been lighted. Will sell all or any part of same at greatly reduced prices. Write or call. Charles C. Chapman Ranch, Fullerton, California.

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Ship Your Hay to Us and receive cash when car is unloaded. Pacific Growers Exchange, Central Bldg., 6th & Main Sts., Los Angeles. Pico 3384. Alex. Thornton—Gordon Davidson.

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I Have Cash Buyers for salable farms. Will deal with owners only. Give description and cash price. Morris M. Perkins, Columbia, Missouri.

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Wanted to Rent—A well experienced farmer, with wife and three boys, desires to rent ranch, with implements and stock furnished. I can give best reference. I would superintend place for fair salary. Write R. Johnson, P. O. Box 33, Lemoore, California.

Wanted Experienced California Ranch Foreman, 75 acres near Los Angeles. Married, no children, good house. Give experience, references and wages. Address: Foreman, 1406 North Spring St., Los Angeles.

Wanted—An experienced Dairyman. Married. State qualifications and salary expected in letter. Address: Montana Land Company, Hynes, California.

Want To Hear from party having farm for sale. Give particulars and lowest price. John J. Black, 116th St., Chippewa Falls, Winconsin.

Agents Wanted—Benedict Nursery Company, 185 East 87th St., N. Portland, Oregon.

Wanted Poultry and Eggs. Shippers write for our cash prices. C. W. Bedford, Santa Barbara, California.

Wanted—Ripe olives in any quantities. M. Witt, 122 West Ann Street, Los Angeles.

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Rhodes Grass—Grows on alkali soil so bad nothing else will germinate. It will kill Bermuda and reclaim the land for any crop you may want to grow on it. Write Imperial Valley Seed House, El Centro, California.

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R*O*S*E*S—$1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue KAVAN NURSERIES, San Bernardino, California.

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For Sale — Loganberry plants, 30,000 tips, 10,000 2 year old plants. Immediate delivery. W. E. Archambeau, Sutherlin, Oregon.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination, 25c per lb. Aurora Seed Mill, Stockton, California

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For Lease—9,000 acres, range very open, first class feed, well watered, good fences and improvements. Will carry 1,000 head. Long term lease at $1 per acre per annum.

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Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

For Sale — Five acre improved ranch, seven room house, other buildings, suitable for dairy or chicken ranch; complete irrigation system; lots of fruit of all kinds; all livestock included; owner must leave. Located near city limits of Pasadena. Address Box 114, Lamanda Park, California.

For Sale—50 acres full bearing prunes and apricots, 7 miles east of San Jose; completely furnished tractor and crop go at this price, $20,000.00 cash; balance 6 per cent, full price $50,000.00. Owner Route B, Box 216, San Jose.

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Miller & Lux Lands—Write or call for beautiful illustrated map and booklet, containing valuable information for homeseekers. Kramer, Lake & Co., 441 Monadnock Building, San Francisco, California.

For Sale—10 acres, $800; four acres, $500; four lots with two story building, 50 by 40 ft., center town, $4,000; blacksmith shop in rear; good income property. For particulars address: Gene Dicey, Fallbrook, California.

For Sale—160 acres 8 miles N. E. of North Bend, Oregon, on county road; $2,500.00 cash, or will give terms. For further information address: William M. Brown, 544 Union Street, Salem, Oregon.

Akey & Skaggs, San Jose, California. Minute Men Realtors. Santa Clara Valley ranches a specialty. See us for anything.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

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Read the list below. Hundreds of satisfied customers. We have just replaced these plants by electricity, and can give you nearly any make or kind you wish at a remarkably low figure. Come and see us. We will guarantee to save you money. Telephone at our expense.
One 15 H. P. N. Type Fairbanks.
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One 16 H. P. Stover.
One 8 H. P. International.
Two 15 H. P. Samsons.
One 20 H. P. NB Type Fairbanks.
One 20 H. P. Commercial.
One Continental engine and D. C. 6-inch pump.
One 12 H. P. International.
Two 15 H. P. Commercials.
One 12 H. P. Simplicity.
One 3 H. P. Simplicity.
One 15 H. P. N Type Fairbanks.
One 15 H. P. N Type Mounted Fairbanks.
One 16 H. P. Western.
One 18 H. P. Western.
One 10 H. P. R. & V.
One 20 H. P. Samson.
One 12 H. P. R. & V.
One 4 H. P. Samson.
One 3 H. P. Samson.
One 10-18 Case Tractor.
One 25 H. P. Fairbanks.
One 22-40 Case Tractor.
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Tulare, California.

Tractor Scraper for Sale—Have finished leveling my land with my Compton One-Man Tractor scraper. Would not want a better scraper if I had any more leveling to do. Will sell scraper for $130.00 cash, f. o. b. Fresno; $100.00, less than I paid for it. Scraper as good as new. Dan Hartwig, 2446 Rose Ave., Fresno, California.

For Sale 50 rebuilt windmills.
50 new and used tanks.
50 brass cylinders, rods, plunger pumps 1-in. to 30-in. capacity.
Why pay more? Used and new surface irrigating, most all sizes. Send for bargain sheet. Demmitt Co.'s. Office 120 North Main, Los Angeles. 15191.

For Sale—Six ton ice machine. Complete with tank and cans for freezing 750 pounds. Also bottle washer, Chilly King cooler, stanchions and other dairy supplies. Priced right. Hollow-Hill Farm, Colton, California

For Sale—24 inch Acme ensilage cutter, good condition, and 40 feet blower pipe. Arden Dairy, El Monte. Phone El Monte 42.

For Sale—Pomona pump, 28 head, nearly new. Clarence Wagner, Terra Bella, California.

TRACTORS

For Sale—Fordson tractor with flanges, gougers and hitch. Also Oliver plow No. 7 and Roderick Lean 6 ft. double disc. Guaranteed to be in A-1 condition. Has been used very little. Price $750. E. W. Pitman, Whittier, California. R. D. No. 3. Phone Whittier 5101.

For Sale—Holt 75 with implements. Or exchange part for good dairy cows. C. E. Newman, Chowchilla.

Holt (60 H. P.) Caterpillar, good condition, good bargain, sell on time. Also 8 ft. land leveler price $500. Address Walter M. Hines, Manteca.

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Avocados—I have a limited number of fine trees nicely balled and well established from two to six feet in height which I am offering for from two to three and a half dollars each. Fuerte, Linda, Puebla, Sharpless, Ganter and No. 2. Yearling Valencia trees 75c balled and guaranteed. A. R. Rideout, Rideout Heights, Whittier, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 572W.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

5,000 Valencias; 2,000 Eureka lemons; 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

For Sale—A few extra choice field grown Sharpless and Dickinson avocado trees for summer and fall delivery. Barrett-Chenoweth Nursery, Box 1206, Puente.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Budded Avocado Trees. Write for special prices for orchard planting. S. & S. AVOCADO NURSERY CO., 15 North Raymond Ave., Room 6, Pasadena, Calif.

Florida Sour Seed Bed Trees, six to sixteen inches high, straight roots, stocky trees. L. A. Tuttle Nurseries, Route 1, Pasadena.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 199, Pasadena, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California

For Sale—Pure Bred Duroc Jersey Boar, registered, 600 lbs., $100. R. Fischer, La Verne, California.

BERKSHIRES

Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

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Registered Poland Chinas. 40 tried brood sows; 40 gilts. Some choice young boars all at reduced prices to move at once. These Polands are as good as can be had anywhere at any price. W. D. Trewhitt, Route B Box 47, Hanford, Calif.

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

Big Type Poland Chinas—Breeding stock of both sexes for sale at all times. Prices reasonable. J. N. Cook, Orland.

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Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

CATTLE

Guernseys — Grade Wild Farms — Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome. Information cheerfully given. T. T. Miller, Hollister, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Aberdeen-Angus — Purebred bulls and a few heifers. These are range raised and rustlers. Priced right. Fred B. McCay, Cathay, California.

Being Short of Pasturage, will sell few mature cows. Buyers' choice of herd. Tuberculin tested. Write Redwoods Ayrshire Farm, La Honda.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

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Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St., Pomona, California.

Mammoth Bronze Turkey Eggs, 30 cents. W. L. Duvall, Pomona, California.

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Roofing Paper Firsts. Complete 1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35. Outside Bungalow Paint, $2.25 a gal. Roof Paint Special, 40c a gal. Prompt deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street. Phone Bdwy. 5401 Los Angeles, Calif.

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Caldwell's White Muscovy (quackless) ducks. Win, weight, lay and pay. Eggs ducklings. Free circular. Caldwell Duck Ranch, Box 274, Los Angeles.

Mammoth White Pekin Duck Eggs for hatching. $1.00 per dozen. A. Surtman, Petaluma, California.

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Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City Glenn County, California.

White Rats—fifty cents pair. Smith, Route 1, Box 139, Pasadena.

RABBITS

Pedigreed Flemish Giants — No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

Guinea Pigs Wanted, highest price paid. Smith, Route 1 Box 139, Pasadena.

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Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press. 236 Court St. Los Angeles

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Chinese Ringneck Pheasant Eggs. Orders filled immediately $3.00 per setting. El Nido Pheasantry, Fairoaks, California

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There's a big difference between "Caterpillar" power and ordinary power. "Caterpillar" power is *dependable* power, *economical* power, *flexible* power, *long lived* power, *liberal* power—and power in any unit you need. You can choose from "Caterpillar" "75," "45," Western 10-ton or 5-ton Tractors. Ask our representative in your neighborhood or write us for more information.

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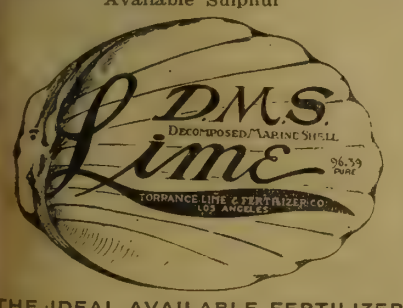

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Write for scientific data and letters of endorsement from users.

Yucaipa Valley apple trees have set too large a crop and orchardists are thinning heavily. One grower counted 2,000 pulled from one tree and crop still too thick.

Prehistoric Life Enriches Present Day Soil

CALIFORNIANS delight in delving into the days of old, in fact into other periods when animals other than those occupying the earth today existed here. The tar pits of La Brea have yielded up the mastodons, the saber-toothed tigers and other prehistoric animals and they have been reconstructed in our greatest museums and educational institutions. Many of these have been declared to be the finest preserved of any discovered on this earth. We have sometimes felt that this sport is comparatively modern, but it seems that in the good old 49'er days the work had already begun. In Bret Harte's "The Society Upon the Stanislaus" he describes the society, some of its functions and one particular event in the society's existence in the following lines:

Now, nothing could be finer, or more beautiful to see,
Than the first six months proceedings of that same society,
Till Brown of Calaveras brought a lot of fossil bones
That he found within a tunnel near the tenement of Jones.
Then Brown he read a paper, and he reconstructed there,
From those same bones, an animal that was extremely rare;
And Jones then asked the chair for a suspension of the rules,
Till he could prove that those same bones was one of his lost mules.
Now I hold it is not descent for a scientific gent
To say another is an ass—at least to all intent;
Nor should the individual who happens to be meant
Reply by heaving rocks at him to any great extent.
Then Abner Dean of Angel's raised a point of order, when
A chunk of old red sandstone took him in the abdomen;
And he smiled a kind of sickly smile, and curled up on the floor,
And the subsequent proceedings interested him no more.

Now if we might change "red sandstone" to "gray limestone" we might apply a portion of the above to a development at present under way in the quarries near Lomita in Los Angeles County. Chunks of lime from these quarries are now being used to jar certain non-productive conditions out of orchard soils. Many thousands of tons of a deposit have been discovered. That deposit consists of a mass of pure lime, largely of decomposed marine shell. In this shell deposit is also found a mass of decayed or decaying bones. Occasionally these bones are found partially petrified but as yet none of these have been found sufficiently well preserved that any of the neighbors have endeavored to reconstruct one of Brown's mules.

The existence of these deposits has been known for several years but not until about a year ago has the work of bringing them out and making them available for soil correction been carried on under direction of S. Maus Purple. Liberal applications have been made on many of the orchards of Orange County and these orchards are today showing a liberal setting of fruit and a healthy condition. Amongst these orchards are those of A. S. Bradford near Placentia where 200 acres have had an application of 12½ tons per acre. The trees are loaded with fruit. Another was that of C. E. Basten, also near Placentia, where 20 acres, which he said was almost defoliated, had yellowed leaves, the trees endeavoring to grow in a soil which was the consistency of putty, had been brought out with a wealth of dark green foliage and set an immense crop by the application of 15 tons per acre. These trees are 21 years old. Fred L. Sexton, an orange grower with orchards near Anaheim (also enthusiastically pushing the sale of the decomposed shell) calls special attention to the Fullerton orchards of Ralph Carhart, where an application of five tons to the acre had wrought what he termed an almost miraculous change in appearance and the bearing of the grove. This orchard bearing only indifferent crops was one of the very first to make applications of the lime. Soil conditions had been materially improved and the trees were loaded almost to the breaking point with good sized, high quality oranges.

Analysis shows this lime to contain a trace of nitrogen, 1.84 per cent phosphorus, and 54 per cent of pure calcium. It has also about one-fourth of one per cent of sulphur. Prof. Gilbert Bailey of the University of Southern California declares it one of the most satisfactory forms of lime he has seen. In one particular especially did he call attention to the fact that this form of lime could be freely used with poultry manure or other manures where nitrogen is largely in the form of ammonia and easily lost. This form of lime would act more as an absorbent and preserve rather than dissipate the ammonia.

It appears that the benefit from the application of this lime has been partly in giving to the soil needed elements, but more in creating a soil condition congenial to the myriads of soil bacteria and enabling them to work.

EFFICIENT PRODUCTION OF EXTRACTED HONEY

(Continued from Page 715.)

hensive test and find it the best one we know of. If the colony should cast a swarm of itself it will not produce the amount of honey that it would otherwise.

In the manipulation of each individual colony it is presumed that the bees are of good stock, strong and healthy. If this is not the case, get them that way. Requeening every two years is the best plan for good vigorous stock. It is a very good idea to requeen in a yard of 200 stands about 100 each year. And we consider that it pays the beekeeper or producer of honey either to raise his own queens or purchase good healthy stock and not allow inbreeding. We prefer the three band Italian bee as the best all around bee as it seems more resistant to the ravages of bee diseases than others.

This plan of operations requires considerable time if bee yards are large, but if one expects a crop of honey it is work, work all the time, and you will only get out of your apiary just in proportion to what you put into it, the same as in any other occupation.

In California there is very little time during the year that bees cannot fly and our crops extend over several months, though some months are not so productive as others.

Queen excluders should be used in the production of extracted honey as this is the only method by which the queen may be kept away from the extracting super of the colony. When brood of any age is allowed in the extracting super good clean edible honey cannot be produced, but these excluders should not be allowed to remain on the colony during the winter or closed period.

I have written this article, assuming beekeeping on a commercial scale. It will apply to large or small beekeepers, even those of only 25 to 50 colonies.

The United States bureau of plant industry has from time to time received seeds of most excellent passion fruits and it is strange some of them have not been universally distributed in California, where all members of this family grow well.

In 1910 the department sent out photos and a description of Passiflora ligularis. From the latter we quote: "One of the best of the passion vine fruits. It is about the size of a hen's egg, with a parchment-like skin, containing a sweet acidulous pulp surrounding the seeds. It grows on a vine which clings by tendrils, and is cultivated on verandas and arbors, producing fruit in a few months after planting. The fruit is used in making sherbets and refreshing drinks. It is recommended for sub-tropical regions or for greenhouse culture."

Let no pleasure tempt thee, no profit allure thee, no ambition corrupt thee, no persuasion move thee to do anything which thou knowest to be evil; so shalt thou always live jollily: for a good conscience is a continual Christmas.—Benjamin Franklin.

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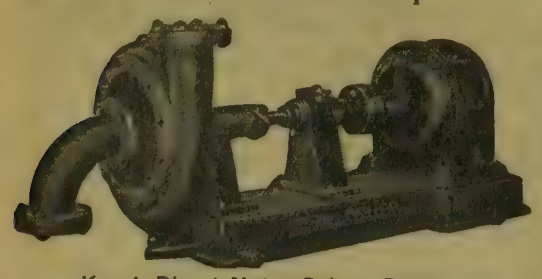

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Principles of Culling

By Jean A. Koethen

CULLING, as it is carried on on commercial poultry ranches between the months of May and November, is based for the most part on two fundamental principles: first, that the profitable layer must be a long distance layer—that is, she must lay a good many months without interruption; second, that whatever interferes with production is detrimental to profit and constitutes a reason for segregating the hen that is interfered with, if not for disposing of her altogether. When a hen stops laying the first question we have to ask is, "Why?"

Now some hens quit laying or lay only tentatively and without much spirit because they have not the constitutional vigor necessary to consistent production. Such a hen may be spotted by her lusterless eye, her feeble, desultory ways. Does she stand back in a corner when the others are squabbling over their dinner? Off with her head. Does she loaf on the roost in the morning when the others are scratching, or seek it before supper is over? Is her crop only half filled when she goes to roost? Is her comb pale and shrunken? Out with her. She is a slacker, not because she is lazy but because she is a weakling. On up-to-date ranches every hen that stops laying for any reason whatever before the first of July is eliminated. She is not a long distance layer.

But the two things most likely to interfere with the laying of a normally vigorous and healthy hen are broodiness and molting. Hence we cull first for broodiness and second for molting.

Eliminate the Broody Hen

On one ranch every hen that goes broody before the first of July is eliminated. If she goes broody so early in the season she will go broody again, and the hen that stops laying every month or so and begins to cluck will never lay 200 eggs. Most likely she will not reach 120. The hen that goes broody after July 1, but goes broody only once, is permitted to remain, but she is banded and not allowed in the highest class. The hen that goes broody twice is eliminated.

Cull for Early Molting

On another ranch early molting is made the supreme test, second only to vigor. No hen that molts before September 1 is allowed to remain in the flock. The hens that go into the molt after September 1 are divided into three classes: those that molt before September 15, those that molt before October 15 and those that molt before November 15. The latest molters are banded as the choicest layers and are used in the cockerel breeding pens. The others are second and third class, according to time of molting.

Such a rule may seem arbitrary to some and likely to cut out some deserving hen, but the fact is that many hens do pass the test and lay for a year or more before they molt. If these hens are carefully selected and used as breeders to the exclusion of other birds just as good looking and typey, improvement of the flock is inevitable. Two years ago the necessity of breeding up was urged because of the high price of feed. Feed has gone down but the low price of eggs still demands improvement. If eggs are cheap we must increase profits by cutting expense and that means making one hen do the work of a hen and a half. When feed bills are less smaller egg checks will not be so serious a matter.

Color Test

The color test is really only a molting test. Heavy production tends to fade the color from shanks, vent, beak and earlobes, and when the production stops the color returns. A hen that in June shows bright yellow shanks and beak has not been laying heavily. She may have already begun to molt, and she may have done so little laying that the color has never faded. Whatever the reason, she may safely be eliminated.

Beginning with June, the color test may be used for culling out unprofitable birds, and in September, October and November it may be used for classifying the layers. In October the hen with the bright yellow shanks and beak and glossy feathers is the one that has already finished molting, and the ragged, faded bird is the long distance layer. Hens may be classified as good, better, best, according as they show much or little yellow color, but the bright colored birds are the early molters and the faded ones the late molters, so it narrows down to a molting test after all.

FIFTY POULTRY FARMS FOR EX-SERVICE MEN

Plans to subdivide a limited area of land at Delhi into 50 five acre poultry farms providing homes for 40 ex-service men besides ten experienced poultry raisers were announced recently by the state land settlement board at the University of California College of Agriculture. These plans are announced by Professor Elwood Mead, chairman of the state board. Professor P. I. Dougherty of the poultry division has inspected the land and has reported favorably upon it. The area under consideration is located on First Avenue, one mile east of the board's office at Delhi.

That the presence of 25,000 or 30,000 hens would be enough to justify the establishment of a cold storage plant is the belief of Professor Dougherty, it is stated. Such a plant could be established in connection with the arrangements for the cooperative marketing of other products.

Professor Mead today invited experienced poultry raisers desiring to participate in this development to confer with him at his offices in 100 Agriculture Hall, University of California.

Poultry Queries

Conducted by Jean A. Koethen

Broken Rice

I would like to know the value of broken rice for chickens. Should it be fed dry or cooked?—Subscriber, Simi.

Broken rice may be used up to 1/3 of the scratch feed if it is cheaper than other grains, but it is not as good for the growing chick as corn or wheat, and its use should be limited. According to Professor Jaffa, its nutritive ratio is from 1:12 to 1:14; that is, it is very fattening indeed, and not so well adapted to the building of bone and muscle and deep tissues as wheat bran, which has a nutritive ratio of about 1:4. It may be mixed dry in the scratch or cooked quite dry and fed as a sort of wet mash once a day.

To Postpone Laying

How can I keep my White Leghorn pullets, hatched in February, from laying before September? At present I am feeding a mixture of milo, wheat and growing scratch night and morning, and a growing mash with about 1/3 bran added, which is before them all the time, also plenty of chopped green alfalfa.—Subscriber, Del Rosa.

At the university farm pullets are held back from laying too early by replacing the laying mash, when they are 3½ to 4 months old, with a mixture of 95 per cent bran and 5 per cent bone meal. Along with this, they should have all the greens they will eat, and as much range as can be given. They are kept on this maintenance mash till it is time for them to begin to lay, which is about the age of six months and then are given a regular laying mash. The scratch used with the maintenance mash should contain considerable cracked corn, so that the birds may have a little surplus fat on their bodies when production commences.

Good Egg Record

Between January 1 and May 10 my 16 Barred Rock hens laid 1,180 eggs. Is this a real egg record? They run at large, and till the last four weeks have picked their own living from a

barley straw stack and corn ensilage —Mrs. C. E. H., Riverside.

That is an average of 56¼ per cent, which is very good, especially considering that they have not had a regular egg ration. Had they had a laying mash and some wheat at night in addition to their corn and barley, they might have reached an average of 180 or over. Doubtless the exercise they got scratching for their living was largely responsible for their excellent production.

Blood Streaks

Can you tell me why many of my eggs are streaked with blood?—Subscriber, San Diego.

These blood streaks come from slight hemorrhages in ovary or oviduct, and are believed to be due to forcing. Leghorn pullets that are fed a heavy laying ration or a ration containing stimulants which push production beyond the normal are quite likely to show such streaks in their eggs. The cause, of course, suggests the remedy. Add bran to the mash, cut out condiments, feed more greens, and give the pullet a chance to slow down in production and build up her constitution.

Roupy Turkeys

My turkeys are dying. On examination I find that nearly all have canker in the throat and under the tongue. There is coughing and rattling in the throat, and when they are held head down mucous runs out of the windpipe. I find the lining of the crop also partly covered with this yellow cheesy substance, and there is stringy greenish diarrhoea. Some live a week and some die suddenly on the nest. I have given permanganate of potash and used it in the drinking water.—A. J. B.

Your turkeys have diphtheretic roup. They should be separated at once from the rest of the flock and put so far away that contagion cannot be carried. Wash your hands with an antiseptic after treating them, and do not carry vessels from their yard to the flock. You will have to swab out their mouths and throats with peroxide of hydrogen or a 50 per cent solution of hydrochloric acid, and then spray with the following solution: Extract of witch hazel, 4 tablespoons; liquid carbolic acid, 3 drops; water, 2 tablespoons. Use the spray twice a day after the throat has been cleaned out. Permanganate of potassium is useless except as a head dip. Dipping the head in a solution and holding it there a few seconds is often effective when only the nostril is to be reached, but does not reach the throat and windpipe.

Swollen Abdomen

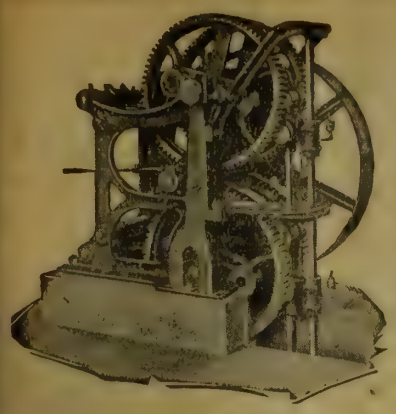
Two of my R. I. Red hens three years old had such a swelling of the abdomen that I was obliged to kill them. The skin turned dark and feverish; droppings thin and white. They moped several days and would not eat. The ration consists of scratch feed, rolled barley and bran, lettuce and table scraps. They have been laying well.—A. W. M., Los Angeles.

As those hens were old, I suspect they were so fat they could not readily lay the eggs they manufactured. Perhaps a broken egg clogged the oviduct or there was a rupture, and blood poisoning followed. There was probably nothing you could have done for them.

Depluming Scabies

Some of my hens become bare of feathers in spots, and others are almost naked. I have looked for some sort of mite but can find nothing. Please tell me what to look for and a remedy.—Subscriber.

You cannot see the mite that is working there without the aid of a microscope. Some of the feathers have very likely been pulled out by the hens themselves, and there is no stump, but if you look closely around the stumps that do show near the bare spots you will find masses of tiny epidermal scales. Under the microscope these are found to be full of mites. The remedy is to rub into the skin every four or five days one of the following: Balsam of Peru, diluted 1 to 3 with alcohol; oil of caraway ointment (1 to 5); sulphur, 1 dram, carbonate of potash, 20 gr., lard or vaseline, ½ ounce, mixed into an ointment. Be sure you treat every affected bird.



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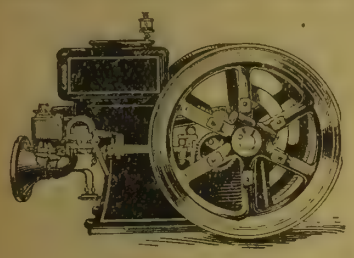

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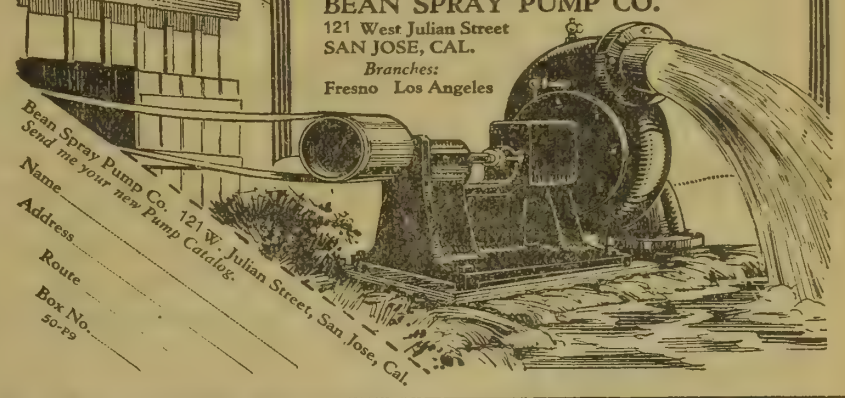

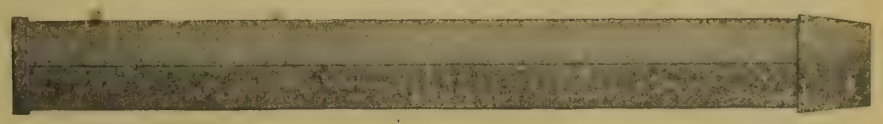

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Los Angeles Markets

Los Angeles, May 25, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price 35 cents.

CHEESE

Brokers' prices:
California flats, 16@18.

EGGS

Fresh extras (case included): Produce Exchange closing price 26 per dozen. Case count Produce Exchange closing price 24½. Pullets, closing price 21 per dozen.

A slight strengthening of Eastern markets is to be noted. New York is now quoting California Whites at 30 to 34 which is not very satisfactory but the general condition promises improvement.

POULTRY

Price to producers: Hens, 21; colored, 32; broilers, 20@25; roasters, 40; old roosters, 10; fryers, 40; ducks, old, 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live 50; dr., 54; squabs, 45@47.

Belgian hares, live, 12@16; old, 8.

LIVESTOCK

Los Angeles, May 24. — Weighed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs. 9.00; 175 to 225 lbs., 9.50.

Cattle (on foot, gross weight): Steers, good, 8.00@8.50; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Calves, 125 to 150 lbs., 9.50; 175 to 225 lbs., 9.00.

Sheep: Ewes, 5.00@5.50; lambs, 8.50@9.00.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered.

Green and green salted hides: No. 1 hides, 5 per lb.; No. 1 kips, 15 to 25 lbs., 6½ per lb., No. 1 calf skins, under 15 lbs., 12½ per lb.; No. 1 slunks, 20@50 each; No. 1 bull hides, 4 per lb.; No. 1 horse hides, over 50 lbs., 1.75 each; No. 1 horse hides, 40 to 50 lbs., 1.25 each; No. 1 horse hides, 30 to 40 lbs., 75 each; ponies, 30 each; No. 1 grubby hides and skins, 1½ less; No. 2 hides and skins, 2 less; kosher hides and skins, 1 less; glue hides and skins, 1 per lb.

Dry flint hides—No. 1 hides, 16 lbs. and up, 9 per lb.; No. 1 kips, 6 to 16 lbs., 10 per lb.; No. 1 calf skins, under 6 lbs., 11 per lb.; No. 2 hides and skins, 2 less; glue hides and skins, 2 per lb.

Pelts: Large, long wool, 40@70 each; medium, 20@40 each; short wool and shearlings, 10@20. Lambs, 10@30 each; badly damaged and very small lambs, worthless.

Goat skins: No. 1 common, 10@30 each; No. 2, 5@10 each; badly damaged and small kids, worthless.

Tallow: No. 1, white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool: According to quality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock May 24, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market steady. Idahos: Russets mostly 2.25@2.50, Rurals, 1.90@2.00. Oregons: Burbanks, 2.25@2.35; few 2.50. New potatoes: Supplies light, market steady, best 1.75@2.00, small 1.00@1.25 per lug.

Onions: Supplies heavy, market weak. Stocktons: White Globes and Browns, cold storage stock best 1.00, poorer 60@ mostly 12½. Coachella and Imperial Valleys standard crates Wax 1.15@1.25.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock May 24, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Artichokes: Supplies heavy, market steady, 75@1.00; few fancy, 1.25 doz.

Asparagus: Market steady; supplies liberal. Local: Mostly 13@16 per lb. Northern, 10@13 per lb.; poorer, 7@9.

Beans: Supplies liberal. Per lb., Green Kentucky Wonders, 14@17 per lb., green pods, 12@14 per lb.; Wax, 11@13 per lb.

Beets: Doz., 30@40.

Cabbage: Field crate best mostly 3.25 @3.50; poorer, 2.25@2.35.

Carrots: Doz., 35@40.

Celery: Supplies light, market firm, best per cr., 11.00.

Corn: Supplies moderate, market steady, best 60@75 per doz.

Cucumbers: Local best, 1.75@2.00 doz.; Hothouse, mostly 1.50@1.75.

Eggplant: Supplies moderate. Imperial, mostly 17@20 per lb. Mexicans, mostly 12@15 per lb.

Lettuce: Local field crate quality poor, 75@90; best, 1.00@1.25.

Peppers: Supplies liberal, market

Peas: Local, best 12@15; poorer low as 10 per lb.

steady. Imperial Valley, Bells and Chilis, best, 25@30 per lb.; Mexicans, Bells and Chilis best, 22@25 per lb.

Radishes: 20@25 doz.

Rhubarb: Local strawberry 1.10@1.25 bx.; jobbing 1.00@1.15; Crimson Winter, 60@80.

Spinach: Mostly 25@30 doz.

Squash: Summer, best, 80@1.00; jobbing, 70@90; Italian, 75@1.00 per flat.

Tomatoes: Supplies liberal, market weaker. Imperial Valley, per crate, best 1.90@2.15; poorer 1.60@1.75; jobbing, 1.75 @2.00.

Turnips: Do, 45@50.

FRESH FRUITS

Cherries: Supplies moderate, Black Tartarians mostly 18@20; poorer 14@16.

Apricots: Supplies light, market steady, mostly 2.50@3.00 per 20 lb. bx.

Blackberries: Supplies moderate, market steady. Best 5.00@5.50; few low as 4.50.

Loquats: Best mostly 7@9.

Strawberries: Supplies moderate, market weaker. Per crate, 30 pints, best 4.75@5.25; poorer 3.00@4.00; fy., 5.75.

Raspberries: Supplies moderate; best, 4.50@5.00; poorer, 3.75@4.25 per 30 pint crate.

CITRUS FRUITS

Grapefruit: Supplies liberal, market firm on good stock. Local: per box, market pack 2.00@2.50, special packed brands 3.00@3.25.

Lemons: Supplies heavy, market dull, wide range in prices. Local: packed box 1.50@2.25, few high as 2.75, loose 75@1.00 per box, per lug mostly 40@50.

Oranges: Supplies firm, market firm. Navels, market pack, large sizes 3.00@3.50, small low as 1.75, special brands, large sizes 4.00@4.75, small sizes 3.00@3.50. Valencias, best brands, all sizes 3.75@4.00, packing house culls 50@75, few best 1.00@1.75 per box.

HONEY

As reported by the Bureau of Markets: Southern California, Los Angeles: Supplies of White honey light, of Light Amber grades heavy. Movement slow, market dull. Carloads f. o. b. usual terms, per lb. White Orange Blossom 10@12; White Sage 10½@12½; White Alfalfa 7½ @8½; Light Amber Sage, 8@9; Light Amber Alfalfa 6½@8. Hawaiian, White 7; Honey Dew honey 4½. Recent hot winds have badly hurt Orange and Sage honey prospects and with southern Sage already seriously damaged by cold and dry weather, a very light crop of the lighter colored honeys is forecasted. The Alfalfa crop is probably normal. High retail prices are still maintained throughout California, and hurt honey distribution locally. Some large shippers expect a firm market, account light crop this year; other factors are still pessimistic. New honey will move in light quantities this month and next, but shipments in large quantities are not expected before July. Beeswax: Sacked in l. c. l., Light 25@30; Dark, low as 23 per lb.

GRAIN AND FEEDS

Grain Exch. price bid May 24:
Corn: Bulk, No. 2, Yellow 1.65.
Bran: Kansas, 31.50@32.00.
Kaffir: Eastern, No. 2, 1.75@1.80; No. 3, 1.66¼@1.75.
Milo: No. 2 Eastern bulk, 1.93¾@2.00.
Barley: Carlots 1.31¼@1.32½.
Barley: Carlots 1.37½.
Wheat: Mixed feed 37.00@50.00.

HAY

Alfalfa Growers of California report under date of May 23:

Continued light receipts of alfalfa hay, continued with a good demand and absence of selling pressure, gave the market and upward tendency throughout the week and led to an increased business in round lots for prompt and nearby shipment.

The movement of alfalfa hay is still very light for this time of the year; prices remain firm and demand good. The production so far this season is materially smaller than last year up to this time. This is partly caused by the light yield of the first cutting in most sections of the state and partly by the lateness of the season, on account of unfavorable weather conditions, as a result of which in most parts of the state they are almost a full cutting behind last year.

Reports from reliable sources show considerable damage to hay down as a result of the prevailing weather. Weather bureaus report rain very general throughout the state. There were 540 tons received in Los Angeles, week ending May 21.

There were 320 tons received on the Los Angeles tracks the week ending May 14 with 40 tons held over as against 320 tons the week before.

Rabbit Alfalfa	27.00
No. 1 Dairy	23.00
Standard	20.00
Stock	15.00

About 50 per cent of the grain hay south of Tehachapi was cut before the rain. This will be nearly a total loss.

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@28.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	20.00
Standard	16.00
Straw	10.00@13.00

LIVESTOCK

Western Meat Company prices are:

Cattle: Steers, No. 1, 6¾@7; do, second quality, 6¼@6½;.

Cows and Heifers: No. 1, 5@5½; do, second quality, 4@5.

Bulls and Stags, good, 3@3½; fair, 2½ @3.

Calves: Light weight, 7½@8; medium, 6½@7; heavy, 5@6.

Sheep: Wethers 4@5; ewes, 2½@3½.

Lambs: Milk, 5¼@6¼.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 9; 200 to 250 lbs., 8; 250 to 300 lbs., 7.

HIDES AND PELTS

No. 1 heavy hides, 60 lbs. and up, 6; medium, 45 to 60 lbs., 5; No. 1 light hides, 30 to 45 lbs., 7; No. 1 native bulls, 3; No. 1 center branded hides, in all grades, 2 less than base price; No. 1 wet salt kip, 15 to 30 lbs., 7½; No. 2, 5½; No. 1 wet salt calf, trimmed, 13; No. 2 calf 2 per lb. less. The price of No. 2 hides will be 1 less than price of No. 1. Hides having any of the following defects will be classed as a No. 2: Any cut over six inches from the edge, over five bad scores, five grubs, one grain slip, one rubbed spot where grain is gone, one dragged spot where grain is gone, one sore spot where grain is gone.

Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Dry salted hides and skins 6.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good, 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20; milk lambs, 5@10.

California Farm Bureau Marketing Association reports:

Fresno, May 20

No. Hogs	Avg. Wt.	Dock	Price
68	179	...	$9.10
8	109	...	8.65
9	155	...	8.60
32	216	...	7.30
9	273	...	6.80
14	335	140	4.80
1	510	...	4.80
1	500	200	4.30

Total, 2 cars, 20 consignors, $2,122.22.

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, nominal; do, Oregon Burbanks, 2.25@2.60. Nancy Hall, 5.00@6.00 per 100 pounds. New: 1¾@2¾ lb.

Onions: Australian brown, 35@50 per bag; Crystal Wax 1.50@1.75 per cr.; Green 1.85@2.00.

Garlic: New, 6@8 lb.

VEGETABLES

Wholesale selling price:

Asparagus: Culls, 3@4 per lb.; field run, 5@6; fancy graded, 8@10; green 5@6.

Beets; 2.00 sk.

Beans: String, 10@12; Wonder, 12@ 17½; Wax, 15@20.

Carrots: 75@1.00 sk.

Cucumber: Hothouse, small, 3.00@4.00 box of 2½ dozen; large, 2.50@3.00 per dozen; English, 2.00@2.25 per dozen. Signal Hill, 2.25@2.75 per box of 2½ dozen.

Cabbage: Lb., 1.

Corn: Green, 75@1.00 doz.

Eggplant: Lb., 10@25.

Lettuce: Iced, 2.00@2.50; uniced 2.00.

Okra: 15@20 lb.

Onions: Green, per lug, 1.50@1.75.

Peas: Pismo, 6@7 lb.

Parsnips: Sk., 2.00@2.25.

Peppers: Bells, large 20@30; small 10 @20; Chilis, 15@20.

Rhubarb: San Jose, 2.00@2.25.

Squash: Imperial Valley Summer, 85 @1.00 cr., do lugs, 1.25@1.50; Italian, 1.25 @2.00.

Spinach: Lb., 2@4.

Tomatoes: Imp. 2.25@2.75 per cr.; fy. up to 3.50.

Turnips: Sk., 50@1.00.

FRESH FRUITS

Apricots: 2.00@2.25 per four basket crate; 3.00@3.25 per lug.

Avocado: California, doz., 3.00@6.00.

Bananas: Lb., 8½@10.

Cantaloupe: Standard 10.00@12.50; Ponies 8.00@10.00; flats 4.00@6.00.

Cherries: Flat box, 1.75@2.00 bulk, 12½@17 lb.; soft white, 6@10; fy. black, 20.

Pineapples: 4.50@6.00.

Blackberries: Cr., 2.25@2.50.

Figs: 3.00@3.50.

Gooseberries: 6@7½ lb.

Raspberries: Dr., 1.25@1.75; 3.00@ 3.24 cr.

Strawberries: Peninsula and Watsonville, 50@75 per drawer; fancy, 85; Salinas, 1.31@1.50 per crate; Watsonville, 1.30@1.50 per crate, according to quality.

Loquats: Lb., 6@7.

Watermelons: Mex., 5@6 lb.

CITRUS

Navel oranges, 100s to 126s, 4.50@5.00 per box.. 150s, 4.25@4.50; 176s, 4.00@4.25; 200s, 3.75@4.00; 216s, 3.25@3.50; 250s, 3.00 3.25; 288s and smaller, 2.75@3.00; Valencias, 3.00@3.75. Lemons, 2.25@3.75 per box. Lemonettes, 2.00@2.50. Grapefruit, 2.00@3.75. Limes, nominal. Tangerines, nominal.

DRIED FRUITS

Raisins: Vineyard run, layers, 100-lb boxes, 16½ lb.; Sunmaid, seeded, 36 15oz. pkgs. 22½ lb.; seedless Sultanas, 25 lb. bxs., 20 lb.; Thompson Seedless, 25 lb. bxs., 21½ lb.; do, 48 15-oz. bxs. 23½ lb.; 3-cr. L. M., 25 lb. bxs., 18 lb.; 2-cr., do, 17 lb. 1 lb. clusters, 20 lb. bxs., 5.40 box.

Figs: Fancy black, 25 lb. boxes, 12½ lb.; extra choice, do, 10 lb.; choice, do, 8 lb.; fancy white, do, 14 lb.; extra choice, white, do, 11 lb.; choice white, do, 8 lb.; 70 extra choice, do, 10 lb.; choice, do, 8 oz. white, $1.25 bx.; 20 oz. white, $1.75 bx.; fancy 4 layer, 10 lb. bxs., $2 bx.

Prunes: 30-40s, 25-lb. bxs., 15 per lb.; 40-50s, do, 12 lb.; 50-60s, 9½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do,

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San Francisco Markets

San Francisco, May 24, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras	35

Dairy Exchange prices extras this week and year ago:

May	10	11	12	13	14	16
'21 ...	33½	34	34	34½	..	34
'20 ...	55½	55½	55½	55½	..	..

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	14½@16
Oregon Trips	20½
Cal. Y. A.	19
Cal. Flats	15½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	25½
Extra Firsts	25
Dirties No. 1	23½
Extra Pullets	21½
Undersized	17½

POULTRY

Wholesale prices are:

Young chickens, Leghorns, 1 to 1¼ lbs., 29@30; 1½ to 1¾ lbs., 35; 2 lbs. and up, 40; heavy breeds, 1½ to 1¾ lbs., 45; 2 lbs and up, 60. Staggy roosters, 20@ 25; old roosters, Leghorns, 13; do, heavy breeds, 18. Hens, Leghorns, large, 27; do, small to medium, 23@25; heavy breeds, 33@35.

Ducks: Young, 25 per lb.

Geese: 25 per lb.

Turkeys: Live, 40 per lb., do, dressed, 45@50 per lb.

Squabs: 45@48 per lb.

Belgian Hares: 20@28 per lb.

Pigeons: Old 3.00 per doz.

5½ lb.; 90-100s, do, 5 lb.; Persian dates, 14 lb.; Dromedary dates, 6.25 case; fancy silver prunes, 15 lb.

Apples: Fancy, 50-lb. bxs., 10 lb.; extra choice, do, 9 lb.; choice, do, 8 lb.

Peaches: Blue Ribbon brand, 48 11-oz. to cs., 7.00 cs.; do, 24 2-lb. to cs, 8.00 cs.; fancy peaches, 25-lb. bxs., 15 lb.; extra choice, do, 12 lb.; choice, do, 11½ lb.

Apricots: Fancy, 25-lb. bxs., 29 lb.; extra choice, do, 22; choice, do, 20; standard, do, 18.

Pears: Fancy, 25-lb. bxs., 15 lb.; extra choice, do, 12; choice, do, 10.

BEANS

Below California Bean Growers Association shippers prices choice recleaned

Large Whites	3.25
Small Whites	3.35
Pinks	5.85
Mexican Reds	7.90
Red Kidney	9.15
Henderson Bush	4.90
Cranberries	6.80
Bayos	10.50
Blackeyes	7.50

GRAIN

Sales grain exchange, May 17:

Corn: Cal. Yellow, 1.35@1.45; White Egyptian, 2.10@2.25.

Oats: Red feed, new crop, 1.50@1.60.

Barley: Feed, 1.20@1.25; off grades lower; shipping, 1.30@1.45.

Milo: Cal. Red, 1.75@1.85; Eastern Red, 1.60@1.65.

Kafir: Eastern, 1.50@1.55.

HAY AND FEED

Alfalfa Growers of California report under date of May 23:

No. 1 Dairy	17.00
Standard Dairy	15.00

Under date of May 21, A. W. Scott Co. says:

receipts of hay for the past week were 937 tons as compared with last week's arrivals of 839 tons. As yet only a little new volunteer and some new first cutting alfalfa have appeared on the market and have been slow to sell at our quotations below. No new grain hay has yet been reported sold either on our local market or in the country.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers, charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	18.00@20.00
Wheat Hay, light 5-wire bales	15.00@18.00
Tame Oat Hay	15.00@17.00
Wild Oat Hay, old crop	11.00@13.00
Wild Oat Hay, new crop	10.00@12.00
Barley Hay	11.00@13.00
Alfalfa Hay	14.00@16.00
Alfalfa Hay, new first cutting	10.00@12.00
Stock Hay	10.00@12.00
Barley, Ground	31.00@34.00
Barley, Rolled	28.00@30.00
Oats, Rolled Feed	35.00@37.00
Bran, Red	34.00@36.00
Bran, White	36.00@38.00
Millrun	36.00@40.00
Middlings	47.00@50.00
Linseed Meal	37.50@40.00
Coco Meal	25.00@27.00
Alfalfa Meal, old crop	24.00@26.00
Alfalfa Meal, new first cutting	22.00@23.00
Cottonseed Meal	35.00@40.00
Sugar Beet Pulp	32.00
Mblasses, Tanks	25.00
Milo	39.00@40.00
Corn Meal	39.00@41.00
Molasses, Bbl.	26.00

Citrus Markets

Los Angeles, May 25, 1921.

The orange market is exceptionally good, Navels closing the season with fine prices. Auctions show many above $5 sales.

Lemons likewise are improving, occasional auction sales showing as high as $7.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 23,243 cars; lemons, 5,053; total, 28,296. To same date last season: Oranges, 19,265; lemons, 4,054; total, 23,319. From Central California to date this season: Oranges, 6,130; lemons, 138; total, 6,268. To same date last season: Oranges, 5,288; lemons, 287; total, 5,575. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

AT THE AUCTIONS

May 18

New York: 32 or., 3 mixed, 3 lem. Nav. 2.95-4.95, Val. 2.60-4.80, Sweets 3.30-3.70, Mikes. halves 1.55-1.80, Bloods halves 1.80, grapefruit halves 1.50, lem. 2.95-4.10.

Boston: 15 or., 1 lem. Nav. 4.15-5.40, Val. 2.60-4.95, lem. 4.60-4.90.

Pittsburg: 10 or., 3 lem. Nav. 2.80-4.75, Sweets 3.20-4.00, Bloods 4.10, Seeds. 4.10, lem. 1.70-3.95.

Cleveland: 9 or., 1 lem. Nav. 3.85-5.25, Sweets 3.85-4.95, Mikes. halves 2.20-2.45, Val. 5.10-5.50, lem. 3.10-4.10.

St. Louis: 8 or., 2 lem. Nav. 3.80-5.05, Val. 3.60-4.85, Sweets 3.70-4.45, lem. 3.50-4.90.

May 23

New York: 25 or., 5 mixed. Nav. 4.30-6.70, Val. 3.95-6.25, Sweets 3.85-4.25, Maltas 4.00-4.25, Mikes. 4.15.

Boston: 21 or., 1 lem. Nav. 3.75-5.35, Val. 3.20-5.35, lem. 2.50.

Pittsburg: 2 or., 2 lem. Nav. 3.80-4.70, Val. 3.25-4.75, Seeds. 3.25-3.50, lem. 4.70-4.90.

Philadelphia: 16 or., 3 lem. Nav. 3.15-5.15, Val. 2.75-5.85, Sweets. 3.50-4.40, Bloods 3.70-4.00, lem. 2.10-4.65.

Cleveland: 9 or., 1 lem. Nav. 3.75-5.20, Val. 3.85-5.00, Sweets 4.55-5.15, lem. 6.50.

St. Louis: 6 or., 3 lem. Nav. 3.80-4.70, Val. 4.25-4.50, Seeds. 3.50-3.60, lem. 5.65-6.90.

Baltimore: 3 or., 2 lem. Nav. 3.35-4.30, Val. 4.05, lem. 3.35-4.75.

May 24

New York: 19 or. Nav. 3.95-5.55, Val. 3.85-6.05, Mikes. 1.85-4.00, Seeds. 3.75-4.35, Bloods. 2.00-4.10, Sweets 4.20-4.40.

Boston: 17 or. Nav. 3.15-5.40, Val. 2.95-5.05, Seeds. 3.50-4.35, Sweets 3.95-4.70, Bloods. 4.25-2.70.

Pittsburg: 6 or., 1 lem. Nav. 3.65-3.90, Val. 3.75-4.25, Sweets 4.00-4.40, lem. 7.20.

Philadelphia: 9 or., 2 lem. Nav. 3.25-5.30, Val. 3.75-5.65, Sweets 3.80-4.35, Seeds. 3.80, Mikes. 2.45, lem. 3.80-4.35.

CONCRETE PIPE TESTS

Concrete pipe is a necessity to California, that is, good concrete pipe. So much poor stuff has been made, however, that Farm Adviser Hodgson has lately considered it necessary to hold eight pipe testing demonstrations in various parts of Los Angeles County to show the chief points necessary to consider when making or purchasing concrete pipe.

To make these meetings of greatest value Mr. Hodgson secured the services of Fred F. Foster, field manager of the Associated Pipe Manufacturers of Southern California. So great a range of pipe was shown in commercial material submitted that one piece broke at four pounds pressure while another held up to 80 pounds pressure, though in ordinary field work pressure is seldom more than 20 pounds. Some poor pipe showed seepage of water at but two pounds pressure. Good pipe should become better with age, but poor pipe rapidly deteriorates.

Cement of the best only should be used, sand must be clean, and either crushed rock or clean gravel used, resulting, with the addition of a little rock dust, in a concrete pipe of great density and proof against age. The mixing should be uniform, and this means thoroughness with a good machine, after which proper curing will bring a top-notch pipe; a curing of not less than ten days. If concrete pipe is manufactured according to recognized standards and specifications it should improve with use and age. These necessary standards have been recommended by the Los Angeles section of the American Society of Civil Engineers and adopted by the Southern California Associated Concrete Pipe Manufacturers, and all purchasers of pipe should insist that it conform to these standards. The cost of standardized pipe is proportionately no greater than that of inferior grades.

Enter Alkali

The United States government is authority for the statement that where excessive amounts of alkali is present in the surrounding soil, some other material than concrete is necessary. Right here is where clay pipe comes to the rescue, for clay resists the action of alkali if well burned, even though the burned clay is not impervious to water.

In 1917 the federal government issued a bulletin dealing with the subject, entitled Technologic Paper No. 95. In the May number of "Reclamation Service," E. C. Bebb, United States reclamation engineer, in reporting on a continuance of the experiments, says: "Summing up, our experiments seem to indicate that surface disintegration of the poorer grades of concrete begins with concentrations of about two-tenths of one per cent (in waters of the sulphate type) and that severity of the action increases until with concentrations of two to three per cent even the best concrete disintegrates rapidly. * * * Alkali salts are not uniformly distributed throughout the soil or through seepage waters and it will be difficult to determine in advance the concentrations to which a structure may later be exposed. As was to be expected durability appears to be dependent upon impermeability, which in turn is mainly dependent upon richness of mix and gradation of aggregates. * * * Salt in solution is the primary cause of the trouble."

SAN FERNANDO FAIR

San Fernando Valley proposes to hold a real fair. It will be one of the earliest fairs in the state, following immediately after the state fair at Sacramento. The dates chosen are September 13-18. One of the outstanding features will be a practical working tractor demonstration. A still exhibit will be made on the fair grounds while nearby the Lopez ranch 700 acres of fine sandy loam has been secured as demonstration field. A great number of tents are to be erected, in fact, there will be under canvas 125,000 square feet of exhibit space. The biggest tent of all will be devoted to tractors. Others will be occupied by trucks, trailers, pumps and irrigation, motor cars, power farming generally, machinery and implements, horticulture, agriculture, home economics, poultry, livestock. The fair will be under the direction of the San Fernando Valley Fair and Market, Inc., of which Dr. W. H. Gundrum of Owensmouth is president and M. G. Dial of San Fernando is chairman of the fair committee. E. R. Elkins is director of fair. R. M. O'Neil will be director of tractors, trucks, power farming, machinery and implements. The poultry department will be under the management of E. I. Hammond of Riverside. The premium list will aggregate about $5,000.

DOWELL ROADS BILL

At the April meeting of the American Farm Bureau Federation in Washington the following resolution was passed:

"We earnestly approve the local building of farm-to-market highways by the use of federal and state and local funds. Until such roads are built we emphatically oppose the construction by the federal government of a few hard surface transcontinental roads. Regardless of the character of the roads which are built, an adequate amount of such funds should be provided for their maintenance and repair. We urge the administration of federal road funds be in the hands of the United States department of agriculture."

Congressman C. C. Dowell of Iowa has introduced a bill, H. R. 5693, which meets much more closely the American Farm Bureau Federation's demands for farm-to-market roads than the bill introduced some time ago by Senator Charles E. Townsend, chairman of the committee on post roads. The Dowell bill continues the supervision of the federal funds in the bureau of roads in the department of agriculture. It requires each state receiving federal aid to designate through its highway department a connected system of roads interstate in character not exceeding seven per cent of the total road mileage in the state and to classify the system in two groups—primary or interstate, and secondary or intercountry. The state highway department is required to submit to the secretary of agriculture project statements setting forth proposed construction of any rural post or other roads, and to furnish to him any surveys, plans, specifications and assistance that he may require. The secretary is prohibited from providing any funds until the state has adequate money for the maintenance of federal aid roads and by law shall have placed maintenance work under the direct control of the state highway department. The federal money is to be matched with state funds. At least 60 per cent of the federal aid will be expended on the primary or interstate roads of state systems until completed. Exacting requirements are provided for the maintenance of all federal aid roads. The Dowell bill permits the secretary of agriculture and the states to determine the width of roads according to local conditions or requirements.

ALMOST TWINS

The prevailing belief that a double yolked egg cannot hatch is almost disproven by an experience of Mrs. C. E. Hibbard of Riverside, who writes:

"On Sunday, May 8, one of our hens came off with 12 chicks. Thinking the hatch was over, as no more eggs were pipped, we let her off to eat. Returning to the nest some 20 minutes later, we found another egg containing a dead chick. This chick had two bodies, two sets of wings, four legs and feet, but only one head. The two bodies were joined from neck to tail. They were covered with down, and we have every reason to believe they would have hatched if the egg had not been broken. We have put this curious chick in alcohol and intend to keep it."

WEATHER REPORT

San Francisco, Cal., May 21, 1921.

Stations	Wk Rainfall	Season Rainfall	Norm.	Max Temp.	Min. Temp.
Eureka	.98	47.30	44.21	58	46
Red Bluff	.80	27.47	24.27	78	44
Sacramento	.62	16.75	19.75	78	46
San Francisco	.10	23.03	21.90	68	48
San Jose	.38	14.88	16.51	70	44
Fresno	.36	8.05	9.43	82	47
San Luis Obispo	.54	19.20	20.08	64	40
Los Angeles	1.40	12.79	15.47	68	52
San Diego	.35	6.19	9.88	62	52

Opossums were introduced to the Santa Clara Valley some years ago and are now becoming a nuisance to poultrymen and others.

"RED TOP"
STEEL FENCE POSTS

Cost no more in the fence line than other fence supports. They are easier to haul, handle and install.

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Prices

	Per 1000
10 in. long, 7 in. wide	$10.00
12 in. long, 7 in. wide	11.00
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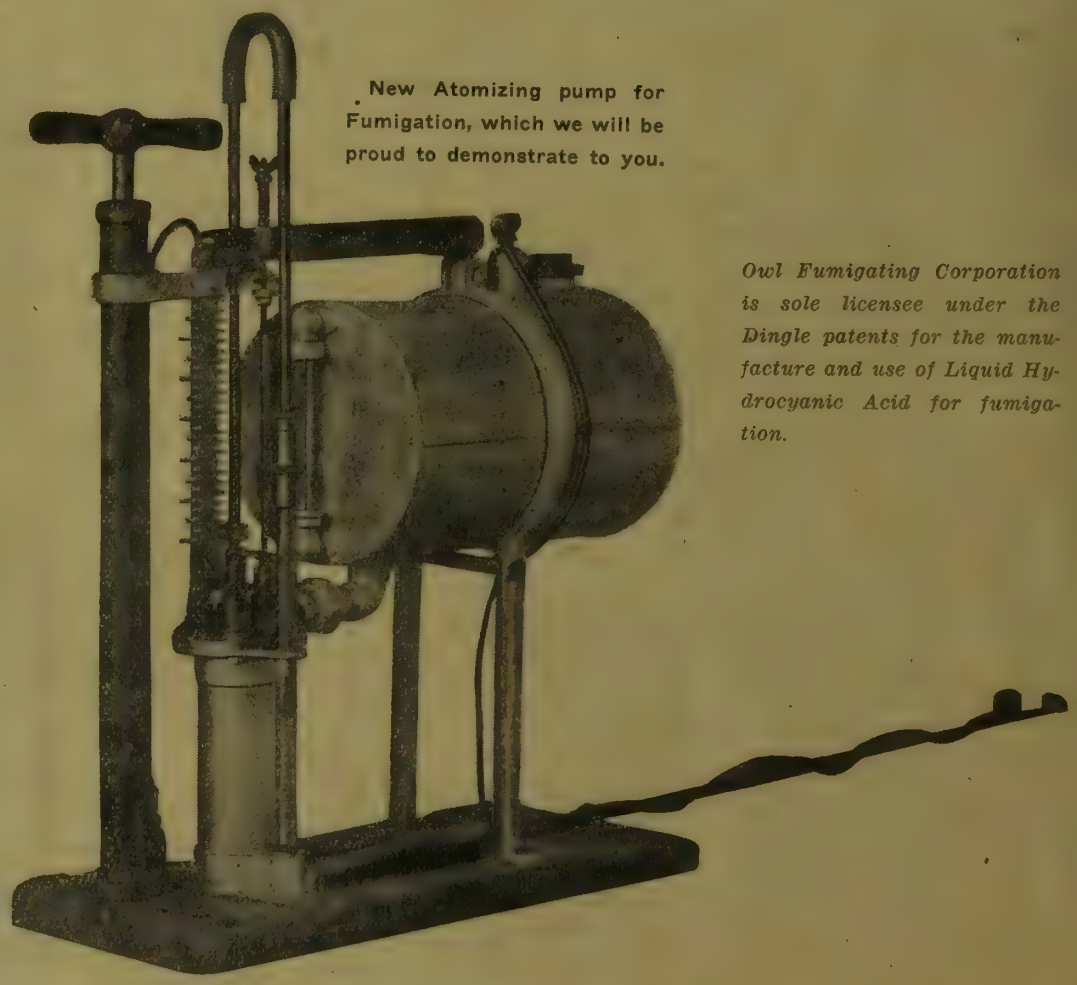

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — June 4, 1921 — No. 23

Gold of Ophir or Beauty of Glazenwood

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR

with LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard — D. F. Reichard
J. W. Mills — J. B. Neff
Fred M. Reed — Louis B. Stanton
G. E. Gordon — M. E. Bemis
A. R. Gould — E. L. Koethen

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Saturday, June 4, 1921

OUR ADVERTISERS RELIABLE

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EDITORIALETTES

That is not a photograph of a load of hay on the cover. In fact, it is altogether too large and, we might add, too valuable for a load of hay. Its appearance was that of a great stack of gold rather than roses. It is said that Portland and other sections of the Northwest are so congenial to roses that there they are at their very best, but no rose producing section in the world ever gave a more striking vision than did the original of this photograph. It will be another year before this scene will be repeated, but if one will remember about the first of next May and drive to San Dimas in eastern Los Angeles County he will doubtless see a repetition of this wonderful picture in the rose bush growing over a large lathhouse of Mr. Teague's nursery.

* * *

The king of England has his first box of California Navels which was shipped all the way by water. Hence "the Master of the Household presents his compliments to the donor and is commanded to thank him very much for the boxes of oranges and lemons from the California Fruit Growers Exchange of Los Angeles which have safely arrived and been offered for the King's acceptance. The gift is very much appreciated." By the way, the All-Western Committee on Transportation is meeting in Seattle this week. The shipment of Northwestern apples and of California citrus fruits has proven so successful that it is determined that more complete refrigeration equipment may be installed which will permit inter-coastal ocean shipments of all kinds of perishable farm products. The present movement is being encouraged particularly by the citrus growers, who state: "Excessive railroad freight rates forced growers to look into the possibilities of water transportation. This method through various tests has proved entirely practicable as well as economical. The enthusiastic support of apple growers in the North and their pledge to cooperate with us in guaranteeing a tonnage which will interest steamship companies to establish adequate facilities for carrying our commodities, is gratifying and proves that water shipping may be made permanent and that a good percentage of Western perishable crops in the future may move to Eastern markets by all-water routes."

* * *

Speaking of freight rates: It is reported that hundreds of producers of annual crops are refraining from growing more than will be necessary to maintain their existence. The recent reduction of 20 per cent on a few of the products of the coast helps a little, but it must be remembered that the freight rate is still vastly higher than prior to the war. And it probably is remembered that most of the prices being reecived by the farmer after delivery to the Eastern market are vastly inferior to those prior to the war. There is little response by the farmer when urged to produce more under such conditions.

* * *

Now comes cooperation and rural credit. "The purpose of the rural credit society is to standardize paper for agricultural production in the open market and thus give the farmer access to the financial and industrial centers for the sale of such paper, whereas he is today restricted to the local deposit banks. This would not only materially reduce the interest rate which the farmer would have to pay, but it would provide the machinery for the capitalization of the actual tiller of the soil who possesses honesty, energy, frugality and farming experience."

All the 1921 plum crop of Tulare County has been bought by one firm and will be packed at Exeter.

KEEP IT WHERE IT BELONGS

"The sales tax will affect the farmer very disastrously because first he would have to pay the income tax, and on top of this he would have to pay the sales tax, because he would not be able to pass it on as the price of his merchandise is fixed beyond his control. In addition to these two taxes he would have to absorb as a consumption tax all that the trusts and closely controlled corporations are able to hand back to him, so that the farmer would be practically left with three taxes; an income tax, a sales tax, and the consumption tax on the articles he buys, such as agricultural machinery, fertilizers, etc., which are closely controlled and the price of which can be fixed by the manufacturer.

"Those who advocate the repeal of the excess profits claim that it is taking capital from corporations that is needed in the business and that business is being thereby strangled. This claim will not bear close investigation. If it were true, the first sign of it would be that the people had refused to put their money into corporations. Figures show for the last three years that the amount of money put into corporations with a capital of over $100,000 was in 1918, $3,000,000,000; 1919, $12,000,000,000; 1920, $13,000,000,000.—H. C. McKenzie of the Federal Farm Bureau.

E. L. PAYNE

Those who were subscribers of the California Cultivator a decade ago will recall that the legal department and the answers to legal questions were in the hands of Edward L. Payne, and possibly some were aware that he gave up active work in the Cultivator and relinquished his practice at law in order to engage in farming in the Antelope Valley. The recovery of his health was the principal reason for his seeking the outdoor life. He made farming a success, as he did his law practice, but was compelled also to relinquish farming, and a few weeks ago was commanded to cease from his earthly labors.

JIMMIE DE CAMP

Those who have read articles in the columns of the Cultivator which touched upon "Driver Trouble" and other problems of interest to operators of automobile and tractor may recall several appearing within the past two years by James De Camp. A practical driver himself and with fine faculty for conveying to others ideas which he secured by practical everyday work, he wrote some exceptionally fine articles on farm power. It is with greatest regret that we are compelled to announce that he will write no more. He died last week at his home in Highland Park, Los Angeles. Although only 23 years of age Mr. De Camp had been on the staffs of the Los Angeles Times and California Cultivator for several years. With all his ability as a writer he was a remarkably fine character and one who did all in his power to add his share to the world's happiness.

H. O. GARDNER

One of the first to see the value of the federal farm loan and to encourage the organization of local loan associations was H. O. Gardner of Los Angeles. He was active in the formation of several different associations and became secretary of several of them. The largest of these was the Southern California association, which had members in several counties. Loan association work has been so nearly dormant during the past year that Mr. Gardner's work until recently has been very limited, but since the favorable decision of the supreme court has been planning extension of his activities and the making through the associations of many new loans. His work is now ended by his death which occurred last week, but the farm loan activities will be continued by his son, who has been associated with him. Mr. Gardner died in the harness for he continued work at his desk until long after he should have been under the care of a physician.

PAYS THE FREIGHT

A representative of the transportation department of the American Farm Bureau Federation appeared at the interstate commerce commission's hearing in Denver on May 19 and presented the following statement:

"The prices of farm products are set by competitive conditions. The price of farm products is fixed at the market and not at the farm itself. The farmer receives the market price less the freight. The manufacturer adds the freight to his cost of production. It is because the farmer must so pay the freight in every case that the increase in freight rates affected the agricultural interests of the nation so seriously. When you add to this increase in the marketing costs the unprecedented fall in prices of farm products it becomes evident that the farmer has reached the crisis and must be able to put his hay, grain, livestock, fruits and vegetables on the market at a less cost if he is to avoid bankruptcy.

MORE POWER

It is anticipated that it will be but a short time until California's population will be increased by another million, and John Willis Baer's estimate is that for every million increase in population there will be needed 700 million of new money to be invested in public utilities. In fact, it will require more than the 700 million, for it seems that that percentage was based on the needs of the entire country, whereas California's magnificent distances and engineering problems of mountain and valley make more costly investment necessary. To quote Mr. Baer:

"In other words, we must face the fact that California will require a great deal more money than the average state in the Union because of her rapid increase in inhabitants, her size and her scattered population, and it is important that not only banks and financial houses of California, but the public generally, recognize the fact that if California is to keep up her present growth her people must themselves be prepared to provide the utility companies with the monies necessary to furnish the economic necessities for this growth, especially in regard to the development of our hydro-electric power. The California situation is such that these investments are perfectly safe, due to the control by the railroad commission of our hydro-electric utilities."

The need for funds for financing these public utilities, especially the conservation of floods and making possible their use through all the year to develop water for pumping and other farm activities was never so great as now and its cost perhaps never so high, and other needs for Eastern and foreign capital are such that California is called upon to finance her own. Hence our farmers are appealed to for aid in financing that which will add to their own prosperity.

But in this connection we are reminded by an item in a central California paper that entire justice is not always given to irrigators and users of power on the farm in the matter of rates. This item referred to the fact that some farmers were being compelled to cancel contracts for electric power because of the new rates approved by the state railroad commission being so high that alfalfa production at least becomes impossible. One farmer reported his alfalfa was costing him exactly $5 per ton water pumping bill. Alfalfa production at any such cost at present day prices is a physical impossibility. Every step possible should be taken to increase hydro-electric power, but unless its cost can be reduced it is hardly worth while to capitalize.

California Cultivator

Vol. LVI, No. 23 | Los Angeles, June 4, 1921 | One Dollar Yearly

"Save the West"

By Walton T. Farrar

WITH the industrial horizon of the Pacific Coast clouded by the paramount issue of excessive and prohibitive railway freight rates, producers of high tonnage per acre commodities have started concerted action in order to save their crops from impending annihilation.

Such an alarming condition has arisen that growers of the Pacific Coast have commenced a campaign to "Save the West." A fight is being waged against legislation which tends to throttle the heavy shipping interests.

The first point of attack in the "Save the West" battle is the transportation act of 1920. This act is declared by C. C. Teague, president of the California Fruit Growers Exchange, to be the most vicious piece of legislation ever enacted.

An annual net income of 6 per cent upon all railway property is guaranteed by this act. Teague charges that the 33 1/3 per cent increase established by the interstate commerce commission in 1920 is traceable directly to this clause.

He claims that it pools a group of worthless railroads of the country with the better roads and allows them to exist through taxation of the heavy tonnage producing interests. Many of these roads are small lines with no tributaries of high tonnage producing territory and have no reason for existing.

The fruit growers of the Pacific Coast, including the states of Washington, Oregon and California, during the coming season will have a total of more than 100,000 cars of fruit, the largest part of which will be distributed in the eastern coastal zone of the United States. With this factor in view, the fruit growers, who have capital invested exceeding $300,000,000, propose to form a central organization which, acting in close cooperation with similar organizations in other sections of the country, together with commercial organizations of many municipalities, will present a powerful and united front in the fight for just and reasonable rail rates.

That not more than 50 per cent of the vegetable acreage of the state is planted to crops this season and that this deplorable condition may be traced directly to the present excessive freight rates is the statement of Thomas O'Neill, president of the California Vegetable Union.

The entire vegetable crop of California was sold last fall at a price below the cost of production. The reason any was shipped was because the crops had been matured and the growers thought it better to sell at a price below cost of production rather than at a total loss. The same condition applies to all vegetable producers.

A report just issued by a representative committee of the principal food producing and shipping interests of the state shows how the present freight rates adversely affect the prosperity of the west's great industries.

A complete survey of the field was made before the committee reached the conclusion that the increase in freight rates as allowed under the transportation act of 1920 has practically placed a mortgage upon the entire acreage of the growers, in most instances taking more than the average return of profit from the industries.

The added tax on each acre of the twelve principal food products of California is shown in the following table compiled by the committees:

	Added tax per acre
Lemons	$187.67
Oranges	192.38
Rice	19.49
Beans	10.65
Raisins	17.87
Grapes	162.51
Olives	28.60
Walnuts and Almonds	15.08
Prunes (dried)	35.75
Apricots (dried)	17.88
Peaches (dried)	21.44
Apples (fresh)	160.87

The only remedy for this deplorable condition, in the opinion of the committee, is the repeal of the transportation act of 1920.

That the entire commercial fabric of the Pacific Coast will be undermined if the present excessive freight rates are not reduced, is the assertion of G. Harold Powell, chairman of the producers transportation committee, appointed by State Market Director Daniels at the request of Governor Stephens.

"This is the most serious situation that has ever confronted the west," he says. "It not only threatens the citrus and vegetable industries with complete ruin, but affects every other industry in the state."

The members of the committee which compiled the facts and is preparing the data for the fight to be made before the interstate commerce commission are: G. Harold Powell; C. C. Teague, president of the California Fruit Growers Exchange and the California Walnut Growers Association; J. F. Niswander, president California Peach and Fig Growers, Inc.; Herbert Hazeltine, president of the American Fruit Growers; Thomas O'Neill, president of the California Vegetable Union, and J. L. Nagle of the California Fruit Exchange.

A Fig Growers School

By E. M. Boland, California Peach and Fig Growers

WHAT is believed to be one of the most forward looking steps taken in behalf of members of a marketing association was successfully launched last month by the California Peach and Fig Growers of Fresno when the traveling school for fig growers was held.

That it is destined to grow to be one of the most valuable activities of the association is the prediction of horticultural experts who followed the progress of the venture with considerable interest. If, for no other reason, they state, it will prove a valuable medium for the exchange of ideas, the lack of which has handicapped the farmer for years. It is pointed out that it is only in recent years that the growers of the country have had a medium for exchanging ideas outside of their immediate neighborhood.

The traveling school idea originated with Ira J. Condit, former professor of horticulture at the University of California, and now at the head of the horticultural department of the California Peach and Fig Growers. The system of intensive study of growing problems has long been a part of the courses given at the agricultural colleges of the country and the practice has been adapted for the use of association members growing figs.

In preparing to establish the school Professor Condit reviewed a number of inquiries received from growers in the San Joaquin Valley and selected what were considered the most important in growing a fig of high quality. Particular localities where these problems were more frequently met and other localities where they had been successfully solved were placed on the itinerary and arrangements were completed for a week in the field which would include a visit to the localities and orchards selected and discussions and demonstrations staged by practical growers which would effectually answer whatever questions had come up during the year. It was also possible through this method to get the ideas of a number of successful growers and to expound various theories as well as search for new developments.

That the fig industry is in its infancy as far as general knowledge of methods that should be pursued to bring the California fig to its highest standard was established. There are in the state a great number of orchards whose output ranks in quality with the very best fruit grown in Asia Minor. This has been established by experiments of the department of agriculture through shipments to Smyrna where the California product was pronounced to be figs grown in the Meander Valley where the best Asiatic figs are grown.

The methods employed in these orchards however were little known outside of that particular district, but through the medium established by the traveling school growers from other parts of California were enabled to acquaint themselves with these practices.

For the purpose of districting the sections covered and stressing certain conditions to be found in the various districts, the territory covered was divided into the Modesto, Merced, Madera, Fresno and Clovis, Reedley, Dinuba and Tulare districts.

Members of the association were invited to join the school at whatsoever point was convenient, an advantage which proved valuable to many busy growers who were able to accompany the school for a few days only. A number, however, made the entire trip and it is estimated that during the week over 300 growers participated.

Through the medium of the widespread exchange of ideas it is believed that fig culture in California will be raised to the highest standard ever attained. Already the quality of the California fig is high and it is through quality that the association hopes to bring about a tremendous increase in consumption in this country. The spirit of cooperation will be in vogue from orchard to consumer and promotion work to popularize the fig will be increased in proportion to the increase of production.

In a report covering the first traveling school Professor Condit makes the following summarized observations that will be acted upon by the association in planning future schools:

There is a need for more definite information regarding methods of culture, caprification and harvesting figs.

There is need for more careful study of soil and soil moisture condition in order to produce maximum crops of optimum quality.

There is need for summer pruning of young vigorous Calimyrna trees in order to induce branching, it having been found practicable and with promise of good results.

That top-working of fig trees can be done successfully if proper methods and care are used but that failures are common if the work is done carelessly or improperly.

That pinching back the new growth of capri trees in May forces out mamme figs in June when they are readily caprified.

That frost damage to fig trees is more severe than at first thought, some crops being entirely ruined and young trees being severely injured.

That sour sap does occasionally affect frosted fig trees following spring frost.

No question that has a bearing on the industry will be neglected, in planning future classes, according to Professor Condit.

It is believed by officials of the association that through the interest that was created in the state in fig culture the yield of the highest grade fruit will be materially increased this season. Figs of the first grade handled by the association will be put out this fall under the "Blue Ribbon" brand.

By gradually improving orchard conditions it is hoped to materially increase the tonnage for the "Blue Ribbon" brand and thus eventually establish it as the standard quality in the markets of the country.

Agricultural News Notes of the Pacific Coast

Northern California

The Shasta County strawberry crop is estimated at 8,000 crates.

Stockton reports benefit from the May rains except on hay and cherries.

On May 14, there were 2,500 lambs shipped from Rocklin, Placer County

Sonoma hop growers are depressed over the low price of hops, now but 20 cents a pound.

The 1921 bean acreage in Sacramento County will be more than 10,000, perhaps 12,000.

Nine farm centers in Yuba County have combined to help boost a county fair at Browns Valley.

Sacramento reports May rains a heavy injury to hay but damage to the cherry crop very light.

Northern counties sheep men have commenced their annual drive of sheep to mountain grazing grounds.

Northern counties are preparing to celebrate "Rice Day," so designated for June 11 by Governor Stephens.

A Sutter Basin company will plant 700 acres of milo, following the barley crop; the land is now being plowed.

El Dorado County is reported by the farm adviser to be growing a larger acreage of potatoes than for several years past.

Yolo Maize, a new variety of milo, is being introduced by the state farm at Davis to farmers of the Sacramento Valley.

A Jersey cow belonging to the Beckley Dairy Farm at Grimes, Colusa County, gave birth to two fine calves, but at three weeks apart.

Thirteen pure bred Corriedale sheep arrived in San Francisco from New Zealand, May 20, as first class passengers on the liner Marmara.

The Petaluma branch of the American Poultry Association announces the next annual convention to be held in Washington, August 8-13.

A Berkeley man has invented a method of replacing air in a fruit car with carbonic acid gas, and two cars shipped to New York were in better state than fruit in iced cars.

Growers of livestock are forming an association which expects to hold its first convention in San Francisco in September, under the direction of the state agricultural department.

The big fruit packing plant at Emoryville, Alameda County, was last week sold by the Western Canning Company to the Virden Packing Company. It employs 1,500 hands.

Farm bureau meeting in Tehama County centers are: Westside, Monday, June 6; Orland, 8; Jacinto, 10; board of directors, Saturday, 11; Codora, 13; Capay, 15; Plaza, 17; Grapevine, 22; Larkin, 24.

The California Development Association, the California Industries Association, and representatives of various chambers of commerce met in Sacramento May 21, to devise ways of bringing city and rural interests closer together.

Meetings of Tehama County farm bureau centers: Squaw Hill, June 6; Dairyville, 8; Antelope, 9; Oak Park, 10; Corning, 16; Bend, 17; Liberal, 23; Bowman, 25; Los Molinos, 27; directors meeting at office in Red Bluff, June 25 at 10:30.

Central California

Tulare County now has 60,000 acres of bearing orange trees.

Stanislaus County's first ripe peaches were shipped from Ceres, May 25.

The Stanislaus County Veterinarians Association was organized at Modesto, May 25.

A new milk condensary is nearing completion at Oakdale, Stanislaus County.

Kings County farm bureau has fixed upon November 17 as the big annual "pork day."

Over 2,000 persons attended the county farm bureau picnic at Santa Cruz, May 15.

The veterinarians of California and Nevada will meet in convention at Fresno, June 6.

Mariout barley is gaining in favor; Monterey County planted 5000 acres of it this spring.

San Jose is building a plant to place strawberries in cold storage for the soda water season.

Porterville, Tulare County, had a Valencia orange crop of 65 carloads, all shipped during May.

The first park commission of Corcoran, Tulare County, tackled the city's new park June 1.

In the Turlock section of Stanislaus County 3,000 acres of cantaloupes have been planted this spring.

At a recent hog sale at Fresno, one lot of 68 brought $9.10 per cwt., the highest price in many months.

Clovis, Fresno County, reports frosts cut the Muscat crop to 60 per cent of normal and Malagas to 30 per cent.

Sixty carloads of fatted cattle left one ranch at Woodlake, Tulare County, during the first two weeks of May.

A new factory at Kingsburg, Fresno County, will manufacture grape juice, grape syrup and other fruit products.

The movement of alfalfa hay in the San Joaquin Valley is officially reported as very light for this time of the year.

The California state board of examiners will hold examinations for prospective veterinarians in Fresno, June 6, 7 and 8.

A Holstein cow owned by R. H. Davis, of Modesto, Stanislaus County, recently produced 21 pounds of butter in seven days' official test.

The apricot crop in the Aromas district of Santa Cruz County is heavier than estimated at the late frost period and will run over 600 tons.

Farmers southeast of Bakersfield are fighting the sewer farm as overflows and waste water are damaging crops and endangering health.

The Watsonville, Santa Cruz County, chamber of commerce is trying out a new and promising mechanical device for picking apples directly into the box.

All ballots on the election of the voting board of the reorganized California Prune and Apricot Growers, Inc., should be at the San Jose office before midnight of June 6.

The largest "vacuum pan" or milk evaporating machine on the Pacific Coast has been installed in the Carpenter plant at Tulare. Its capacity is 12,000 pounds of milk an hour.

Southern California

The first carload of cantaloupes left Brawley May 21.

Imperial Valley tomato crop will run to about 200 carloads.

Ten cars of cantaloupes went east from Imperial Valley on May 25.

The estimated onion crop of the Coachella Valley is 750 carloads.

The Escondido Valley Poultrymen's Association is a new corporation.

Solano County shipped 38 cars of lambs on May 15, bound for Chicago.

More than 1,000 acres of grapes were set out in Imperial County this year.

Fontana, San Bernardino County, has 200 acres of spuds for shipping.

A "Festival of Dates" will be held at Indio, Riverside County, October 21-23.

Blythe, Imperial County, is shipping dressed chickens, under ice, to Los Angeles hotels.

Imperial Valley's first carload of cantaloupes brought $5950 in Chicago, $17.50 a crate.

Wintersburg and Smeltzer, in Orange County, shipped 3,300 sacks of beans by water last week.

Ventura County beet growers estimate the late rain will increase the beet crop 25 per cent.

Many volunteered fields of cotton in the Valley are up some two feet high and growing thriftly.

The apple growers of the Yucaipa Valley, San Bernardino County, held a banquet at Yucaipa, May 17.

The Auto Club has completed road signs so that Death Valley is now safe for autoists and other travelers.

San Bernardino County farmers report grasshoppers more numerous than ever before known in that section.

On May 19 the San Fernando Valley Alfalfa Growers Association was formed at a meeting held in Van Nuys.

The Escondido-Palomar district of San Diego County will hold a big two-day barbecue at Palomar during June.

Ventura County beans that were up passed through the rain without injury. Fields just planted must be replanted.

The Associated Lumber Dealers of Southern California will hold their annual picnic in Orange County Park, June 11.

More than a ton of apricots a day were picked from the Pioneer Orchard, Brawley, Imperial County, for the last half of May.

More than 1,000 carloads of Mexican tomatoes, bound for Los Angeles, have entered the United States at Nogales, Arizona, to date.

Unseasonable cold weather in the Coachella and Imperial Valleys has delayed ripening of apricots and cantaloupes about two weeks.

A big warehouse at Ventura was burned May 23, with a loss of more than $100,000, of which $70,000 was grocery supplies.

The president of the Santa Ana Walnut Growers Association says the walnut crop will be 40 to 50 per cent greater than last year.

The Anaheim Citrus Fruit Association has just completed a packing-house, which starts this week, and has a capacity of ten cars a day.

The Coast and General

San Francisco received its first car of Mexican watermelons the first week in May.

There are about 10,000 acres of alfalfa in Mexico, just across the line from Imperial Valley.

Western Washington reports possession of 1,250,000 hens producing annually 15,000,000 dozen eggs.

Travelers in the Red Lake district of Coconino County report having seen four mountain lions in one group.

Truck gardeners of the Hood River section of Oregon are shipping heavily of asparagus to Pacific Coast points.

The planting of alfalfa and other crops for hay in Arizona has increased 12,000 acres over that of last year.

The wheat crop in Arizona this year will be about 80 per cent of normal, according to the early estimates at this time.

A recent snow fall in the extreme northern range country of Arizona has at least temporarily relieved the water shortage.

A controversy over the line between Maricopa and Yavapai Counties in Arizona is to be taken to the supreme court for final decision.

Arthur Beloat of Buckeye, known as the calf roping champion of Arizona, was severely injured recently in an accident caused by the falling of a horse he was riding.

The growers of Pima cotton in Arizona will be represented in the Second World Cotton Conference to be held at Liverpool starting June 13, by Hon. Dwight B. Heard of Phoenix.

A considerable number of cattle have been shipped from the ranges of Arizona, especially from the sections where drouth is being felt most. For the first time in the history of that state the Yuma Valley is specializing in the feeding of steers.

Exports of Egyptian cotton from Alexandria to the various countries of the world show a marked decrease compared with the corresponding period of 1920. The imports of the United States from Egypt are only about one-tenth of that of 1920.

The Southwest Cotton Company, owners of 30,000 acres of land in the Salt River Valley, has been reorganized and the firm is to be known in the future as the Valley Ranch Company. At the present time there are three large ranches owned by this company.

The Phoenix chamber of commerce offered a $25 prize for the best slogan which should be typical of the Salt River Valley. More than one thousand answers were received. From these the committee, after spending several days going over them, selected the following as the official slogan, "Rich, Resolute, Ready, Phoenix, Salt River Valley."

State Immigration Commissioner P. R. Milnes has been busily engaged in returning to Mexico citizens of that country who were brought here last fall to harvest cotton. All but about 1,500 of the 14,000 have been returned. Before Mexican labor is again imported to pick cotton white labor will be given opportunity to sign up with the cotton association.

The Honey Situation

By E. H. Tucker, Economic Statistician,
First National Bank of Los Angeles

IT is only recently that the honey industry has become a specialized, important industry in the United States. This development has taken place almost entirely in the state of California and is to a great extent the result of the activity of cooperative marketing associations.

Heretofore, statistics as to honey production and consumption in the United States have been almost negligible, because of the fact that the production of honey was maintained as a side line by the average agriculturalist. The development of the honey industry upon a scientific commercial basis has created the necessity for accurate information as to honey production and for a careful scientific analysis of the honey situation. As a consequence, the research department of the First National Bank of Los Angeles and the Los Angeles Trust and Savings Bank has undertaken a careful study of the honey situation in the United States and the state of California. While it has been impossible to secure as detailed information as might be desired, because accurate statistics have not been maintained in the past, it has nevertheless proved possible to secure a considerable amount of accurate data with regard to the industry.

California produces approximately 15 per cent of the honey produced in the United States. Iowa is the second state, producing six per cent of the entire crop of the United States. New York, Illinois, Michigan and Wisconsin each produce approximately four per cent, and Pennsylvania, Georgia, Florda, Ohio, Indiana, Missouri and Colorado three per cent. No other state produces more than two per cent of the entire honey supply of the United States.

California alone markets the major proportion of its honey production outside of the state in which it is produced. As a general rule from 70 to 90 per cent of the commercial honey produced in California is marketed outside of the state and from one-third to one-half of the honey marketed outside of the state in which produced is California honey.

Careful estimates as to commercial honey production in California during the past 20 years are given below:

Year	Pounds
1900	2,208,000
1901	8,112,000
1902	5,125,000
1903	8,400,000
1904	1,040,000
1905	10,000,000
1906	4,510,000
1907	7,120,000
1908	4,524,000
1909	11,532,000
1910	4,080,000
1911	9,500,000
1912	4,710,000
1913	3,720,000
1914	7,950,000
1915	9,360,000
1916	8,100,000
1917	6,500,000
1918	5,500,000
1919	6,350,000
1920 (not final)	9,500,000

The chief of the field service of the department of agriculture estimates that 180,000,000 pounds will approximate the total honey production in the United States during 1916, and states that it is his belief that these figures are within 10 per cent of the actual production. Upon this basis it is estimated that the total production for the United States was about 150,000,000 pounds in 1917, 180,000,000 pounds in 1918, 210,000,000 pounds in 1919 and 250,000,000 pounds in 1920. It may be, however, that the 1920 production of honey in the United States totaled as much as 300,000,000 pounds. This is the estimate made by Dr. E. F. Phillip, apiculturist of the bureau of entomology.

Commercial honey is produced almost exclusively in the form of extracted, or bulk honey, although there are three forms in which honey enters the commercial market. Next in importance to extracted honey is comb honey, and there is a small amount of chunk honey sold upon the market. By chunk honey is meant that honey which is sold in the form in which it is taken from the hive, wax and honey being intermingled.

Practically all of the honey now produced in California is extracted honey. In 1916, 81 per cent of the California commercial production was sold in such form. In 1917, 82 per cent; in 1918, 90 per cent; in 1919, 97 per cent, and in 1920, 96 per cent. In the United States approximately 55 to 60 per cent of all honey produced is sold as extracted honey. Comb honey is relatively unimportant in California, production of such honey in 1920 amounting to only two per cent of the total amount of honey produced in the state. This is the result of the gradual change to extracted honey, as in 1916 approximately 18 per cent of California honey was sold as comb honey.

The production of comb honey is exceptionally difficult and its lasting qualities are such that it is hard to market comb honey outside of the state in which it is produced. As a consequence, the bulk of the comb honey sold in the United States is that produced and sold locally in various eastern states. In 1916 and 1917, 38 per cent of all the honey produced in the United States was produced in the form of comb honey. In 1918 the percentage was 31 per cent, and in 1919 and 1920, 30.5 per cent.

Approximately 10 per cent of the honey produced in the United States is sold as chunk honey. In California only from one to two per cent of all honey produced is sold in this form.

The principal markets for honey moving through the regular channels of trade are reported as Medina, Ohio; Cincinnati, New York City, Chicago, Kansas City, Philadelphia and Boston. It is estimated, however, that approximately 90 per cent of the honey produced in the country, with the exception of the California production, does not get 20 miles from the home of the honey producer.

In the past the markets for commercially produced honey have been, to a great extent, foreign markets. In 1919 there were 9,105,362 pounds of honey exported from the United States. The principal importing countries were the United Kingdom, which imported 2,882,951 pounds; France, 1,129,704 pounds; Sweden, 1,128,152 pounds; Belgium, 922,008 pounds; the Netherlands, 690,595 pounds; Denmark, 417,492 pounds, and Canada, 297,414 pounds. While these exportations to foreign countries during 1919 were slightly larger than normal exportations, because of the sugar shortage, they may nevertheless be taken as indicative of the proportion of American produced honey formerly absorbed by foreign markets.

At present these markets are being definitely closed to United States honey producers. In 1920 there were only 1,539,725 pounds of honey exported from the United States, almost 50 per cent less than total exportations to Great Britain during 1919 and approximately 83 per cent less than total exportations during 1919.

Several factors are closing these foreign markets to American honey producers. The first of these is the depreciation in foreign exchanges, which is making it exceptionally difficult for foreign countries to purchase American produced goods. This situation may be only temporary and the organization of the new $100,000,000 Foreign Trade Financing Corporation may materially assist in stabilizing exchanges. The other factor which is closing foreign markets to American productions is probably permanent. Throughout the world companies are being formed to further honey production. Cheap labor costs and inferior methods in handling honey will probably assure these corporations a comparative monopoly on foreign honey markets. The situation is made doubly serious by the fact that many of these companies are formed with the express purpose of exploiting United States markets. They are shipping quantities of extracted honey into the New York market. This honey, it is alleged, is sometimes shipped into the United States in containers, consisting of previously used casks, barrels, and even five gallon oil cans. This imported honey is not always produced under sanitary conditions and may even contain bacilli larvae, which are germs of a very contagious disease, similar in seriousness to the boll weevil in the cotton industry. Consequently, efforts are being made to secure an emergency protective tariff of not less than five cents per pound upon every pound of honey imported into the United States from foreign markets. The purpose of this tariff is not only to protect United States honey from competition with foreign honey, but is also to protect the honey industry from possible inroads which these larvae might make upon the bee of the United States, if importation is permitted to continue. A movement to require rigid inspection of imported honey and rejection of any honey containing injurious larvae could do much to correct this evil, but present attempts by producers seem to be directed toward efforts to secure tariff protection.

The United States honey industry is today definitely faced with the fact that it must rely almost entirely upon domestic markets in the future. In the past it has been the custom to market domestically produced honey in five gallon cans, containing 60 pounds of extracted honey. As a general rule two of these cans form a case. A considerable proportion of this honey was retailed direct from the can into containers belonging to the consumers.

The baking trade in the United States has used large proportions of the United States produced honey in preference to sugar, because it permits the holding of a certain proportion of moisture in baked goods. As commercial baked goods tend to dry and chip easily if sugar is used, honey is considered superior for sweetening purposes.

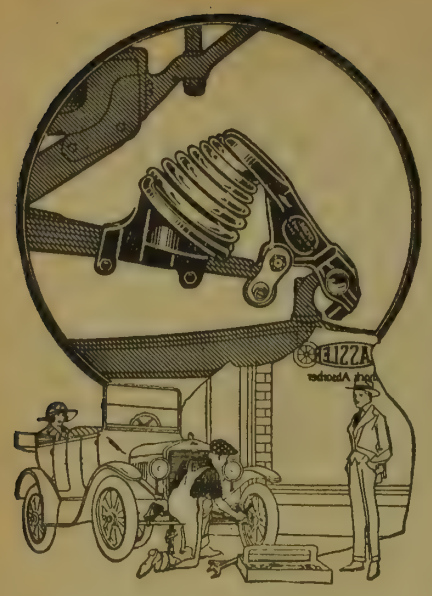
In order to better exploit local markets a new means of marketing honey is fast gaining in favor in the United States and is being pushed by cooperative honey associations in California. Honey is being put up for the retail trade in one pound, two and a half pound, five pound and ten pound friction-top cans, and eight ounce and 16 ounce glasses. These containers carry a label showing the name of the canning company and the source of the honey, so that its cleanliness can be vouched for. Active steps are being taken to develop larger home markets for this new form of honey. The food value of honey is unquestioned, as it contains 1,485 heat calories per pound.

High railroad freight rates are interfering with the marketing of California produced honey, and active steps are being taken to secure a reduction in these rates so that California honey can enter the eastern markets of the United States. With the development of water transportation through the Panama Canal, it is anticipated that increasing amounts of California honey can enter eastern markets at cheaper transportation costs. It is being found that cooperative marketing of honey, as at present carried on in California, is reducing the cost of marketing honey by several cents per pound, thereby assisting in profitable marketing. The California Honey Producers Cooperative Exchange, with head offices in Los Angeles, markets the honey of approximately 85 per cent of the California commercial producers.

The problems with which the honey industry of the United States, and particularly of California, are faced today are, therefore, three-fold. The first is the securing of an effective means of excluding any infected foreign honey; the second is a reduction in freight rates to eastern markets; the third is the preparation of honey in more marketable forms and the development of larger consumption in the United States. The first of these problems will require congressional action. The solution of the second will be made easier through the development of water transportation through the Panama Canal and the ready response which is being made in retail markets to the new forms of marketing honey will go a long way in solving the third problem.

Honey prices have dropped materially in the past year, because of general readjustment and because of the closing of foreign marekts. While in 1918 and 1919 and the earlier part of 1920 the prices for the better grades of California honey in Los Angeles markets ranged between 18 and 23 cents, these prices have now dropped to as low as 12 and 13 cents. Predictions as to future honey prices cannot be made with any accuracy today, but indications are that with the development of new domestic markets the excess honey formerly shipped to foreign countries will tend to be absorbed in the United States.

About 4,000 people assembled at Glendale, Arizona, on May 20 to celebrate the presentation of the deed to a ten acre tract of land by Acting Governor Hall to Geo. W. Rommel for the U. S. government. This tract of land is to be used for a government poultry experiment station. The equipment and stock now at the government ostrich farm, seven miles west of Glendale, will be removed and more added on the new site.



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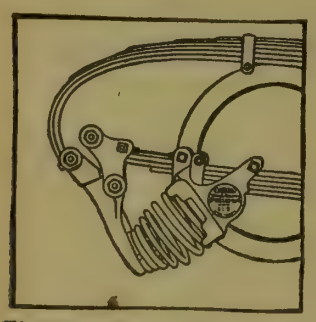

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Conference of County Horticultural Commissioners

This important convention was held at Sacramento, May 25-28, and was participated in by the director of agriculture and his staff, together with all the horticultural commissioners of the state. The program dealt with the following subjects: Review of the text and intent of senate and assembly bills, problems in pest control, grasshopper campaign, prevention of intercounty spread of pests and diseases, nematodes, disinfection of nursery stock, parasite distribution, rodent control, disinfection vs. inspection, parcel post problems, can our present methods of disposing of imports of nursery stock be improved, the need of caution in the disposition of imports of plant products, automobiles as a factor in plant quarantines, dissemination of information to state quarantine guardians on general quarantine procedure, consideration of the text and intent of senate bill 273, economic poison act, and lime-sulphur solution vs. dry preparations. Friday was given to discussion of standardization of fruits and farm produce, laws, etc.

Linda Avocado

Weight of this fruit is 2¾ pounds; circumference, 13¾ by 14¾ inches; height, 6¼ inches. It was grown by L. D. Oliver, Orange County.

At 1:30 p. m. on Monday Director Hecke formally opened the conference. He explained briefly the aims and objects of legislative measures enacted at the last session of the legislature and paid a tribute to the splendid work of the agricultural legislative committee in supporting such agricultural movements.

Wm. Gould, president of the County Commissioners Association, presided as chairman on the first day of the conference.

Standardization

F. W. Read, specialist in standardization, explained in detail the new fruit and vegetable standardization law, S. B. 201, passed at this session of the legislature and now before the governor for his signature. This law expressly provides that all grapes for both table and manufacturing purposes must meet the minimum sugar content prescribed in the act. This in itself, it is felt, is a great step in advance in the proper marketing of California grapes. The grape industry has grown so rapidly that at the present time it is one of the most important shipping industries in the entire perishable produce business.

This law will probably become effective about the first of August and thereafter it will be illegal to market strawberries in anything but a pint basket. A standing committee from the horticultural commissioners has been appointed to confer with Mr. Read and to draw up details surrounding the enforcement of the standardization law during the next two years.

Control of Mealybug

The Tuesday morning session was devoted largely to pest control, the mealybug, grape mildew and vacuum fumigation being the principal topics under consideration. The outstanding feature of this discussion, however, was the matter of the distribution and control of the grape mealybug. Realizing the ever present danger of introducing the mealybug into non-infested territory through the medium of picking boxes, the state department of agriculture, with the cooperation of the county horticultural commissioners, for some time has been working upon a practical and feasible means of cleansing the empty picking boxes that are moved from place to place. Steam, hot water, sulphur and fumigation have been repeatedly tried out in an effort to find a cheap and efficient method of sterilizing empty containers.

At this time Alameda County, through the horticultural commissioner's office, has been particularly energetic in an endeavor to keep Alameda County free of mealybugs and excellent results have followed the work under Commissioner Seulberger's direction. Through an agreement with the canners and driers of Alameda County all empty pear containers are sterilized as soon as the fruit is dumped and are thus returned to the orchards perfectly clean. Up to the time that this practice was put in operation the failure to sterilize the containers had resulted in the introduction of mealybugs into apricot orchards of Alameda County.

It is understood that as a result of this conference a meeting of pear and grape growers will shortly be called to devise practical ways and means of sterilizing empty containers.

Under the auspices of the pest control service of the California department of agriculture, a discussion of vacuum fumigation of nursery stock more in the nature of a progress report was elaborated for the information of the county commissioners.

To Visit Reno

Pursuant to request made by the state of Nevada upon Director Hecke for assistance and cooperation in handling the alfalfa weevil situation, there was disclosed as alarming in the vicinity of Reno, Nevada, an agreement was reached at the convention of county horticultural commissioners by which a representation of California commissioners, together with state officials of the department of agriculture, will visit the infested region at an early date.

Entomologist Harry S. Smith, in charge of the pest control service, having recently returned from an investigation of the Reno districts where the outbreak of alfalfa weevil has now reached serious proportions, gave the California horticultural commissioners first hand information on the outbreak.

LIME FOR ORCHARDS

In an article on "Lime for Orchards," P. J. Carmody, chief orchard supervisor for Victoria, Australia, dealing in a practical manner with the effect of lime on fruit and fruit trees, and advocating its use, writes:

"When it is considered that the average crop of fruit requires more plant food for its development than an average crop of wheat, and, moreover, that the fruit demands the same soil constituents year after year, the necessity for a sweet and favorable medium for root pasturage is apparent; and as no other application is at all comparable to the influence of lime for this purpose, its frequent use is urgently required. It is a matter of common observation that the fruit buds of trees grown on sour soils are of a weak or indefinite character, while the bark is harsh and dry in appearance and the growth more or less stunted. Under such conditions it is practically impossible to develop trees on the most profitable lines without first correcting soil acidity by the free use of lime in the same manner as requires to be adopted for other farm crops.

"In many parts of the state insufficient attention has been given to this feature of soil management in the orchards. Particularly is this the case where fruit is grown on heavy clay soils. In these soils fruit trees grow through a lengthy period, so that a considerable quantity of immature wood is produced to the detriment of subsequent crops of fruit. Measures have not hitherto been adopted to definitely determine the actual effect of lime on the different parts of the tree; but investigations in other countries show that on soils rich in lime the wood is matured earlier and the fruit buds are more stocky and robust than is the case with trees grown on soils deficient in lime. This is very apparent to anyone acquainted with the fruit areas of many parts of Gippsland and other places in Southern Victoria, and one is struck with the unusual prominence or length of the fruit buds, the relative distance between the nodes, and the softness of the wood in these districts when compared with the same varieties grown in fruit centers known to possess lime in abundance."

THE GOPHER INJURED TREE

Much damage has been done during the past season by the attack of gophers on trees. Orchards have been observed where from five to 20 per cent of the trees were either partially girdled or entirely girdled. If such trees are not treated, then the production of the entire orchard will be greatly reduced.

Whatever the cost of bringing an orchard to bearing, that cost must be divided amongst the individual trees. If there are 80 trees, then each tree must be charged one-eightieth the cost of production. That puts a value on each tree, and if any are lost it reduces the value of the orchard in proportion to the number of trees lost. Trees injured by gophers can be saved if they are properly treated.

In order to demonstrate the methods of saving gopher injured trees the agricultural extension service for Los Angeles County is to conduct a series of 11 field meetings during June, under the auspices of the farm bureau, the schedule being as follows:

Wednesday, June 8, 10 a. m., San Gabriel, place of W. D. Ring; 2 p. m. Otterbein, place of Geo. A. Crawford; June 9, 10 a. m., Baldwin Park, place of V. R. Long; 2 p. m., Rivera, place of Albert MacDonald; June 10, 10 a. m., Pasadena, place of Wm. Pollard; 2 p. m., Covina; June 13, 10 a. m., La Canada, Bullock's ranch; 2 p. m., Hansen Heights; June 14, 10 a. m., San Fernando; 2 p. m., Chatsworth; June 15, 2 p. m., Charter Oak, place of W. C. Davenport.

RIPE OLIVE PACK

The California Olive Association makes public today the last season's figures for the state's ripe olive production, amounting to 137,000 cases of ripe olives, each case containing 24 standard quarts. This is more than a 50 per cent decrease in the pack of ripe olives as compared to last year, and is accompanied by a 50 per cent increase in oil output over the previous season. The pack of ripe olives in 1919 approximated 282,000 cases.

The variation is due entirely to market conditions, as the crop this year was, if anything, a little greater than that of the year before. Indications are that next season's crop will be exceptionally large in the south and in the north there are signs that the yield may nearly equal that of the past season, when the crop was heavier than usual.

WEEDS IN ROADS AND PATHS

The United States department of agriculture has tested a large number of chemicals for the purpose, but most of them are either ineffective or too expensive; but three substances have been found generally satisfactory. They are sodium arsenite, oil, and common salt. Sodium arsenite is the most powerful plant poison known that is cheap and readily prepared, and is the active constituent of practically all proprietary "weed killers." It is rather difficult to obtain ready made, and should be used while fresh, as it oxidizes readily and hardens when exposed to the air for several weeks.

For persons having some experience in the handling of chemicals sodium arsenite can readily be made at home according to one of the following formulas:

Formula No. 1

Caustic soda (sodium hydroxide), 2 pounds.

Or high grade concentrated lye, 3 pounds.

White arsenic (arsenic trioxide), 4 pounds.

Water to make 1 gallon.

The caustic soda should be in the granulated form and of the grade known as 95 per cent, technical. This quality of caustic soda is sold in drums containing five pounds or more and can often be obtained from dealers in laundry supplies. For small operations the pure caustic soda, which comes in the form of sticks, is convenient. White arsenic is a fine white powder which is easily obtainable. Mix the caustic soda or lye with the white arsenic in a wooden, earthenware, or graniteware receptacle. Add the water slowly. In about 30 seconds the solution will begin to boil violently and should be stirred vigorously with a wooden paddle. The heat generated is usually sufficient to cause all the arsenic to dissolve and the mixture to become a gray, syrupy liquid. In case some of the arsenic remains in suspension, however, it will be necessary to heat the solution until the arsenic disappears. After cooling thoroughly add enough water to replace evaporation.

Formula No. 2

Washing soda (sodium carbonate or sal soda), 8 pounds.

Or soda ash (anhydrous sodium carbonate), 4 pounds.

White arsenic (arsenic trioxide), 4 pounds.

Water to make 1 gallon.

This mixture does not generate heat upon adding water, and must be boiled to bring the arsenic into solution. In either of the above formulas one gallon of the solution contains four pounds of soluble arsenic trioxide, or approximately 5 1/3 pounds of arsenite of soda.

To prepare the weed killer solution dissolve five pounds of prepared sodium arsenite or one gallon of the above stock solution in 50 gallons of water. The amount used per given area depends upon the character and size of vegetation, the weather, and method of application. For average conditions 600 gallons of the weed killer solution are required per acre, or one gallon of concentrated stock solution would make sufficient weed killing solution to cover an area 60 by 60 feet.

Chemical weed killers give the best results on a cloudy, humid day, when rain is not expected within 12 hours. Treatment should not be given while the soil is wet, but if it is very dry it should be moistened slightly to prevent the chemical from soaking in too rapidly. When the vegetation is large it should be mowed before treatment, after which it is well to wait several days before treatment, allowing the vegetation to partially resume growth and exhaust the roots.

POISONING GREEN TIMBER

Of late years the action of arsenic has been introduced with marked success in hastening the killing of timber by the ringbarking process, and trees that ordinarily would take months to kill by the old method are now killed in a few weeks, and frequently in a few days, by the application of arsenic. Arsenic—the ordinary white arsenious oxide of commerce—is not soluble in water to any great extent, so that soda, either the ordinary washing soda or caustic soda, has to be used to dissolve it. When large amounts of the solution are required, washing soda will be the cheaper, but for small quantities of solution caustic soda will possibly be found the handiest. When preparing the solution, whether caustic soda or washing soda is used, first dissolve the soda in a convenient amount of water, using heat if desirable to assist and hasten it; then slowly add the arsenic, previously made into a thin paste, stirring all the time. Place on a strong fire, and after it has come to the boil allow it to remain boiling for at least half an hour. Stir from time to time, and be careful to stand away from the fumes, as being poisonous they are apt to cause sickness. When the arsenic is thoroughly dissolved the solution may be made up to the required bulk by adding the remainder of the water, either hot or cold. A useful strength for quick and effective work in all kinds of timber is as follows: Arsenic, 1 pound; washing soda, 1 pound; or caustic soda, ½ pound; water, 4 gallons; whiting, ½ pound. The addition of this whiting is merely that it may serve as an indicator on trees treated, as it turns white on slightly drying, making it quite certain what trees have been operated on. An empty kerosene can makes a useful measure for dissolving in, as it holds four gallons.—Tasmanian Fruit Grower.

TALK RICE, BUY RICE, EAT RICE

The rice association of California suggests:

Saturday, June 11, has been proclaimed California Rice Day by Governor Stephens.

Eat California rice as a vegetable, as a breakfast cereal, as a dessert—it is nutritious and delicious.

California rice has over four times the food value of potatoes.

The California rice industry has grown to $20,000,000 in less than ten years. It has increased the value of thousands of acres from $10 to $150 and $200. It is the best rice grown anywhere.

Make it a daily habit to eat California rice, a perfect food.

Buy at least five pounds of California rice on Saturday, June 11.

AVOCADO VAGARIES

A recent issue of The Country Gentleman contains an article on avocados, by a Californian, which begins: "The avocado, more commonly known as the alligator pear"—etc, etc. We object. Californians know it and speak of it only as avocado. Another quotation: "A variety known as the Lyon appears to be producing the best results." One has but to read the official report of 1920 of the varietal committee and its 1921 report, published in the Cultivator of May 28, 1921, to get a full and sufficient answer to this rankly untrue statement. The acreage given (500) should be multiplied by not less than four. "One type of tree now being planted extensively grows up in a compact cluster instead of spreading out over much ground. These can be planted 11 feet apart in the rows, 360 trees to the acre. Such trees have been coming into bearing the third year and yielding from 30 to 60 pears each from the third to the fifth year." We are still searching for an orchard planted "360 trees to the acre."

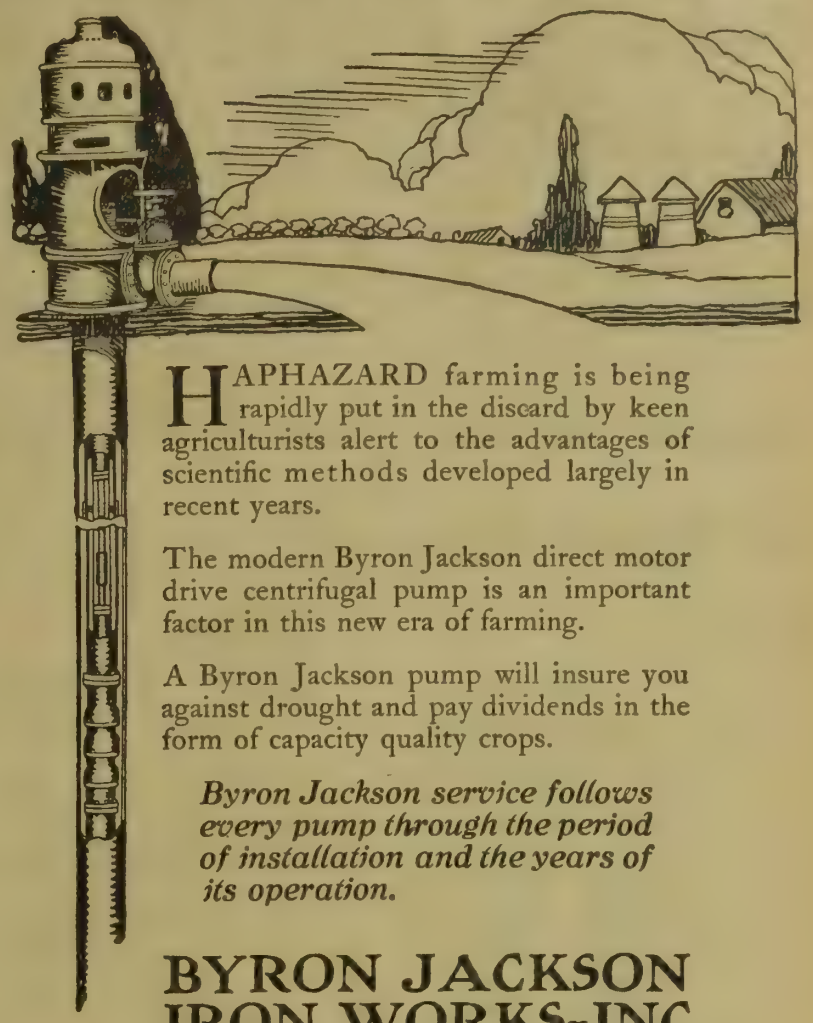
COTTONY CUSHION SCALE IN SICILY

It has been found that Icerya Purchasi is such a pest upon the Spanish broom, Spartium junceum (common in California gardens), that it has been advised to clear the Italian hills of this and another practically leafless species. The reason is because the scale breeds in the sun and soon becomes so thick upon the shrubs as to kill them. On the other hand, the vedalia or Novius cardinalis, the parasite, will not breed in the sun and therefore inhabits no plants practically leafless. On the latter class the Italian investigators found an absolute absence of the larvae of the lady bug on plants weighed down by the scale.

MANURES AND SOOT

A recent investigation in England as to the relative value of animal manures and also of soot finds them with the following nitrogen content: pigeon 2.75; sheep, 1.80; soot, 1.20; poultry, 1.10; horse, 0.45. In phosphoric acid they stood: pigeon, 2.50; poultry, 1.15; sheep, 0.60; soot, 0.40; horse, 0.40. In potash content they ranged: Sheep, 2.00; pigeon, 1.50; poultry, 0.95; horse, 0.45; soot, 0.20.

Crop insurance



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Our sales of fruit trees this last year represented a large percentage of our total sales.

Our stock of both ornamental and fruit bearing trees will be larger this coming season than heretofore. There will be, however, many varieties of trees that we shall be short of again, and we therefore recommend your placing your order with us as early as you can conveniently do so.

If you will send us your name and address we will mail you our new price list when printed.

Geo. C. Roeding, President

California Nursery Co.

Niles, Cal.

Grape Culture in Arizona

By M. E. Bemis

MUCH interest has been shown in grape culture in the Salt River Valley within the last few years. While cotton had a tendency to overshadow all other crops, grape growers have had splendid success.

Grapes have been grown throughout the Salt River Valley for many years. The home orchard of any Salt River Valley farm is considered incomplete without a few grape vines. Arbors among the buildings of many farms serve a triple purpose—that of ornament, shade and delicious fruit; incidentally considerable revenue. On most of these farms grapes are given comparatively little attention, i. e., not the attention that the commercial grower who cultivates his grapes in a vineyard finds to be profitable.

While grapes have been grown on a commercial scale, no special effort has been made to develop the industry. Grapes are shipped out in carload lots. Reports of the Salt River Valley Water Users Association for 1919 indicate that the average yield was about 7,000 pounds per acre. Approximately the same yield was obtained in 1920. In 1919 the crop averaged the growers a fraction over 11 cents per pound. In 1920 the price was seven cents.

Those who have given the matter careful attention believe that there is a great future for the grape industry in the Salt River Valley. At present the acreage is comparatively small, probably about 350 acres, not including approximately 100 acres set this season. The nurseries have set out large quantities of cuttings this year for the next season. Growers are confident that this will become a great grape growing section and the probability is that at least 1,000 acres will be planted out in 1922.

The Thompson Seedless has proved to be the most valuable variety for this section and this variety stands shipment well. Sufficient data has been obtained to determine that grapes grown here can be shipped successfully to the eastern markets. Other good varieties are the Mission, Muscat and Malaga, but the very remarkable success of the Thompson Seedless puts this variety far in the lead. The sugar content of grapes grown here is high. A material advantage is that the Salt River Valley grapes attain the stage of marketable sugar content some two to four weeks earlier than the same varieties in California. Here grapes ripen during July and just before the grapes of the San Joaquin Valley in California are ready for the market.

W. F. Openshaw of Mesa, an experienced grower, last year sold $5,000 worth from eight acres. This was of course a very good yield and an exceptional price. In regard to the cost of growing a vineyard, Mr. Openshaw says that in recent years he has paid two cents a vine for pruning. To tie up and stake takes a little over two days per acre. The stakes cost at the present time about $40. Mr. Openshaw states that his grapes pay him as well or better than any other farm operation.

Grapes here are comparatively free of insect pests and plant diseases. Careful investigators believe that the grape growing industry will make this one of the best known and most profitable grape growing sections of the Pacific Coast.

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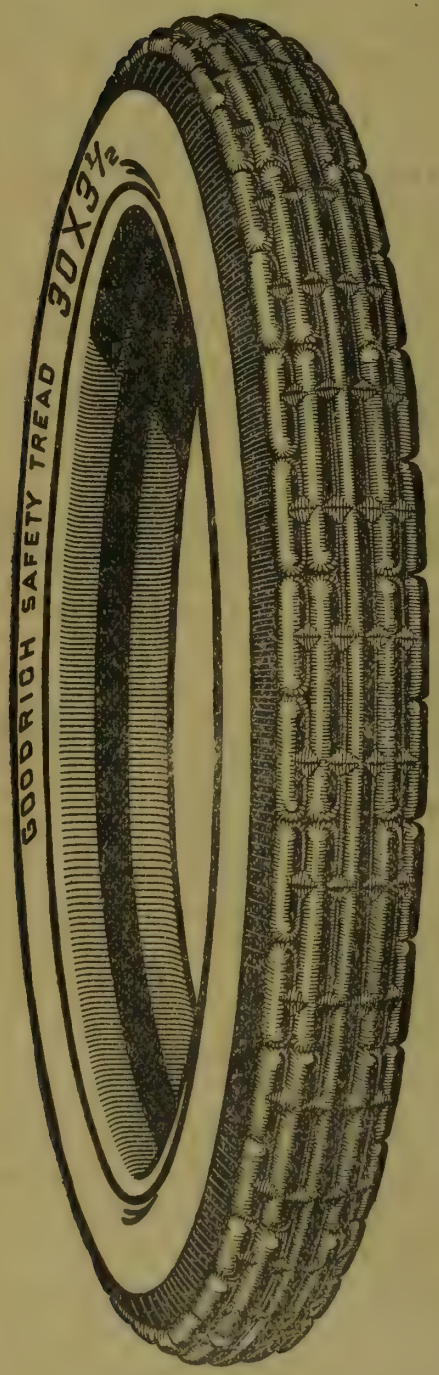

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SAN FERNANDO VALLEY GRAPES

By Prof. F. T. Bioletti

DURING April the writer was able to spend a day in making a survey of the San Fernando Valley as a possible grape growing district. Vineyards of various sizes and varieties were seen in several parts of the valley. Most of them are situated on the lower slopes along its easterly rim, but a few were found on the main floor. Most of the soils were light in texture but various types were noted varying from gravelly wash to clay loam. Where the vines showed evidence of having received proper treatment they were healthy and vigorous.

My general impression is that the valley is well suited to grape growing, though, for the best results, care must be taken to select the most favorable situations as regards climate, soil and water conditions.

The climatic conditions seem excellent in all parts of the valley with perhaps the exception of the lower middle portion, where spring frosts may be too frequent and where mildew may be prevalent. The frosts of this year, however, are exceptional and there are few vineyard districts where spring frosts do not occur occasionally. Mildew can be controlled at moderate expense by proper sulphuring.

The soils on the whole appear very favorable. The vine prefers a deep, fertile soil. A soil only two or three feet deep may give good crops if it is fertile and if irrigation is applied frequently during the growing and ripening season. A soil of moderate fertility may give good crops if sufficiently deep and well supplied with water. For the best results, however, depth, fertility and sufficient water are required.

There is probably not sufficient rain in any part of the valley for the best crops so that supplementary water from irrigation is needed. In some parts, notably in the lower slopes of the rim, vines might do fairly well on deep soil without irrigation, but these cases are few and even here some irrigation would be necessary for large crops and continued health of the vines in dry seasons. In most places about 12 acre-inches would probably be required. On the steeper slopes irrigation would be difficult but could be rendered possible in some cases by laying out the vineyard with proper regard to the contours of the land.

Most of the vineyards seen were planted with wine grapes, of which several varieties were doing well and yielding fair to good crops. Raisin grapes are not likely to be very successful owing to difficulties of drying and competition with districts more suited to this branch of grape growing. Table and shipping grapes for local and eastern markets are most likely to be profitable. Of the last type, those which seem to offer the greatest chances of success are Muscat of Alexandria, Emperor, Cornichon, Malaga, Tokay, Marvel of Malaga, Sultanina (Thompson), Rose Sultanina, Black Monukka.

Summary

The San Fernando Valley seems very suitable for grape growing, but careful choice of soil, of situation, and of variety is necessary.

Irrigation is necessary to supplement the rainfall.

The slopes and higher parts of the valley around the rim offer the most favorable situations where the soil is deep and fertile and irrigation feasible.

Any of the varieties mentioned are likely to be profitable, except perhaps the Tokay and Sultanina.

In the lower parts, Muscat, Cornichon and Molinera might give good results where spring frosts are not too frequent.

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June in the Vegetable Garden

Northern California

By A. R. Gould

THE late rains should encourage all our growers to continue seed sowing of the more important root crops, and it is well to remember that now is the time to prepare for the winter supply, as very many of these may be put in storage and will certainly be of value later on, so that a word to the wise should be sufficient. Weeding will also be an important item in the day's work and cultivating is essential to conserve the moisture for many weeks to come. Clear off all old crops such as early peas and broad beans, get these plots well manured and trenched ready for another crop. No need to let this land lie idle long. Many crops, such as onions, lettuce, etc., when sown in permanent rows are usually sown too thickly, and there is considerable waste unless the seedlings thinned are transplanted, and it is generally a good plan to plant out several extra rows from these thinnings. Turnips, carrots and beets may also be transplanted in the young stage.

Onions

You can hardly grow too many of this useful vegetable, as it can be used in so many ways. The main crop varieties, such as Australian Brown, Ailsa Craig and Prizetaker, are all long keeping varieties, so that they may be stored away for winter, care being taken not to bruise them. They should be hung up in a cool, dry cellar. Late sown varieties should be thinned to at least six inches apart. Irrigate between the rows at least every two weeks and frequently cultivate. It is fatal to let them get dry during the growing season, as they will soon run to seed.

Potatoes

The soil should be drawn up in rows towards the plants to support them and protect the tuber. Main crop varieties may still be planted for late fall and winter use. Plant in rich soil, the plot formerly occupied with peas being used advantageously. Watch for any diseased plants, remove and destroy at once.

Tomatoes

If you wish to train a few plants of tomatoes, they must be staked and one or three main stems be selected to tie up. All axil shoots must be removed as they develop and usually three or four bunches of fruit only to the branch or main stem are allowed. This gives good quality fruit. Some prefer to have the plants ramble on the ground and this method is very successful, and the one adopted by those who grow them by the ton for the canneries. The young plants need a little protection from the hot sun for the first few days after planting and should be watered until well established. There is still time to put out a few plants. Space them four feet apart each way.

Squash, Musk and Watermelons and Cucumbers

Until these plants get established keep them well watered and thin out the plants, leaving the three strongest to a hill. The small lemon cucumber should be in every garden. Seeds may still be sown.

Turnips

Thin out Early Snowball sown last month and towards the latter end of the month sow White Egg very thinly on rich soil in rows 20 inches apart.

Corn

Make a sowing of corn for successional supply. Sow three seeds to a group about three feet apart of the following varieties: Country Gentleman, Golden Bantam and Stowell's Evergreen. Field corn varieties are Leaming and Wisconsin White Dent. The corn plot should be well cultivated and the wheel cultivator is just the thing.

Leeks and Celery

Complete the planting of these important crops this month. Plant seedlings in the prepared trenches.

Carrots

On rich soil sow Danvers Half-long for succession in rows 18 inches to two feet part. These are easily stored for winter use, hence it will be advisable to sow a few extra rows.

Beans

For successional supplies sow Stringless Green pod, Golden Wax and Kentucky Wonder. Also the small White Tepary, which is quite a useful shell bean. Those sown last month should be making good growth and will need cultivating.

Cauliflower

On a well prepared seed bed sow Autumn Giant and Early Snowball towards the end of the month in rows or broadcast. Also prepare your plot by trenching with manure.

Strawberries

Cut off all runners to insure continued fruiting, as these young plants take away the strength from the parent plant.

Southern California

By D. F. Reichard

DID you take advantage of the rain we had last month? If you did not you are not getting the best out of your garden. Work over your whole garden, breaking up the surface. This should be done at once. Go over it with a rake or harrow, anything to break up the crust formed by the rain.

The rain was certainly great for us gardeners. Even though it drowned out some of the newly sown beans and cucumbers it surely put moisture in our gardens when it was needed. Now it is up to us to conserve it by working up our gardens and leaving a fine mulch on top. Having the ground in such excellent condition gives all of us an incentive to plant stuff that will carry our gardens on through the summer. The weather has been so cool this spring that the tender crops like corn, beans and vines have not made their usual headway. This means that these varieties put in now at the beginning of our warm season will come on rapidly and be ready to harvest almost as soon as stuff put in a month or six weeks ago.

June is an ideal month for planting vining crops such as Hubbard and Pikes Peak winter squash, field pumpkins, cucumbers, summer squash and melons. Plant these plants on the edge of furrows and train the vines of two rows together so that they may be irrigated and cultivated without disturbing the vine runners.

Beans of all varieties planted this month will do well, especially Kentucky Wonder pole beans and Stringless Green Pod bush beans. Do not forget to put in some lima beans, they are very satisfactory. When planting these use plenty of seed—a pound to 120 feet of row. All varieties of corn should be planted. Sweet corn, field corn, also sorghums and Kaffir corns may be put in any time during June with full assurance of success if given ordinary care. Open up a furrow and drop your seed in the bottom of it, cover the seed with an inch and a half or two inches of damp soil, pressing it down firmly. As the young plants grow cultivate the ground and gradually fill in the furrow. Plant a new patch of sweet corn every two or three weeks.

Be sure to work up around all plants in the garden, thinning out where stuff is too close so as to give the growing crops a chance to develop properly. When your vining crops attain their fourth leaf thin to two plants to the hill; if you leave more the crop will be very small.

If more tomato, eggplant or pepper plants are needed for the summer's supply there is time enough yet to put the plants in. Be sure to put about a quart of water around the plant as soon as it is set to settle the soil about the roots. To keep a continuous supply put in a few beets, carrots, radishes, Iceberg lettuce, and green onion seeds. Be sure that the seed bed has been worked up nice and fine so that it will hold the moisture to get your seed up and the plants nicely started before artificial moisture will be required.

Plant everything in rows with room enough between to allow irrigating and cultivating, because before the month is over we will no doubt have to start using water. When water is needed for your plants supply it by opening furrows beside the rows of plants and allow the water to run slowly through. As soon as your soil will work up without sticking to the tools, cultivate.

If any plants are backward apply a spoonful or two of commercial fertilizer by working it in near the plant. Always be on the lookout for insects and disease; a little preventive beats losing your crop.

Southern Arizona

By M. E. Bemis

JUNE gardening in the Salt River Valley and in similar locations is largely retrospect and prospect. There should be growing in the garden many things which will require little attention except the harvesting, and those who were fortunate enough and had the foresight to plant in season may now reflect upon their good fortune. June is also a good month to look ahead and make preparations for work which will come later, as the things which may be planted in June are rather few. These would be melons, squash, and pumpkins. Some other things may be planted in the garden, however, if there are vacant places. Grain sorghum of some kinds may be planted and these are worth while as they provide grain which may be fed to the chickens and hogs.

Cowpeas have several uses. The peas, or more properly beans, are edible when in the green state and are relished by many. They make a good grain for hogs and if ground and mixed with other grain are fairly good for poultry. Cowpeas make a splendid hay for milch cows, but its chief use in the Southwest and particularly to the garden is as a soil preparation for other crops. Probably there is nothing that will lighten heavy soil as readily as a crop of cowpeas grown and turned under. Cowpeas are also used to a considerable extent among orchardists and particularly citrus growers, as a summer cover crop.

Mexican June corn may be planted the latter part of the month, although perhaps the first of July is considered a better time for planting. The value of this crop for roasting ears, for grain or for forage cannot be too much emphasized. There is no other variety of corn that will do as well, all things considered, as Mexican June corn.

June is a good time to prepare the ground for fall planting. Stable manure may be spread and plowed under preparing for crops to be planted later.

In July will come the planting of corn and beans, and in August the fall planting takes on greater activity, so that the earlier prepared land is far more valuable for the fall planting. From the standpoint of preparation June is one of the most important months of the year, although, sad to relate, is quite often neglected as such

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Harry Welch, secretary of the Phoenix Chamber of Commerce, has completed ten years of active work as the executive of that organization. He was recently re-elected secretary and manager for the succeeding year.

June in the Ornamental Garden

Southern California

By Ernest Braunton

THE heavy rains of May will make June, 1921, a spring month. That is, in some ways. A late, cool spring has kept garden vegetation retarded to an unusual degree. Hot weather we have not had; so that during June, with the soil full of rainwater to start with, we shall have a month of unusually fine growth

Under the stimulus of sufficient soil moisture and the long sunny days that always come with June, we must watch carefully over the great amount of soft, succulent growth that will come. It will need both water supply and fertilizers kept above average June provision, and we shall reap a correspondingly rich harvest. At the end of this month gardens should present a more glorious appearance than at any time for years. That is, unless you live in a section of California that did not enjoy record-breaking May rain precipitation.

We will be a little cautious in giving gardening advice for June, because of the new conditions that have arisen quite generally over the state. What will the harvest be? When the hot days come, as we presume they will, try to equalize, in every way possible, the temperature of night and day. The luxuriant growth of foliage will droop sadly if real hot days come. If nights are cool mildew may be very bad. An Australian experiment station says that atomic sulphur at the rate of one pound to 12 gallons of water is far superior in orchard, vineyard or garden, to any other form of sulphur, or any other remedy tried. The next best spray proved to be with three pounds of sulphate of iron, one gallon of lime-sulphur, and 50 gallons of water. This is in orchard quantities, and the lime content would color decorative foliage.

In the writer's garden growth is so late that cannas, ginger lilies and other rooty perennials may still be divided without harm if given abundance of water and shaded for a few days. Dormant dahlia, gladioli and other bulbs may still be placed that would be considered a very late planting in a normal year; but plant at once or not at all. While seeds of the following may be planted now it were better to have plants to set out: ageratum, balsam, annual carnation, cosmos (really a cool weather crop), centaurea, coreopsis (nearly an all year crop), celosia, snapdragon, violet, and zinnia. Cuttings of the latest bloom chrysanthemums should be rooting now, and it is a fine time for geraniums, pelargoniums, or Lady Washington geraniums, and all that class of soft wooded plants to root from cuttings. As "desperate cases need desperate remedies," so does the season's unusual weather bring unusual conditions. As "no man knoweth what a day may bring forth," watch your garden closely that you may be first.

Northern California

By A. R. Gould

WHILE we are almost in midsummer, we have to prepare for the fall display, and such subjects as asters, zinnias, cosmos and chrysanthemums must be planted without delay. Preparations should also be made for the winter flowering sweet peas by getting the trenches ready, trenching deeply with manure. Then it is not too early to study the bulb list to select next season's supply of tulips, hyacinths and daffodils, as the earlier you put in your order the better chance you have of getting the best stock. Climbers such as wistaria, jasmine and roses will need attention, as the long shoots will need tying in. Lilacs and other early flowering shrubs should be pruned back to encourage fresh growth and a good dressing of manure around the roots will help these considerably.

Petunias

These flowers have now been developed to such a size that they are known as Giants of California, and indeed this particular strain of singles in ruffled and fringed is to be had true to name in very delicate shades and may be raised from seed if sown in a box of fine soil placed in a warm position, but your nurseryman can also supply the plants just at this time, and these planted in a bed or border by themselves will give great satisfaction. The fringed double types are also beautiful, and for a solid mass of charming pink color the smaller flowered Rosy Morn will be most effective. Petunias are very suitable for a dry situation and will remain in flower for many months.

Roses

These may be mulched around the roots with well rotted manure. Keep a watch for aphis and destroy with tobacco extract. Mildew may be checked with dry sulphur.

Chrysanthemums

Still time to plant all types of these but it is not necessary to have every known variety in the garden. Secure a few, however, of the best colors in singles, especially the quilled and anemone types, also the pom-poms. The large mop-heads are more difficult to grow and are for the professional to worry over. The amateur gets more blooms per plant from the single and pom-poms and with ordinary care and manure. These are very satisfactory for the perennial border or cut flowers and may be subdivided year after year.

Dahlias

Like the chrysanthemums, there are any number of varieties and still they come, but a few of the best colors in each type, decorative, pom-pom, paeony, show and cactus, should be grown and may be added to year by year. You should lose no time in planting in rich soil.

Fall Flowers—Annuals

Plant out asters, cregos, pink, white and purple; cosmos, crimson, pink and white; zinnias, pink, scarlet and orange; marigolds, African, lemon and orange. Sow gypsophila and Shirley poppy thinly broadcast where they are to flower.

DOES MISSISSIPPI FLOW UPHILL?

"Does the Mississippi River flow uphill?" is frequently the subject of school debates, and such debates usually arise from inaccurate or indefinite uses of the terms "uphill" and "downhill."

In answer to a correspondent who recently made this inquiry, the United States geological survey sent the following reply: Some people describe "down" or "at a lower elevation," when referring to two localities, as the one nearer the center of the earth, and consider the "upper" of the two as the one farther from the center. If only a small area is considered this is practically true, but in referring to widely separated localities, such as the source and the mouth of the Mississippi River, such a definition would lead to an absurdity and must therefore be incorrect.

The surface of water at rest is a level surface, as that phrase is usually understood. Any particle of matter above such a surface will be at a higher elevation, and if acted on by natural forces alone will tend to go down toward the water. Mean sea level is the surface generally accepted as the datum or reference plane for all topographic elevations.

The source of the Mississippi River is about 1,500 feet above mean sea level. Therefore, the unrestrained water at the source of the river, under the action of natural forces, tends to go down to sea level at the river's mouth.

As the equatorial radius of the earth is about 13 miles greater than the polar radius, and as the intermediate radii differ in length between these limits, and as the source of the Mississippi is nearly 19 degrees of latitude farther north than its mouth, it follows that the mouth of the river is about four miles farther from the center of the earth than its source. The combined effect of gravity and centrifugal force makes the water of the river run downhill, although actually the water moves away from the center of the earth in doing so.

AGRICULTURAL LEGISLATIVE COMMITTEE

The Agricultural Legislative Committee held its annual meeting in Sacramento on May 20, to discuss its activities for the coming year.

The program decided upon was to endeavor to secure a closer working relationship between the commodity organizations and the college of agriculture, the state department of agriculture, the U. S. department of agriculture and the farm bureau. It is believed that more effective work can be done by all concerned if closer contacts are made. The officers and executive committee elected for the coming year are as follows: President, C. C. Teague; vice president, Geo. W. Pierce; executive secretary, R. N. Wilson.

Executive Committee

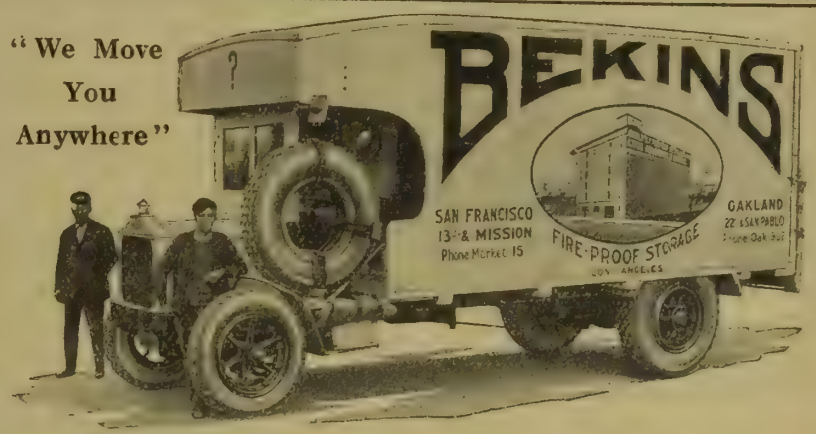
C. C. Teague, Santa Paula; G. W. Pierce, Davis; H. C. Dunlap, San Jose; J. F. Niswander, Fresno; F. G. Stevenot, Carson Hill; G. H. Powell, Los Angeles; F. B. McKevitt, Sacramento.

GRAIN GROWERS CONFERENCES

The U. S. Grain Growers, Inc., is holding conferences with farmer marketing agencies in important grain markets and has held this week a conference at Kansas City. It will hold others at Omaha, June 6-7; St. Paul, June 9-10.

"The object is to get in touch with whatever farmer organizations there are operating on the terminal markets," Mr. Anderson of the sales committee said, "with a view to making arrangements for them to market our grain until we are in position to take them over."

At practically all of the terminal markets there are now farmer organizations that are actively engaged in the cooperative marketing of grain. The report of the committee of seventeen gives assurance that these agencies will not be destroyed at loss to their present owners. For that reason the sales department committee is consulting with the farmers' organizations at each of these terminals before formulating their plans for zone agencies.



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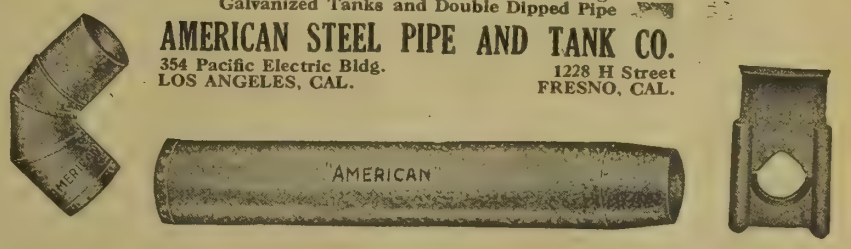

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3,600 acres pronounced by experts the ideal location for avocado and citrus planting. Protected from frost and wind in combination with good soil. Nearly $250,000 spent on irrigation plant, roads and other improvements. The Hacienda Country Club will soon have their golf course and club house finished in this property.

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Grow Sugar Beet Seed

From present indications the acreage devoted to growing sugar beet seed in the United States this season will be somewhat less than last year. This is due to several causes: First, the drop in the price of sugar has caused several of the sugar companies which grow beet seed to curtail their expenses, and one of their means of curtailment is by eliminating or greatly reducing the production of sugar beet seed. Second, sugar beet seed has become more abundant and more easily obtainable from European countries than it was during the war period and immediately thereafter. Third, while the price of imported sugar beet seed is still from two to three times as high as the pre-war price it is greatly reduced as compared with the price of this commodity during the war. Fourth, the cost of producing American sugar beet seed under normal conditions is higher than the cost of seed imported from European countries.

Reasons for Encouraging Industry

In spite of these changes, which tend to reduce the beet seed acreage in the United States, there are some strong reasons why beet seed growing should be encouraged in this country, department specialists point out. The experience of American growers during the past few years, they say, has demonstrated that sugar beet seed can be produced in this country comparable, in regard to quality, with the imported seed and in some respects, especially with reference to germinating qualities, the American grown seed has generally surpassed the best imported seed.

The importations of sugar beet seed during the past several months have indicated an even lower grade, from the standpoint of germination, than during previous years. In many instances the seed recently imported has scarcely exceeded 50 per cent of germinable seed balls; some of the samples tested even lower, while the American grown seed has maintained its high germinating quality.

It is clear that a seed supply testing but 50 per cent of germinable balls is expensive at 25 cents per pound, as compared with American grown seed testing 80 to 90 per cent germination, even if it cost that sum to produce. Furthermore, some of the samples of imported sugar beet seed have been found to contain a considerable mixture of stock beet seed.

Stock beet seed can not be distinguished from sugar beet seed until the seed is at least germinated, and even then only the colored, red or yellow seedlings indicate the presence of stock beet seed. Some stock beets are white and consequently in the germinating stage can not be distinguished from sugar beets. A considerable mixture of stock beet seed with sugar beet seed renders the entire lot worthless for beet sugar production, for the reason that stock beets contain too low a percentage of sugar to make them profitable for sugar production and consequently can be handled only at a loss.

The only argument, therefore, against the production of sugar beet seed in this country is its cost when compared with that of an equal amount of imported seed. This difference in cost is more imaginary than real, because of the better germinating quality of the American grown seed as well as its freedom from stock beet seed. Furthermore, the cost of production will surely be reduced with longer experience and more highly developed labor saving implements.

Reducing Cost of Production

Formerly the stecklings, or roots from which seed is produced, were all topped by hand in the fall before putting them in storage for the winter. We have now learned that this work can be done just as satisfactorily and at a small fraction of the former cost by the use of an ordinary mowing machine before the roots are taken out of the ground. Another large item of expense in beet seed poduction is the hand harvesting of the seed stalks. It is necessary to perform this operation by hand, mainly for the reason that not all mature plants seed at the same time, making from two to four cuttings necessary.

One of the several objects which the department of agriculture has in mind in its beet seed breeding work is the development of strains of seed beets which will ripen their seed at the same time. When this is accomplished it will be entirely possible to harvest the seed by machinery, and so with other operations employed in producing sugar beet seed, the cost will certainly be reduced and the yield per acre will be increased with improved methods of culture, making the cost of production correspondingly lower.

It is true that adverse weather conditions, pests and other factors will sometimes reduce the yield and quality of sugar beet seed in this country as well as in other beet seed producing countries, just as those factors influence the yield and quality of other crops.

In general, however, the American beet seed growers will have no difficulty in producing high grade seed of especially high germinating quality, and they can see to it that American grown sugar beet seed has not mixed with it stock beet seed or other undesirable seeds or substances.

A supply of high grade sugar beet seed is of prime importance in maintaining and expanding the American beet sugar industry. War time experience demonstrated that if the American beet sugar industry is to be placed on a stable and independent basis a large part of the sugar beet seed supply must be produced in this country.

CONTROLLING COTTON DISEASES

In certain sections of the South cotton diseases are so prevalent and severe that profitable crops cannot be grown by the methods usually employed. There are, however, control measures which can be depended upon to greatly reduce losses from many of the diseases which cause greatest damage. These diseases, with methods of control, are described in Farmers Bulletin 1187, "Cotton Diseases and Their Control," recently issued by the United States department of agriculture.

Wilt, or black root, causes the greatest losses to the cotton crop. Affected plants first wilt and then die. The roots of diseased plants turn black, and from this fact comes the name "black root." The disease is widely distributed throughout the sandy soils of the cotton belt from Virginia to Texas, and spreads each year to new localities. In severe cases the yields are reduced as much as 75 to 90 per cent.

The planting of wilt resistant varieties of cotton, combined with the use of proper rotations, is the only effective method now known of controlling the disease.

The presence of another disease, root knot, in many sandy soils makes the wilt more severe, and it is, therefore, essential that infested lands be planted for one or more years to crops which resist root knot before wilt resistant cotton is grown.

Root-knot is next in importance to wilt from the standpoint of money losses to the cotton crop. It is found chiefly on the same types of soil, but as it is more widespread in its occurrence and as it attacks other crops, it causes a greater loss to farmers. The galls produced on the roots of the cotton plants cause them to become stunted. Root-knot can be controlled by using crop rotations in which root-knot immune crops are planted on diseased fields for two or three years previous to planting cotton. Among such crops are barley, velvet beans, corn, several varieties of cow peas, Bermuda grass, millet, oats, peanuts, rye, sorghum and wheat.

Cotton anthracnose is often more widespread than wilt, since it is known to occur in most of the cotton growing sections. It annually causes losses which range from slight to as high as 80 or 90 per cent of the crop. Losses may be largely reduced by giving careful attention to seed selection and crop rotation. Seed for planting should be secured only from fields free from the disease or be selected from healthy plants at some distance from any which have diseased bolls. Some varieties of cotton seem more resistant to this disease than others.

Bacterial blight, a disease which causes large money losses, attacks the cotton bolls, leaves and stems. The first signs of the disease are dark green, water soaked spots on leaves and bolls which spread and later become dark brown to black. The best method of control is to plant only disease-free seed, and to practice crop rotation.

Shedding, the premature dropping of the squares or young bolls, can be lessened by increasing the supply of humus in the soil and by late shallow cultivation to conserve soil moisture.

Measures recommended for the control of rust are the addition of humus to the soil, the use of potash containing fertilizer, and drainage if the land is wet.

No satisfactory method of controlling Texas root rot is available, but deep fall plowing and crop rotation are recommended as the best known measures for reducing losses from this disease.

MARKETS ARE NUMEROUS FOR BULK GRAIN

Notwithstanding reports to the contrary, the markets for bulk grain seem unusually plentiful this year. The Sperry Flour Company has announced that it prefers to receive wheat in bulk and states that it will be in the market for bulk wheat of the 1921 crop.

The Western Pacific Grain Company of San Francisco has announced that it will be in the market continuously during the coming season for grain to be shipped in bulk to the United Kingdom and other European ports. Other large grain buyers and handlers have made similar statements regarding the subject of handling grain in the same manner as it is handled in the Middle West and East.

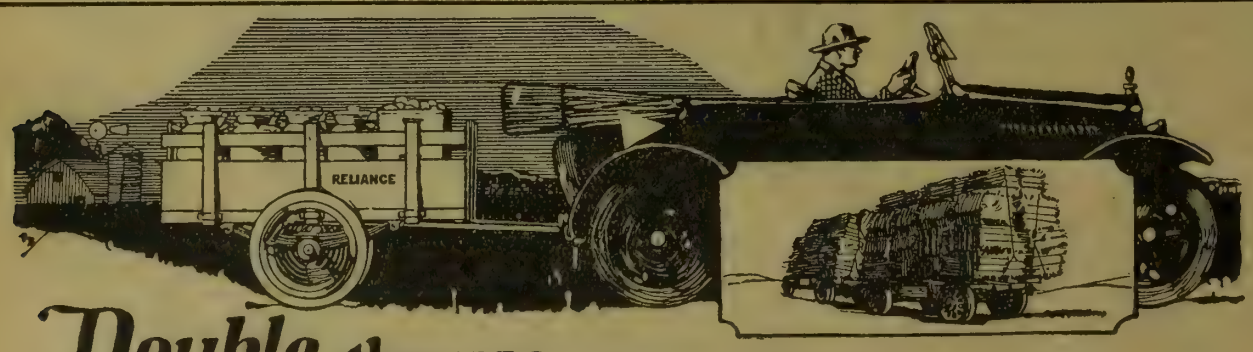
Farmers are cognizant of the fact that 65 per cent of last year's grain crop is still in the warehouses of the state and that there is going to be a shortage in storage room unless they can ship direct to the terminal elevators at Vallejo and Oakland. It is understood that many farmers are installing metal storage bins on their farms and are erecting loading stations on railroad sidings for the purpose of facilitating the handling of their crops.

TAME GOPHER DEMONSTRATES

There's one animal that would be mighty unpopular if he ever left civilization and his free board and keep and went back to his fellows. That's the obliging little pocket gopher that travels with Leo K. Couch, of the bureau of biological survey, United States department of agriculture, who is giving a series of demonstrations on how to trap and poison pocket gophers.

This little renegade, whether because he has no choice in the matter or because he likes the government fare of carrots, potatoes and parsnips, divulges the actual working methods of his kinsmen. When all is set for the demonstration, he is taken from his cage. He sets to work, unabashed by the spectators, and gives a first hand exhibition of how a gopher makes a tunnel. Then he shows how the mound is made and the entrance to it stopped up. His keeper then digs him out, places him back in the cage, and proceeds to his explanation of how to set traps and where to place bait to destroy his mascot's unreformed brethren.

From 25 to 30 retail dealers in the Salt River Valley have pledged themselves to use only Valley dairy products so far as possible. It is believed that there is a sufficient amount of milk, condensed milk, butter and cheese produced locally to supply the demands.



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Reliance two-wheel Trailers are scientifically designed for use behind autos and delivery cars. They are properly balanced, pull easily, are built of wrought steel—strong but light—will last a lifetime. Side stake pockets enable the use of any type body, quickly detachable.

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Farm Bureau Utilities Work

By Dr. W. H. Walker, President

The state farm bureau is rendering a most helpful service in taking up the farmer's and power user's fight for reasonable and just rates for agricultural power.

The claim is made that California uses more electrical power for agriculture than does all the rest of the United States. Certain it is that the future development of California agriculture depends upon a reasonable cost of electrical power for irrigation.

The various counties have singly and individually appeared before the railway commission, protesting on the various increases asked for by the power companies. The excessive cost of preparing data in these cases has made it impossible for the counties to continue these hearings, and as a result they have asked the state federation to take up their fight.

In working on this case it is found the power companies have based their rate on a capitalization which the federation believes is far too high. The relation of the power companies to subsidiary companies seems to be profitable for these subsidiary companies and expensive to the public service corporations, which increases the rate to the power user. There is a violent clamor against the present 1921 rate, and at a recent meeting in Merced County many farmers stated their monthly bills were practically doubled. Many were cancelling their contracts rather than face the excessive rate, which they stated would bankrupt them.

The investigations have shown that the pumping cost alone on alfalfa will run as high as $5 a ton in many cases. The California farm bureau believes in a fair and reasonable rate, and wants to see electrical power extended, but the life of agriculture in California is at stake and unless a more reasonable rate is established thousands of acres of land will remain idle and thousands more will be undeveloped on account of the excessive cost of power.

At the hearings the case for the agriculture power users is being ably presented for the state farm bureau by Judge Frank S. Brittain. In preparing this case Judge Brittain has the support of the entire state and is employing statisticians and experts to assist in preparing data showing that the rates are excessive and an increase is unwarranted. Each county farm bureau is supporting this state movement, through a public utility committee. This committee realizes that unless speedy action is taken the basis of value will be determined which will govern all future rates.

Now is the time for action and the state federation is leading a sane, sensible, intelligent fight to conserve our argiculture and make California agriculture possible and profitable.

Care in Making Up Crates

IMPORTANT factors affecting the successful use of crates in marketing fruits and vegetables were carefully studied by a specialist of the bureau of markets, United States department of agriculture, during a recent trip through a part of the South, particularly the orange producing region. The first of these is the need of manufacturers making a more rigid inspection of materials used.

While most manufacturers make an effort to have their stock inspected and to use only good material, in some cases this attempt is frustrated by the failure of the workman to understand and appreciate the ideal which is guiding his employer. Many crate mill employes seem to cherish the old idea that because the crate is a gift package it should be made as cheaply as possible, using any sort of material so long as there is a chance of its holding together, thus reducing the cost to the grower and shipper. Under present traffic conditions such a method is the worst one to follow if the best interests of the grower, and therefore of the manufacturer, are to be considered. The manufacturer should endeavor to instill in his employes the importance of culling out inferior and defective material.

Attention should be given also to the work of the automatic nailing machines. These are not invariably accurate, nor is it always possible for the manufacturer to obtain the nails best adapted to successful operation of the machines. Consequently, in nailing panels to head sticks in the manufacture of panel end crates some nails may be missed and inspection is necessary to cull out the defective pieces and put in the missing nails.

Such inspection is a benefit to the individual crate manufacturer, to the crate business as a whole, and to the grower and shipper. If it should involve a slight additional charge to the purchaser it certainly would be a good investment.

Grower's Responsibility

The crate manufacturer having done his part in providing materials free from defects, the grower or shipper should see to it that the crate is not spoiled in being made up in his packing house or field.

Growers and shippers should remember that the nailing together of the crate is one of the biggest factors in determining whether the container is to be strong and substantial or weak and productive of damage claims. Cement coated nails, not less than 4d in size, should always be used, and care should be taken to see that they are properly spaced and placed.

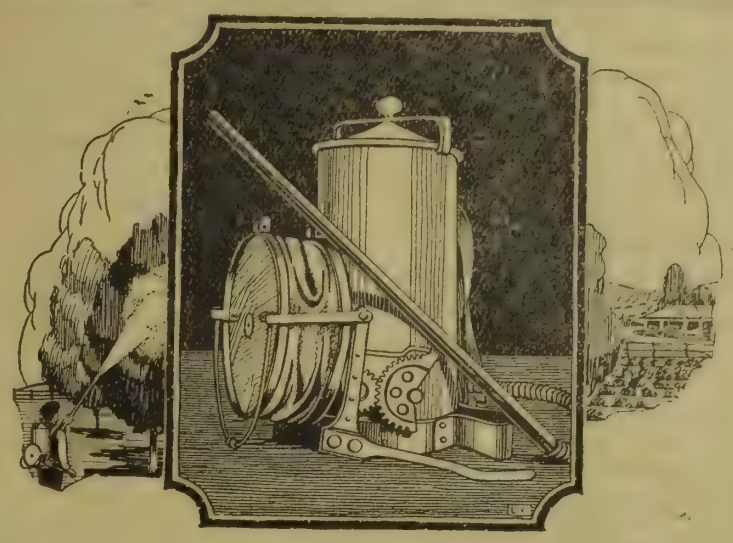
Stricter supervision of the nailers or inspection of their work would seem to be necessary. Some nailers permit their desire for big output on piece work to lead them into making that article so aptly described in the South as a "sorry" crate. In some cases the nail is struck a certain number of blows—the nail may be well driven by these blows or may lack as much as one-eighth inch of being driven in—it is all one to the nailer. In other cases but little attention is paid to the placing of the nails and they either enter the head sticks so near the edges as to split out readily or else miss them entirely. Such carelessness is the cause of much breakage in crates and consequent damage to the contents. Six basket carriers have been observed in express cars in Jacksonville, Florida, with a side loose due to defective nailing.

Greater care is perhaps necessary in making up crates for express shipments than for carlot freight shipments, due to the more frequent handling they must undergo. For either method of shipping consideration should be given to methods of construction which will lessen the possibility of loss. An instance of this is the use of the "web" or cleated side for celery crates. The slats are stapled to the cleats in the factory, making but one piece to each side to handle in the field instead of three. It also insures even spacing of the slats and gives an extra thickness for holding the nails, thus counteracting any tendency of the slats to split and come away from the nails.

Some celery growers are experimenting with a patent crate which is reinforced with wire around the ends and the body of the crate. In actual use the end wires were twisted together to close the package, it being found impracticable, owing to the height of the celery, to twist the center wires together. There is no doubt of the strength of this type of crate.

Need of Cooperation

Whatever the type of crate used it is the duty of the manufacturer to supply good material, accurately cut and properly put together. This much the purchaser of crates should demand and should expect to pay for. Having secured it, he should do his part by seeing that the crates are made up in a workmanlike manner and after packing that they are properly closed and fastened for shipment. By such cooperation manufacturers and growers can feel better assured that the crate will measure up to the ideal of a fruit and vegetable package; that it shall carry the commodity intact from the grower through the wholesale market to the retailer.



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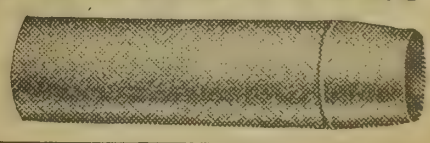

Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Frosted Potatoes

Have read article in May 14 Cultivator on frosted potatoes. My experience last year was somewhat different and may be of interest.

British Queens planted February 1 froze down to ground April 22 after making tremendous growth of top and having from none to as high as 10 or 12 potatoes set. The potatoes set never grew, but other growers harvested a July crop of 120 sacks from seven-sixteenths of an acre. This year I planted early potatoes in deep trench and filled it full and tramped hard as possible with straw. The straw was a good foot deep but the vines were well above it on April 5 when our killing frost came, and not only did it kill the potatoes set but the tops never came on again. Some of the seed that was not rotted threw out new shoots and I have about half a stand just now coming through ground. One never gets too old to learn.—W. B. Roby, Porterville.

Wire Worms

Will you please give means of exterminating wire worms? Practically our whole crop of Irish potatoes has been ruined by them, and they are now growing very numerous in our garden. They seem to have no favorite, attacking corn, lettuce, carrots and peppers alike. Even our watermelons, which are planted at some distance from the remainder of the garden, have been attacked. No one in this locality seems to know of anything to do for these pests, and unless we can find something soon I am afarid we will have our garden ruined. —Subscriber, Anaheim.

This is one of the most serious pests with which gardeners, potato and bean growers, in fact growers of almost every crop, have to deal. About the only treatment is late summer or early fall plowing which throws the wire worms out to the surface and a good hot day will kill thousands. This treatment will also dry out the soil which causes the death of many. Thorough and clean culture will also aid in starvation. Traps such as cut pieces of potato buried in soil attract many and by carefully lifting out the traps and shaking the pest off into oil or hot water they may be controlled. This calls for a vast amount of patience and time. Thorough sterilization of the soil with live steam is effective but beyond consideration where cost is a factor. A bait which is sometimes recommended but rather expensive is bran, 25 pounds; Paris green, ½ pound; cheap molasses, 1 quart. This is worked into the soil and accomplishes some good.

Peach Trees—Defective Growth

I set out 200 large Elberta peach trees this spring, most of them eight feet high. I cut them back about 30 inches which resulted in many of them not sending out the proper head. Some did not sprout above the bud and one is dead on the top. Would it be best to train a sprout above the bud or let them all grow and try to make a head by pruning? Where there is a good thrifty sprout above the bud I think I can make a tree all right. I have a three year old peach tree that I trained from a sprout. I tie them to the old tree body the same as I would a bud to a stake. Should the twigs and leaves of the sprout be cut off or is it best to wait and prune in the fall? I generally take off all the twigs and leaves from the lower part of the sprout.—Subscriber, Terra Bella.

We think your procedure has been all right. Where a thrifty sprout is out above the bud it may be possible to secure a well balanced top by using it for the main trunk of the tree. It is all right to use the old stub for a stake for a time but we would replace it by mid-summer with another stake. It would be especially well to use care in keeping off all other growth from the old stuff. By all means let the leaves and branches remain on the new growth. Of course where the sprout comes below the bud there is but little question that it would be better to uproot and start with new nursery tree.

Asparagus Healthful

If asparagus is eaten freely is it hard on the kidneys? — Subscriber, Tracy.

We have never heard of a case of injury from eating asparagus. It is diarrhetic and generally considered one of our most healthful and beneficial vegetables. It is possible that excessive eating of it might be harmful but when it commands a price as high as it is this year it is hard to imagine such excessive eating.

Dont Send a Penny

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$3.98

A wonderful value in Hip or Knee Length Rubber Boots made of REAL gum Rubber with heavily reinforced seams. Made to order of the English Government for the British Army at actual COST OF MORE THAN WE ARE SELLING THEM FOR. Will stand all extremes of heat and cold and made to give extra long wear. Finest quality pure gum rubber with extra heavy soles. This is one of the very finest BARGAINS we have ever been able to offer our customers and the stock is limited so get your order in very early. Nothing better can be worn by ranchers or men who work in irrigated districts, rice fields, etc. This quality of Hip rubber boot would usually cost you $7.50 to $8.00. Remember you can get the full HIP boots for $3.98 or the shorter knee length boots for $3.29. Be sure to mark which kind you want on the coupon below. WE DO NOT WANT YOUR MONEY IN ADVANCE. We take all risk because these boots are such wonderful values. Fill out coupon NOW and mail at once if you want some of these boots before they are sold out.

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Size..... Hip or Knee Boot?.....

Name.....
(Print Plainly)

Address.....

Town.....State.....

THRESHING—THEN AND NOW

"Once upon a time," as the story teller of old was wont to say, there was an Egyptian prince whose palace near the fertile flats of the Nile overlooked in harvest time many golden acres of golden wheat nodding and swaying in waves with the wind, begging to be harvested and made into meal with the other corns of the valley to grace the table of "my lorde." So any one of a dozen bright mornings would see the slaves of the castle gathering in the sheaves of golden heads, whacking and cutting them from their parent roots with the early forbears of the sickle and scythe. Finally the vast acres were gathered like gleaming jewels into circular piles, each centered on an enclosure of hard ground 50 to 100 feet in diameter, and oxen and sheep were turned into the enclosure and, driven by loud mouthings and whip crackings, milled about the piles, crushing the heads and loosening the kernels from their vaults of husks.

In a little later day the trusty beasts of burden would have been harnessed to a strange looking sledge wagon, known as a charatz, consisting of a frame carrying the driver's chair and mounted on several sometimes spiked rollers which ground out the kernels. The next job of the ancient threshing crew was to throw the straw into the air with forks and let the wheat drop to the ground while the chaff was blown to one side.

The approximate efficiency of such a crew which might thresh several hundred bushels a day, was 50 per cent. How different all this from the modern threshing outfit, separating several thousands of bushels of wheat from chaff each day with a possible and proved efficiency of 99 and 99/100 per cent.

NEW LIGHT ON OUR FOREST QUESTION

In response to a resolution of the United States senate the forest service has restudied the forest situation of the country. It was found that recent high prices of lumber, newsprint, turpentine and other forest products have seriously affected many industries and in various ways have imposed formidable burdens on the public.

House building has been checked, farm development and upkeep hampered, and the cost of furniture, vehicles, tool handles, agricultural implements and other articles heavily increased. Lumber prices have risen out of proportion to increased costs of production and distribution. The pulpwood and paper industry is in straits for raw material from the forests.

Depletion of the timber supplies in the eastern part of the United States has reached the point at which eastern and even southern markets are being entered by West Coast lumber, hitherto barred by the high cost of transportation. The timber of the country as a whole is being used and destroyed four times as fast as new timber is growing, and the saw timber, the most valuable and most needed part of the stand, is being cut five and one-half times as fast as it is produced. More than 80,000,000 acres of land that should be growing timber is unproductive waste, much more is only partially productive, and fires are steadily causing further deterioration.

The new study of the situation made by the forest service contains many facts never before brought out, regarding both individual industries and conditions in individual states and regions. It discusses also the relation between forest depletion and the lumber prices, depletion and exports, and Concentration of Timber Ownership." manufacture and marketing. Fresh light is thrown on the question of timber monopoly.

Finally, a program is outlined for bringing about a fundamental and permanent change in the situation. Timber in large quantities will always be an economic necessity, and we must prepare to grow it. The measures required for this are outlined in full in two forest service publications just issued.

One of these is the complete text of the report on senate resolution 311, and is entitled "Timber Depletion, Lumber Prices, Lumber Exports, and Concentration of Timber Ownership." It is sold, price 25 cents per copy (stamps not accepted), by the Superintendent of Public Documents, Government Printing Office. Washington, D. C.

The second publication is United States Department of Agriculture Circular 112, 16 pages, "Timber Depletion and the Answer." This is a summary of the report and will be sent free, on request, by the United States Department of Agriculture.

MOUNTAIN BEAUTIES FILMED

When Nathaniel Hawthorne wrote his story about "The Great Stone Face" he little thought that the famous "Old Man of the Mountains" would figure as the "male lead" in a motion picture, but that is the case. "The Old Man of the Mountains" is the central figure in a new motion picture produced and issued by the United States department of agriculture.

The picture in which the "old man" stars is known by the title "Under the Great Stone Face." It is one of a series of four in which the beauties of the White Mountain national forest are picturized. The other three pictures are known as "Hitting the High Spots," "Cloud Busting" and "In King Snow's Court." All of them show phases of the work of the forest service in the White Mountains but devote most attention to the recreational opportunities in the White Mountain national forest, which is one of the most popular of the "nation's playgrounds." "In King Snow's Court" was photographed in the winter and is centered around a winter carnival, in which figure ski jumping, Alaskan dog teams, and skaters.

Each of the pictures is one reel in length. The films will be circulated through the distribution system of the department and cooperating state institutions. Copies of any of the pictures may be bought under certain conditions by authorized persons and institutions at the manufacturing cost of approximately $40 a reel.

The Phelps-Dodge Mining Company of Bisbee and Douglas last year purchased $40,000 worth of produce from the Salt River Valley. This indicates something of the possibilities of the markets offered by the mining towns of Arizona. About two-thirds this much was purchased from other farming sections of Arizona. Their purchases amounted to a total of 108 full carloads.

White cauliflower is obtained by tying the leaves over the head, protecting it from the sun. If this protection is not given, the head burns and soon decays.

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Tomato Seed Waste Valuable

NEARLY every pulping factory in the country has a small mountain of waste tomato seed. One two-hundredth of every bushel of tomatoes is seed. This doesn't seem very much, or very important either, concerning an item which always has been considered waste; but when every manufacturer of catsup, pulp, soup paste and sauce has several hundred tons of it and scientists unexpectedly discover that two valuable commercial products can be made from it, the world at large is interested. Fixed oil and press cake, or meal, are the latest additions to the products useful to humanity saved by specialists of the United States department of agriculture from huge piles of so-called waste. In the larger factories in the eastern and mid-western tomato belts more than 200,000 tons of tomatoes are pulped annually. The waste seed from these large stations alone totals over 1,000 tons.

Bran Was Once Dumped Into Streams

Men still young can remember when millers were prosecuted for dumping bran into rivers or streams. People declared it poisoned the fish, but science learned that it had a high food value for man or beast, so that the man who threw bran into a stream today would be very likely to land in jail. Tomato seed is just another product saved, like bran, for important uses.

The first important step in making the new products is to separate the seed from the wet waste. Several methods may be used, but it has been found that the most practicable method is to equip the ordinary cyclone pulping machine, now in use in most factories, with a five-mesh woven screen made of No. 12 wire. The mesh is just large enough to admit the passage of the seeds and these flow out of the machine in a continuous stream, while the cores and skins of the fruit are discharged through the gate as usual. The stream of seed and pulp is then pumped into an adjoining cyclone machine having an ordinary 20-mesh breaker screen.

The pulp and juice pass through this mesh but the seed is retained and passes out through the gate. The operation involves no increase of labor and is continuous and efficient. Experience with this method for more than two seasons at the Arlington experimental farm at Washington, D. C., has proved its effectiveness.

Best Grade of Oil Extracted by Pressure

After the seed has been separated from the wet waste it is washed and dried and is then ready for the oil extracting process. Two methods can be used, pressure and solvent extraction. Pressed oil is obtained by mechanical presses and commands a slightly higher price in the market than that extracted by chemical solvent processes.

The tomato seed oil obtained by the expeller process is deep brown and has a strong odor. It is refined, bleached and deodorized by the usual methods and is then comparable in quality with the common edible oils of commerce.

The value of oil cake or meal as stock food has been demonstrated in Italy where the utilization of tomato waste is in practical operation. An analysis of the meal shows the following composition: Moisture, 7.15 per cent; ash, 4.64 per cent; protein, 37 per cent; nitrogen-free extract, 29.1 per cent; and fiber, 22.1 per cent. This analysis gives tomato seed meal a favorable footing with some of the better known seed meals of commerce. It may be used as food for cattle, hogs, or chickens. It has a slightly bitter taste which is masked when mixed with other food.

Owing to the fact that the waste from a single factory would make the profits to be derived from installing a complete manufacturing system hazardous, it would seem advisable to organize a central plant at which all the waste seed from a number of pulping stations could be handled. The specialists who have been studying the process for the department of agriculture suggest the possibility of a cooperative plan of manufacture by an association of canners and packers.

Success in Trapping Small Fur Bearing Animals

By Herbert H. Belford

THERE is at present little demand for the raw fur of most of the common fur bearing animals. In fact, the more reputable houses dealing in raw fur advise their patrons not to trap this season. They claim that there is great danger of ruining the fur market for years to come if a large catch of new fur is added to the stocks now on hand.

The reasons given for this slump in the market after last year's high prices are: an overstock of raw fur in all the markets of the world, and a strike among the employes of the fur manufacturing plants.

In spite of this advice there will doubtless be many people in the country districts who will wish to try their luck during the slack season of the year. For their benefit, therefore, I will give a few hints on the subject.

The first essentials for success are good bait and good traps.

The chief reliance of most trappers I have known for bait is jackrabbit. This is the best all round bait for skunk, wildcat, ring tailed cat, etc. Birds, squirrels, etc., make poor bait, seemingly having no attraction for most animals. For mink, fish is good bait.

While not having had a very wide experience with patent baits and scents I would advise beginners not to use them. From what I have seen and heard of them I think the results obtained from their use will be disappointing.

Good traps are the next essential. By good traps are meant those which are strong enough to hold the animal you wish to catch. For the common animals, skunk, fox, mink, etc., the double spring No. 2 steel trap will be found the most effective. Traps that have been rusted to take off the newness are best. Never grease your traps.

Having secured traps and bait, the next step is to find proper locations for them. For skunk along the tops of the ridges where they come up from the canyons to feed. Other good places are near hollow trees that may be dens or along streams or in runways under fences.

For fox and wildcat, set traps near rock piles in rough, wild country. Trap for mink only along streams having fish in them.

In setting traps, pick out a spot where the limb of a tree or bush comes near enough to the ground so that the bait may be suspended from it. The bait should be hung from the limb by a piece of brown twine. It should be low enough so that the animal will be tempted to try for it and still be high enough so that it cannot be easily reached.

The trap or traps should be placed immediately below the bait, usually only one trap to a "setting" is used. A hole is dug in the earth or leaves big enough and deep enough so that the trap, when set, will be a little below the surface. The springs of the trap should be covered with earth, and then [illegible] or whatever is the natural covering of the ground sprinkled on top. The jaws and pan should be sprinkled lightly with leaves or grass. Care should be taken that nothing gets under the trigger which will prevent it from springing.

The trap may be staked down solidly or may be wired to a small log or piece of brush. If a stake is used, drive it a foot or more into the ground. Use a stake short enough so the top will be near the ground and not easily seen.

In trapping for mink along streams the traps may be sunk in shallow water. In this case the bait should be fastened to the trigger of the trap, so that it will just show above the water. The animal will try to get it with its jaw and be caught.

The traps should be visited every day. Many trappers only visit their traps once a week or so, but this is poor practice, as many animals chew off the foot caught in the trap and are lost.

In conclusion, it might be well to say a word on skinning and preparing the hides for market. Many times poor returns are received on account of carelessness in preparing the fur.

In skinning care should be taken not to cut the hide. Be careful not to leave any more fat on the hide than you can help.

Always stretch the hide as tightly as possible so that it will not shrink in drying. Always split open the tails or they will not cure properly.

When the hides are dry take some blunt implement, such as an old spoon, and scrape all the fat and meat from the hide. Great care must be taken not to tear the skin. After scraping, hang in the sun to bring out the grease. Then scrape again and wipe with a cloth.

PREVENTING FOREST FIRES

Recognizing the value of normal grazing in fire protection of timberlands, a study of its application to national forests, say forest specialists of the United States department of agriculture, suggests:

The timely use of present ranges by the removal of rank vegetation before it becomes unpalatable.

The utilization of all suitable unused grazing lands by the development of water and trails and the elimination or control as rapidly as possible of all factors which prevent present use.

The closer consideration of the class of stock to be grazed where fire protection is involved.

The location of driveways and trails so as to form the most efficient fire lines and means of communication.

The overgrazing of strategic points; minor damage at such points may result in saving large areas of forest from destruction by fire.

The study of lightning fires on the forests with a view to determining whether lightning zones exist and the possibility of utilizing grazing livestock to assist in preventing the spread of fire.

The fuller enlistment of the moral and active support of some 25,000 additional persons in the forests on account of grazing uses.

The closer correlation of the livestock industry of the forests with the fire protection plans.

POTATO IMPROVEMENT

The Utah agricultural experiment station recently issued a bulletin in which was recorded hill selection results in the improvement of potatoes. The work was begun in 1911 and "by 1915 the high yielding strains yielded an average of 301.03 bushels to the acre as compared with 179.30 bushels to the acre for unselected. From 1915 to 1920 the selected strain has outyielded the unselected stock of the same variety by more than a hundred bushels an acre, except in 1919 when there was a difference of only 29.6 bushels. Possibly the extremely unfavorable growing season of 1919 may have caused this wide fluctuation. At any rate, the superiority of the selected strains manifested itself again in 1920, outyielding the unselected strain by 168.6 bushels.

"Not only were the acre yields of selected strains higher than those of unselected stock but there were more tubers to the hill; the individual tubers were larger; and, as a consequence, there was a higher percentage of marketable potatoes than in the unselected stock.

"As a six year average, 1915-1920, the acre yield of the selected strain was 60.9 per cent greater than that of the unselected and the average size of tuber 24.4 per cent greater than that of the unselected. Remnant hills and strains, after the best had been selected out for seed, gave somewhat poorer yields than did unselected stock. The germination of the selected strain is more rapid, the stand is better, the growth thriftier, and diseases less apparent than for the unselected potatoes of the same variety."

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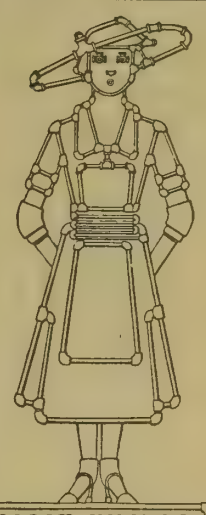

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Household Department

TWO PICTURES

An old farmhouse with meadows wide
And sweet with clover on each side,
A bright-eyed boy, who looks from out
The door with woodbine wreathed about,
And wishes his one thought all day:
"Oh, if I could but fly away
From this dull spot, the world to see,
How happy, happy, happy,
How happy I should be!"

Amid the city's constant din,
A man who round the world has been,
Who 'mid the tumult and the throng,
Is thinking, thinking, all day long:
"Oh, could I only tread once more
The field path to the farmhouse door,
The old green meadow could I see,
How happy, happy, happy,
How happy I should be!"
—Annie Douglas Robinson.

THERE WAS ONCE A SMALL CHILD

There was once a smal child who would never say please,
I believe, if you even went down on your knees.
But, her arms on the table, would sit at her ease,
And call to her mother in words such as these:
"I want some potatoes!" Give me some peas"
'Hand me the butter!" "Cut me some cheese!"
So the fairies, this very rude daughter to tease,
Once blew her away in a powerful breeze
Over the mountains, and over the seas,
To a valley, where never a dinner she sees,
But down with the ants, the wasps, and the bees;
In the woods she must live until she learns to say please.
—M. S. P., in St. Nicholas.

THE MOST IMPORTANT PRODUCT OF THE FARM

By J. T. Brooks, Department of Agriculture

AGRICULTURE in its broadest sense is the dependence of the human race for its existence. There is nothing connected with it that is not worth while. The improvement of plants, fruits and animals; the improvement of machinery, methods of cultivation and preservation is indeed worth while, the improvement of the soil, the care of livestock, the eradication of diseases of plants and animals are all worth while. But all this is but a means to an end and not an end of itself; the end is the welfare of mankind.

As an ultimate end there is something of far more importance than the reclamation of lands, the production of big crops, the raising of fine animals, the making of machinery, the working of mines, the running of trains and ships, the building of cities. It is the production and culture of young America—the boys and girls.

The farmer should take more pride in his children than in his stock. He ought to see to it that he, his wife and children improve faster than his farm or his domestic animals. What profiteth it him if the course pursued results in rich soil and impoverished minds?

The best products are in the house and they should receive the most care, time and labor. All other labor, though necessary, is incidental as a physical means of operation. The farm and its equipment are for the benefit of the dwellers in the house and not an end themselves.

If the family becomes slaves to the farm and its stock the slavery is unprofitable and the drama is a tragedy. Many a farmer mortgages himself and family to the farm and works for it through life, with no attempt to widen the scope of his own mental horizon nor point his family to other than sordid gain.

The finest fields are those of the household, to neglect them for other fields is to throw away a pearl richer than all lands. Of all the things that the farmer cultivates he and his need cultivation most and are the most susceptible of improvement. On the farm is a good place to dream. Great men have made themselves so by dreaming while at work and at spare time—treasuring up things for many days hence.

The children of the farms who go out to the towns, cities, mines and factories are infinitely of more importance than all other products.

How many fine boys and girls go from the farms into the schools and colleges to become teachers, merchants, lawyers, doctors, clerks, nurses, telegraphers, artists, journalists, authors, lecturers, statesmen, bankers, railroaders, government employes, etc.

The farm has furnished:

Ninety-two per cent of our presidents.

Ninety-one per cent of our governors.

Eighty-three per cent of our cabinet officers.

Eighty per cent of our ministers.

Seventy per cent of our senators.

Sixty-four per cent of our congressmen.

Fifty-five per cent of our railroad presidents.

Men and women are the chief products of the world.

All things else are of importance only as they contribute to the support, comfort and happiness of man. A family of bright children is the greatest possible legacy to leave to the world. A neglected mind is a greater misfortune than a neglected farm.

I'd rather add convolutions to the brain of a student than to reclaim a sea of gullies. I'd rather inspire a noble purpose in young men and women with the quality of perseverance, that leads to accomplishment, than to accumulate a million and die with the scorn of the world as my recompense. I'd rather see a generation of people untrammeled and uncontaminated with the sins of their ancestors than to see every acre of the earth as rich as the valley of the Nile.

He who grows a new idea destined to take a tear from the cheek of unpaid toil or strike a crime from the calendar of law is worth more to the world than he who makes a thousand grains grow where one grew or who accumulates from the toil of others untold millions.

He who forges a new thought at the furnace of intellect that goes ringing down the ages to broaden the minds of coming generations, performs a greater service for mankind than he who lays his hand on the finances of a nation and dictates panics to a hemisphere.

To save the living from being the victims of a moral or physical blight is a sublimer service to render the race than to make a desert blossom as the rose.

The only time that I feel worthy of the proud title of man is when I am willing to work for the happiness of others, who may never know that I ever lived.

WAYS TO COOK LAMB

Pressed Lamb

The meat, either shoulder or leg, should be put to boil in the morning with water just enough to cover it; when tender season with salt and pepper, then keep it over the fire until very tender and the juice nearly boiled out. Remove it from the fire and place in a wooden chopping bowl; season more, if necessary, chop it up like hash. Place it in a breadpan, press out all the juice, and put it in a cool place to harden. The pressing is generally done by placing a dish over the meat and putting a flatiron upon that. It is also good cut up cold in thin slices and the broth left from the meat would make a nice soup served with it, adding vegetables and spices.

Spiced Shoulder of Lamb

Bone a shoulder of lamb, and rub it well with a mixture of two ounces of sugar, one teaspoon each of ground mace and pepper and one saltspoon of powdered cloves. Let it remain in the pickle all day; then roll it up, tie with a string, place in a stewpan with some good stock and cook slowly till done. Lay it on a dish and add a little piquante sauce to the broth and serve.

Curried Lamb Kidneys

Pour one wineglass of rich gravy or brown sauce into a saucepan with one

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3523. Girl's Dress—Cut in 4 sizes: 8, 10, 12 and 14 years. A 12 year size will require 3¾ yards of 36 inch material for skirt and suspenders, and 1¾ yards for the waist. Price 10 cents.

3512. Ladies' Dress—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 7⅝ yards of 38 inch material. The width of skirt at lower edge is 1¾ yards. Price 10 cents.

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3497. "Easy to Make" Apron—Cut in 4 sizes: Small, 32-34; Medium, 36-38; Large, 40-42; and Extra Large, 44-46 inches bust measure. A Medium size requires 4⅝ yards of 36 inch material. Price 10 cents.

3128. Boy's Suit—Cut in 4 sizes: 3, 4, 5 and 6 years. For a 3 year size 3 yards of 27 inch material will be required. Price 10 cents.

3518-3513. Ladies' Costume—Waist 3518 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3513 cut in 6 sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. To make this dress in a medium size will require 3⅝ yards of figured material 32 inches wide for skirt, cuffs and vest, and 4 yards of plain material for tunic, sleeves and waist portion. The width of the skirt at the foot is 1¾ yards. TWO separate patterns 10 cents FOR EACH pattern

3501. Child's Dress—Cut in 5 sizes: 1 year, 2, 3, 4 and 5 years. A 2 year size will require 2¾ yards of 27 inch material. Price 10 cents.

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tablespoon of butter well kneaded with curry powder. Boil until it is fairly thick. Meanwhile, cut two or three onions in rings, fry them over a moderate fire to color slightly, sprinkle over a little salt and drain them. Put a dozen lamb kidneys, skinned and minced very finely, in a frying pan with a little butter and fry them until done. Place them on a strainer to remove all the fat, arrange on a dish, pour the sauce over them and decorate with rings of fried onions and potato croquettes.

Hashed Lamb

Chop an onion and put it into a stewpan with a lump of buter and fry till nicely browned; then mix in a heaped tablespoon of flour and stir in about one-half pint of clear stock, a tablespoon of vinegar, salt and pepper to taste, and a small quantity of mixed spices. Stir the sauce over the fire until it boils, then strain it through a gravy strainer and leave until cold. Cut the cold lamb into thin slices, trim off the skin and most of the fat, put it into a stewpan with a few slices of pickle gherkins, pour in the sauce and heat gradually over a slow fire. When ready turn the hash on to a hot dish, garnish it with slices of toast and serve with mashed potatoes.

Broiled Lamb Cutlets

Trim the cutlets to a nice shape and roll them in butter that has been slightly warmed, sprinkle lightly with salt and pepper on both sides, place them on a gridiron and broil over a clear fire, turning them when done on one side. When broiled arrange them in a circle on a hot dish, pour some thick tomato sauce in the center and serve.

Fried Fillets of Lamb

Cut two pounds of cutlets from the loin of lamb, remove the fat and skin and cut into slices about one-half inch thick; flatten them with a cutlet bat and dip them into beaten egg, and then into sifted bread crumbs. Sprinkle lightly with pepper and salt and let them remain for about one hour. Put some butter in a frying pan and when it is hot put in the fillets and fry on both sides until they are quite done and of a nice brown color. Place them on a dish, garnish with asparagus and serve.

Fried Crumbled Lamb

If thin pieces of lamb, either raw or cooked, are dipped in flour, then in egg, and then in crumbs and fried in deep fat, they lose less moisture than if broiled or pan broiled. This method is especially suitable for rib chops, thin loin chops, or small pieces cut from rare cooked meat. Thick chops would hardly be cooked through by this process.

Ballotin of Lamb

Bone a shoulder of lamb, leaving the end for a handle. Sew it up with a needle, tie it firmly and boil for five minutes. take out and cool, then lard it. Put a slice of bacon in a saucepan with one tablespoon minced onion and one of carrot, brown the lamb with these for five minutes, add a pint of white broth and cook for one hour. The sauce should reduce one-half. Thicken slightly and pour it over one pint boiled green peas and place the shoulder of lamb upon them.

Soup

Four pounds meat from the neck, 3 quarts cold water, 3 carrots, 2 turnips, 1 stalk celery, 2 tablespoons salt, few sprigs parsley, 1 medium sized onion, 3 cloves, 1 sprig thyme, 1 sprig marjoram. Wipe the meat carefully, cut into small pieces and cover with the water. Bring very slowly to the boiling point and skim. Add the vegetables cut into small pieces and other seasoning, and cook slowly for three hours. Strain, cool and remove fat. Serve either clear, with rice, or with vegetables finely chopped.

Scrambled Lamb

Take three cups of cold lamb chopped fine, three tablespoons of hot water, and piece of butter size of an egg; place on stove, and when hot, break in three eggs, and constantly stir until the eggs begin to stiffen. Salt and pepper to taste and serve hot.

Scalloped Lamb

Place layer of bread crumbs over bottom of earthen baking dish, and over this alternate layers of cold roast lamb cut in thin slices, together with ripe tomatoes peeled and sliced; season each layer with salt, pepper and bits of butter. Top layer should be of tomatoes, spread over with bread crumbs. Bake three-quarters of an hour and serve at once.

LEMON SPONGE PIE

Three tablespoons butter, 1½ cups sugar, 3 egg yolks beaten until creamy, 1 lemon (juice and grated rind), 1 orange (juice and grated rind), 3 tablespoons flour, 1½ cups milk, 3 egg whites, beaten dry. Beat sugar to a cream; add ½ cup of sugar. Add remaining sugar to beaten yolks; add orange and lemon juice and combine mixtures. Mix flour with ½ cup of milk, add to first mixture, then remaining milk and carefully fold in the beaten whites. Put into a pastry lined pan and bake from 30 to 40 minutes.

SQUASH PIE

One and a half cups cooked, strained pumpkin or squash, 1½ cups rich milk scalded, 1 cup brown sugar, 2 eggs, ¼ teaspoon salt, ¼ teaspoon nutmeg, 1 teaspon ginger. Mix all ingredients; have a deep pan lined with pastry, pour in the pumpkin mixture and bake in a medium hot oven until firm. May be served plain or with whipped cream.

And now we have prune mincemeat. That is, in making mincemeat, the housekeeper may use prunes instead of raisins. J. O. Holt, manager of the packing department of the Oregon Growers Cooperative Association, announces that mincemeat with prunes instead of raisins is now being made at the Eugene plant and has already been placed on the market.

STIRRING WORDS

"Ah," sighed the tolerably young and more or less fair maiden, "are there any words in the language which stir the emotions like the simple little phrase, 'I love you'?"

"Oh, I don't know," the youth replied a bit nervously. "I feel very pleasantly stirred by the words, 'Dinner is ready'."

A man is as cruel as the things he permits. Not to protest a crime and oppose it is to condone it.

TAKE YOUR CHOICE

This is a day of cooperation.

If you want to ride in the band wagon get in and cooperate.

If you want to follow the hearse, let every man act for himself and refuse to sign.—O. J. Woodward, President First National Bank, Fresno.

WOULD I WERE A ROCK

I wish I were a little rock,
A settin' on the hill,
A doin' nothin' all day long,
But just a settin' still.
I wouldn't sleep,
I wouldn't eat,
I wouldn't even wash—
I'd just sit still
A thousand years
And rest myself,
By gosh! —Ex.

HERE'S A TWR

She frowned on him
And called him Mr.
Because in fun
He merely Kr.
So out of spite
The next good night
The naughty Mr. Kr. Sr.
— The Big U (U. S. S. Utah.)

You men who are planning on building new homes should remember to let your wives help in the planning. They are the ones who have to live in them and it is they who have to care for them after they are completed.

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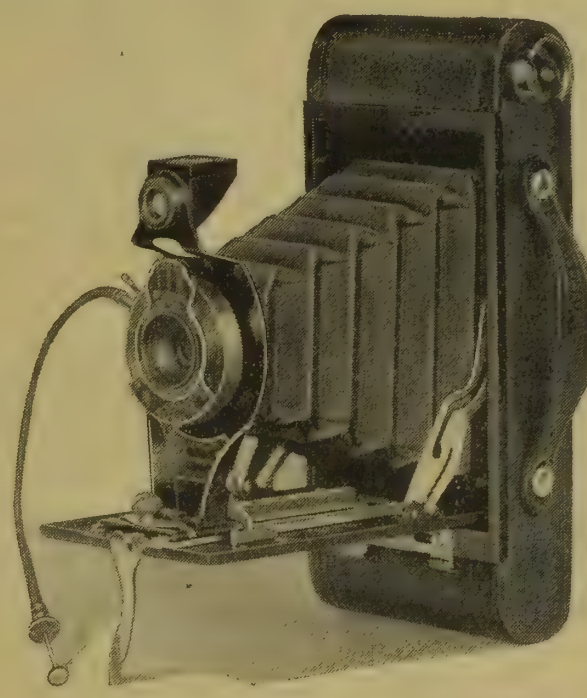

Honest workmanship has become a habit in the Kodak factories, and it is in those factories, in the skilled hands of Kodak workmen and under Kodak superintendence, that the Brownie cameras are made.

The 2A Folding Brownie gives a happy combination of real convenience and efficiency with genuine economy. The pictures are 2½ x 4¼ inches, a really satisfactory size, yet not so large as to make the film and printing costs high. The folding feature makes it convenient to carry; the excellent finish is both durable and pleasing.

The Kodak Ball Bearing shutter, with which this camera is fitted, is quiet and certain in action. It has snap-shot speeds of 1/25, 1/50 and 1/100 of a second and the usual "time" features.

The Meniscus Achromatic lens is of excellent quality and each one is carefully tested.

Like all Kodaks and Folding Brownies, the No. 2A is autographic—provides the means for dating and titling the negatives at the time the exposure is made. This camera has two tripod sockets, a finder and an accurate focusing scale.

The price, ten dollars, includes the excise war tax and the films are but thirty cents for six exposures. Picture taking with a Brownie camera is very simple and is less expensive than you think.

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EASTMAN KODAK COMPANY, ROCHESTER, N. Y., *The Kodak City*

Single Stalk Method

Twenty-five to 100 per cent increase in yield is reported by cotton growers who have adopted the new close spacing system of cotton culture, introduced eight or ten years ago by the United States department of agriculture. Reports coming directly to the department and to southern agricultural journals, which have interested themselves in encouraging the new system, show that farmers throughout the cotton regions of the country are rapidly turning to the plan. Increased yield, less labor and expense for the same crop, and a lessening of boll weevil damage are among the benefits recited in hundreds of letters written by farmers in various parts of the South. Indications are that the system will be adopted far more widely the coming season.

Space Plants a Hoe Width Apart

The close spacing, more commonly known as the single stalk method of cotton culture, consists primarily in spacing the cotton plants so close in the row—a hoe width apart—that the lower or vegetative branches do not develop, and the growth of the plant goes directly into the upper or fruiting branches, permitting them to begin the development of blossoms and bolls earlier and giving them more nourishment and more light.

The discovery that the cotton plant, in common with coffee, cacao, and a number of other species, produces two different sets of branches was announced by specialists of the department about 1911, and has given direction to a series of useful experiments in cultivation. By taking account of the specialized habits of branching it was found possible to exercise a much more effective control of the development of the plants so as to secure earlier crops, larger yields, and greater protection against injury by the boll weevil.

The suppression of the vegetative branches avoids the excessive crowding of large plants and injurious competition between the two kinds of branches. The cultural ideal under the new system is a cotton plant with only the single, erect, central stalk bearing numerous well developed fruiting branches, but none of the vegetative branches or secondary stalks. The suppression of the vegetative branches is easily accomplished by leaving the young plants close together in the rows. Thinning is deferred until the plants are some six to eight inches high, or even later under conditions of rank growth. If the young plants stand less than six inches during these early stages of growth, more of them will not produce many vegetative branches, but will have only the upright central stalk and the horizontal fruiting branches.

The distance between the plants is regulated with reference to local conditions and the habit of growth of different varieties, the range being between six and 12 inches. The plants then have a narrow upright form and can be left closer together in the rows. Even with the plants only three or four inches apart in the rows there may be less injurious crowding than with large many stalked plants three feet apart in the rows. The distance between the rows, usually three and one-half feet, can also be varied with reference to local conditions, but crowding the rows together, so that the sun does not reach the ground, is undesirable especially under weevil conditions.

Small Plants May Outyield Large Ones

In the way of production two distinct advantages are gained. The smaller single stalk plants, free from any large unproductive offshoots, proceed at once to the development of the branches which produce cotton bolls, and in many cases these small plants produce almost as many bolls and a better quality of lint than large many stalked plants occupying the space of three of the smaller. But even with very small plants that bear only a few bolls apiece the yields may be much larger than from large spreading plants. The bolls also are produced much earlier on the small plants, and are more likely to escape injury by the boll weevil.

The Egyptian cotton industry of the Southwest, an achievement of the department of agriculture which has added $20,000,000 a year to the annual agricultural income of the country, could not have been acomplished, in the opinion of department specialists, without the new close spacing system for controlling the vegetative branches. The benefits to the $2,000,000,000 cotton crop of the country at large, with continued extension of the new method, can only be faintly estimated.

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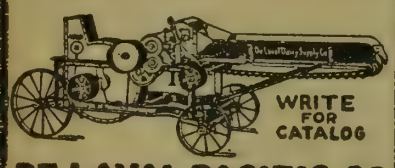
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DE LAVAL PACIFIC CO.
SAN FRANCISCO.

Citrospray *versus* Fumigation

After a careful inspection of orchards sprayed with Citrospray for Citrocola Scale one of the oldest and largest growers in Southern California writes:

"In looking over the orchards that have been sprayed with Citrospray will say that I found it very satisfactory.

"Comparing it with adjoining orchards, which were fumigated, will say that the sprayed orchards showed just as good as they did."

This grower will use Citrospray on several hundred acres this year as a result of his investigations.

The cost of spraying with Citrospray is about 50% of the cost of fumigating.

What are you going to do, Mr. Reader?

Citrospray Chemical Co., Ltd.

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This is not a new spray, altho we are a new advertiser in the Cultivator

Grow More Food

Increased transportation costs and lessened returns from the products they have to sell will compel thousands of American farmers to grow more of their own food. These transportation costs will prevent shipments of the more moderate priced fresh fruits and vegetables which are purchased by the growers of single crops or specialties for use in their own homes, and the lack of a market for special products in turn will be a blow to the buying capacity of the growers of those specialties.

The American farmer is not going to be able this year to pay freight on water. Water makes up a large part of fresh fruits and vegetables. The answer is that he must grow his own table fruits. He must also study the possibilities of substitution. This applies to vegetables, fruits, poultry, eggs and dairy products which must be transferred from commercial channels to home consumption if they are to come within the reach of the average farmer's family.

Specialized farming has created conditions of which comparatively few persons are aware. The grain farmer in many instances buys even his potatoes and green vegetables; the fruit farmer buys his dairy products; and even the man who raises milk for creamery, condensary, or cheese factory is likely to send his cream or milk away, feed the skim milk or whey to the calves, and not make his own butter. This year, just as far as possible for him to alter his system in a single season, it is advisable that he get back to the old plan which was aptly described as "living at home." This means not so much remaining on the farm as it does deriving every practicable product for consumption from the farm. The following is from the department of agriculture:

"The average American farmer knows how to raise other crops than those on which he specializes, but it has seemed good business, or at least expedient, to devote his energies to very few or even a single cash crop and buy his necessities, just as is done in other specialized industries. The grain farmer is perfectly capable of raising his own potatoes, his green garden stuff, and melons, tomatoes and other garden fruits to take the place of orchard fruits which in many parts of the country have been killed by the late freezes. If the farmer has a piece of really good garden ground he can add materially to the variety and wholesomeness of the farm food supply with scarcely any expenditure except for seeds, and seeds, fortunately, are lower this spring than for several years.

"The same may be said of poultry. With increased freight rates this year the general farmer's principal meat supply will come out of his poultry yard, either in eggs or in table chickens and other fowls. Poultry is the quickest meat supply to produce, and the farmer will do well to build up a small flock as rapidly as possible. The increased freight rates on butter and eggs, together with the farm money shortage due to the disappointing returns from last year's crops, will make it advisable for many farmers' wives to return to the butter making arts which they learned as girls from their mothers and which have been largely discontinued as farmers became specialists.

"Fruit is likely to be scarce in large and important farming regions, but its place can largely be taken by vegetable products. Two things are clear. In the first place, the average farmer, as it stands now, cannot afford to pay freight on the water which makes up the larger part of both fresh and canned vegetables and fruits. In the second place, under existing conditions, he can raise those things cheaper himself than he can buy them, and he can make many substitutes out of the garden and poultry yard if he sets out to do it. He has the material for the crops and he has not the money. It is not good business to run in debt except for essentials of production."

Safety Valve for Farm Lease Contracts

AN engineer doesn't have to see a boiler explosion to know what may happen if he ties his safety valve down. A glance at the variations in the market price of farm produce for the last year ought to warn the tenant farmer and his landlord as to what may happen to their business if they tie themselves down to a rigid farm lease contract and in order to avoid serious friction and misunderstanding between landlord and tenant it is important to provide the lease contract with a clause that will adjust the rent to the market value of the produce grown on the farm. Before putting his name on the dotted line the farmer, and his landlord, too, should look over the stock of financial safety valves offered.

If the landlord is willing to accept the responsibility of marketing his share of the farm produce the lease may be drawn on the share rent basis. By its provisions the rent is paid in so many pounds of cotton, so many bushels of corn or wheat, or other produce, for each acre rented. In other words, the landlord receives his rent in a certain percentage of the crop and without relation to what the market price of the product may be. The rent is settled in terms of bushels and pounds rather than in dollars. Profits or losses from price fluctuations are shared under this system. If, however, the landlord cannot accept his rent in produce, or if any other reason makes it advisable that the rent be paid in cash, the compensating device may be applied by means of a sliding scale amendment. For example, a rent of $9 an acre might be rebated to $7 if the price of main crop fell 20 cents a unit, or raised to $11 if the price went up 20 cents above the basic price agreed upon. If a very fine adjustment is sought, a percentage system can be used in this scale so that the rent is changed by as many per cent as the price of the crop has risen or fallen between the date of the contract and the date of settlement.

Subject to Modifications

Both systems are subject to many modifications which may be invoked to care for special cases. The strong feature in such lease contracts lies in the fact that both parties are protected from loss incurred by a change in prices which neither can foresee. A rigid contract which contains no allowance for market rise or fall does not offer protection to either individual; one will gather an excess profit at the other's expense if there is any abrupt change in the market price for the produce. By providing the contract with a relief clause, the landlord and tenant unite to play the game together rather than against one another, as under the rigid type of contract.

In any sliding scale amendment there should be specific understanding uopn the following points:

The areas to be under the provisions of the scale. Areas not in crops, and areas in soil improvement crops may be kept on a non-scale basis, or, if cash rents have been written up on such land at high prices, the scale may be made to cover them all.

The products involved: It is better to take a single important crop as the standard than the average of two or more crops.

The grade and quality of the product upon which the change of price is to be determined.

The market: It is often advisable to name the dealer whose quoted price is to be used in making the adjustments.

The day or the period for which the quotation will be taken. Sometimes the average between the high and low price of a certain month is used.

But even after the flexibility of the farm lease contract has been attended to there will still be need for an attitude of liberality in landlord-tenant

relations. To help reduce costs, to secure opportune markets, and to adapt equipment and methods to new production demands there is nothing which is so effective as generous cooperation.

Farmers Bulletin 1164 tells about the various standard forms of lease now in general use.

GREAT RANCH SOLD

The celebrated Elwood Ranch near Santa Barbara, one of California's show places, was successfully sold at the auction held last week according to announcement made in the Cultivator of May 7. This great ranch was for many years the property of Elwood Cooper and on it was erected the oldest olive mill in the state. The property was sold by Mr. Cooper to Major C. M. Crichton and F. H. Greene nearly a dozen years ago. Major Crichton gave up his life in the great world war and Mr. Greene died during the past year. The widows, unable to keep up the work of the great ranch, offered it at public auction. The purchasers were J. E. Doty and Joseph Archampault, both retired farmers. The price was $225,000. The auctioneers were W. H. O'Connor and Sons of Los Angeles, who inform us that this price represents the largest value ever bid at an auction in California for a single parcel of land. The livestock and equipment of the ranch were not included in the sale, but it is understood that the 75 draft horses, 300 cattle, 300 hogs, implements and general equipment will be sold at a later date.

The maanger of the ranch for many years has been "Farmer" Graham. Mr. Graham came from Scotland to take charge of this property at the request of the former owners. The presence of Farmer Graham and his family with their Scotch burr and their thrifty and hospitable ways made a visit to Elwood a rare pleasure, and the highest compliment which Mr. and Mrs. Greene could pay their visiting friends was to motor them out to Elwood for luncheon.

"MEET 'EM HEAD ON"

Theodore Roosevelt Jr., "son of his father," counseled in a political fight to "meet 'em head on." He would neither run from a fight, lie down, nor dodge an issue. To win a fight is to hit first and hit hard; to overcome temptation, squash the impulse and don't dally with it; to get over trouble, wade straight through it.

War time "passing the buck," the habit of everlasting dodging, evasion, shuffling and deceit, has made the world sick with disgust at incessant delays. These things held back and hampered decisions, tied up situations in snarls of red tape, bungled bureaucracy and hamstrung action.

Get things done, make decisions, place authority, look men in the eye and cut out camouflage, circumlocution and crawling. Give decisions with the speed, surety and snap of a baseball umpire.

Hard thing to do that, but the men who can say "yes" or "no," and say it right and quick, eight times out of ten hold the big jobs, get the big pay and produce big results. This habit of decision comes from clear thinking, positive convictions and courage. It is not easy; but in the long run it is easier than evasion.

Somebody writes of the burdens and exhaustion of his job, of being overworked and worried and driven. The man is a secretary and doing it all himself; but his job is not so big as he thinks it is, nor is he as big as his job and big enough to "meet 'em head on."

PURE BRED LIVESTOCK FIGURES FOR CALIFORNIA ARE GIVEN OUT

The census of livestock in California, together with the pure bred stock reports, was issued this week by the Bureau of the Census. The report shows there are nearly 10,000 farms with pure bred livestock, with a total of 1,615 pure bred horses, 32,388 pure bred cattle, 28,831 pure bred sheep, and 35,741 pure bred hogs.

The figures show the Percheron to be the most popular horse; the Hereford to be in the lead among beef cattle; the Holstein to lead the dairy animals; the Rambouillet the leader in number of sheep, and the Shropshire in first place as to number of breeders; and the Duroc-Jersey leading in number of hogs.

The Census Report

The census report follows:

Breed—	Farms reporting—Total	Farms reporting—Males	Farms reporting—Females	No. of pure-bred animals reported—Total	No. of pure-bred animals reported—Males	No. of pure-bred animals reported—Females
Pure-bred livestock, any kind	9,506	....	....	....	....	....
Horses, total	588	....	....	1,615	844	771
American Saddler	9	6	6	27	10	17
Belgian	73	62	20	152	83	69
Clydesdale	20	15	8	37	18	19
German Coach	11	11	....	24	24	....
Percheron	280	237	78	769	473	296
Shire	44	35	17	110	51	59
Standard Bred	25	15	13	35	16	19
Thoroughbred	15	5	10	113	20	93
All other	134	81	64	348	149	199
Cattle, total	5,179	....	....	32,388	11,218	21,170
Beef breeds, total	1,401	....	....	13,244	6,138	7,106
Aberdeen-Angus	33	32	11	1,182	198	984
Devon	16	12	7	124	44	80
Hereford	484	459	74	5,238	2,865	2,373
Polled Durham	655	606	98	3,100	1,740	1,360
Shorthorn	243	224	84	3,045	1,043	2,002
All other	56	48	17	555	248	307
Dairy breeds, total	3,959	....	....	19,144	5,080	14,064
Ayrshire	82	67	37	595	158	437
Brown Swiss	20	15	5	36	19	17
Guernsey	224	194	81	1,145	313	832
Holstein-Friesian	2,496	2,108	850	12,189	3,480	8,709
Jersey	1,104	612	694	3,832	887	2,945
All other	96	76	39	1,347	223	1,124

Sheep

Breed—	Farms reporting	No. of animals
Sheep, total	371	28,831
Dorset Horn	7	48
Hampshire Down	51	1,372
Lincoln	24	148
Merino	32	5,010
Rambouillet	69	15,175
Shropshire	159	6,242
Southdown	5	68
All other	42	768

Swine

Breed—	Farms reporting	No. of animals
Swine, total	4,886	35,741
Berkshire	821	5,348
Chester White	245	997
Duroc-Jersey	1,809	14,153
Hampshire	155	2,699
Poland China	1,901	11,146
Tamworth	13	96
Yorkshire	23	333
All other	92	969

The best thing a father taught his son was to meet an issue and to meet a man straight visioned, squarely, and neither to lie nor lie down; to be a gentleman, and at the same time not grovel and crawl; to be fair spoken and not flabby willed; to be fearless and to consider the other man's right to be thought just, and not quail nor waver in his judgment, nor to dodge an issue.

Practice the habit for a day of meeting situations "head on." It will mean more work done, better satisfaction in doing it, and will save the other man the exasperation, delay and despair from the contemptible habit of "passing the buck" and evading responsibility.—Association Men.

CITRUS INSTITUTE

Plans for the coming summer session of the Citrus Institute to be held June 24 at Whittier are not yet completed, but those already made indicate the program will be a practical one. In the face of such adverse conditions as now exist, citrus growers cannot afford to miss this institute, for it behooves every grower to cut the cost of production in every possible way. Obtaining ideas from experienced men is one of the best ways of finding out how to cut the cost of production.

WESTERN SPECIAL POWER BALER $950

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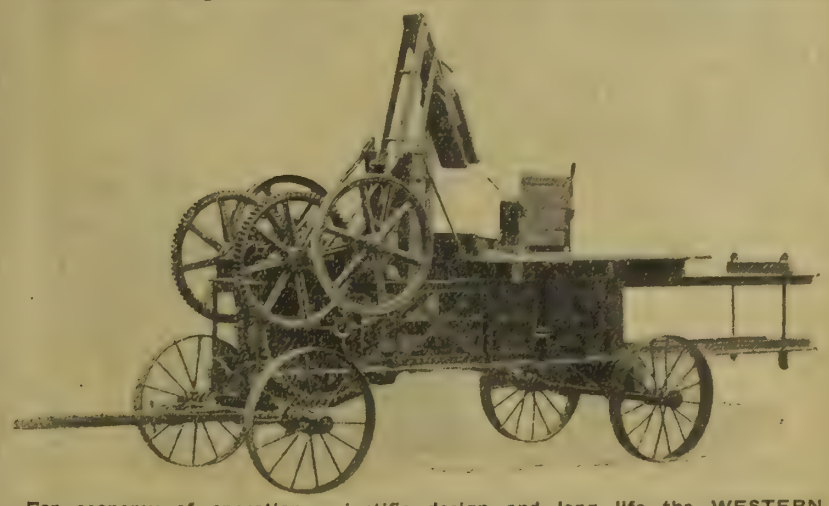

For economy of operation, scientific design and long life the WESTERN SPECIAL has no equal. It has automatic block dropper, double back gears, a feature that doubles the compression without extra power, takes off the jerk—makes uniform pull on engine,—three dogs, tying chamber 1 to 2½ feet longer than others, double side gears, quick return, self feed. Repair bills almost nothing. Parts in stock. Terms if desired.

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60---REGISTERED HOLSTEINS---60

GUARANTEED BREEDERS—TUBERCULIN TESTED
SOLD ON MOST LIBERAL TERMS

Thursday, June 9, at 10 A.M.
at Burr Farm, Los Angeles, Cal.

Most of the offering is made up of fresh and heavy producing young cows, with a few heifers well along with calf, and only two or three open heifers. The females include:

A 27 POUND JUNIOR 3 YEAR OLD daughter of It, out of a 27 lb. 3 year old daughter of the century sire Changeling Butter Boy. Now fresh and on yearly test.

A 27 POUND granddaughter of Johanna McKinley Segis, now on yearly test and bred to King Korndyke Pontiac 20th.

A 26 POUND COW that milked 711 lbs. in 7 days. Now on yearly test and bred to King Pontiac Tola Ormsby.

A 25 POUND COW, now on yearly test and bred to King Pontiac Tola Ormsby.

TEN OTHERS with records above 20 lbs. butter in 7 days, and several with yearly records up to over 740 lbs. butter.

MANY OF THESE CHOICE FEMALES are in calf to King Korndyke Pontiac 20th, Sir Veeman Korndyke Pontiac, King Pontiac Tola Ormsby, Toyon Fayne Valdessa, or Sir Manuel Hengerveld, each of which is out of a 30 to 36 lb. dam or a dam that made over 1,000 lbs. butter in one year, or both.

EIGHT YOUNG BULLS IN THE OFFERING

Four of these are sired by Toyon Fayne Valdessa, every one out of an official record dam, one each by Sir Veeman Korndyke Pontiac, Segis Pontiac Abbekerk, Sir Veeman Helena Korndyke, and King Pearl Segis Pontiac, out of high class dams.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

TERMS OF SALE: One-third cash, balance in twelve equal monthly payments with approved note and livestock insurance on deferred payments, but arrangements for credit must positively be made before sale, otherwise terms are cash.

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Margarine Tinkering

N. P. Hull, President of the National Dairy Union, is taking up the fight on the margarine interests which are endeavoring to force through legislation antagonistic to the dairy industry. President Hull writes:

"I am compelled to refer again to the continued efforts of the Institute of Independent Margarine Manufacturers, through its officers, to atack the dairy industry. An article, giving evidence of careful preparation, appears in the current issue of the American Food Journal, which evidently is designed for this purpose. This article is a very careful statement, quoting only the highest scientific authorities in an effort to prove that perhaps oleomargarine sometimes does contain vitamines and that butter is sometimes more deficient in vitamines than at other times. With all the skill of a special pleader, its author carefully selects just the statements which he needs to prove his case and makes a very clever use of these statements. By careful selection of a statement here and a statement there from the reports of research work by such authorities as Osborne and Mendel, Steenbock and Boutwell, Katherine Blunt and Chi Che Wang, he finally comes to this conclusion, selfevidently the animus of the entire article: White butter artificially colored is therefore adulterated butter.

"It will take more than the statement of a representative of the oleomargarine industry to convince the public that there is generally speaking any such a thing as white butter or butter which does not contain sufficient vitamines to serve the protective purposes which have made it the highest type of human food. Even the savages of central Africa know this. The New York Tribune of May 1 says that a remarkable East African journey has just been completed by Rev. John Roscoe of Thetford, Norfolk, England. Mr. Roscoe traveled many thousands of miles in the interior on foot and by bicycle, using native paths. He found tribes who lived wholly on milk and nothing else whatever unless a cow died, and after feeding on that a twelve hours fast was imposed. So vast were their cattle herds that a king regarded 20,000 as a small flock. This is the only foodstuff that is capable of being used as the only food of a race of people and supply them all the essentials for life, health and proper growth.

"The argument, however, made by a representative of the oleomargarine industry that coloring white butter is an adulteration, has another reaction which he himself could not have recognized or he would not have ventured on this ground. The facts are that oleomargarine, especially the vegetable margarines, are white and it does not require any exhaustive search of the results of technical research to prove this statement. It is also a fact that they are to a high degree, if not completely, deficient in vitamines. The use of color, therefore, is clearly an effort to conceal this inferiority by making the public think that oleomargarine is the same as or as good as butter, and instead of being licensed and permitted by law, this coloring should be absolutely prohibited, as it is in similar cases with other foodstuffs. It is not too far to go to say that the same argument and reasoning would prevent the use of milk or any dairy product to be mixed with oleomargarine, for this is done to make oleomargarine taste like butter and thereby conceal inferiority.

"This is the argument which the dairy people have advanced ever since oleomargarine was first exploited in unfair competition with dairy products. It is perhaps the first time, however, that a paid representative of the oleomargarine interests has ever made the argument for the dairy people."

High Quality, Moderate Prices in Caledonia Shorthorn Sale

The third public sale of Shorthorns from the Caledonia Farms herd was held at the farms, West Sacramento, Wednesday, May 25. Forty females averaged $278 and ten young bulls averaged $251—a general average on the entire offering of $275 being established. While such an average must be considered very conservative in view of the quality of the Caledonia herd, it was generally felt that the sale indicated a much stronger tone than has been manifested in eastern sales, and the fact that practically the entire offering was absorbed by men new in the business is regarded as a demonstration that there is a growing demand for good Shorthorns in California — a demand that will require years to fill.

The offering included a fair number of Scotch females and bulls and all the females either sold with calves at foot or bred to one or another of the Caledonia herd bulls, Imp. Caledonia, Pine Grove King and Gainford Matchless. The records the above bulls are making as sires of the correct stamp of calves was cause for much favorable comment and furnished the incentive for the buyers.

The top of the sale was reached with the outstanding white cow, Fayette Countess 2d, that sold with a cracking good roan bull calf at foot by Gainford Matchless to Geo. J. Meister of Sacramento for $600. This cow was easily worth double the price paid as was the red Lavender Venus that fell to the bid of Senator B. F. Rush for $450. Easton and Ward, owners of the Blackhawk Ranch, Diablo, secured some of the real bargains of the sale in the four richly bred females credited to them in the sale list.

No high prices were recorded for any of the ten bulls. R. L. Creps of Wheatland probably got the best bargain in the Roan Lady calf, Aberdeen Archer 2d. P. B. Cross of Willows made an excellent selection in the red Sultan's Marvel 16th.

In the distribution of such acceptable cattle and in the high class manner of selling, Caledonia Farms rendered the Shorthorn cause a valuable service in this state.

The sale was held under the management of C. L. Hughes of the California Breeders Sales and Pedigree Company. Col. Rhoades occupied his customary place on the box and was ably assisted by Col. John A. Davis in the ring.

A representative list of sales follows:

1, Lavender Venus, red, Sept. 1916 and Mar. 1921 C.C.; B. F. Rush, Suisun, $450.
2, Blossom Duchess, red and white, Feb. 1918; Geo. Meister, Sacramento, $300.
4, Souvenir Queen, red, Jan. 1919; P. B. Cross, Willows, $290.
6, Fayette Countess 2d, white, Feb. 1915 and B.C.; Geo. Meister, $600.
7, Choice Flower, red, May 1919; Easton and Ward, Diablo, $300.
8, Purity of Paicines, red, May 1910; F. L. Gordon, Suisun, $225.
9, Princess Lavender 3d, red and white, Dec. 1914 and B.C.; R. E. Burton, Vacaville, $400.
10, Pine Grove's Hope, red, Oct. 1918; Easton and Ward, $335.
11, Lavenderess, roan, Oct. 1916 and B. C.; R. S. Seydel, Lincoln, $285.
13, Ury Princess, red, July 1919; Easton and Ward, $275.
14, Bapton Countess, white, Jan. 1918; Geo. J. Meister, $225.
15, Sultan's Mistress, roan, Sept. 1918; Easton and Ward, $300.
16, Scottish Princess 2d, roan, Dec. 1919; C. A. Slack, Tracy, $205.
17, Paicines Maid, red, Mar. 1918; C. A. Slack, $275.
18, Butterfly Caledonia, red, Sept. 1919; P. B. Cross, $225.
19, Pine Grove Princess 3d, red, May 1916; C. Harold Hopkins, Davis, $300.
20, Glenbrook's Memory 40th, red, May 1915 and B.C.; R. V. Traynham, College City, $300.
21, Glenbrook's Memory 14th, roan, April 1913; Geo. J. Meister, $350.
22, King's Memory 8th, roan, Jan. 1914 and C.C.; F. L. Gordon, $225.
23, Glenbrook's Memory 7th, roan, Mar. 1913; T. S. Glide, Davis, $350.
24, Girl's Fancy, roan, Jan. 1911 and C.C.; Howard Vaughn, Dixon, $325.
25, King's Memory 18th, red, Dec. 1914 and C.C.; R. V. Traynham, $385.
26, Princess Lavender 2d, red, Nov. 1914 and C.C.; G. A. Slack, $340.
27, Glenbrook Nanon, red, May 1912; B. F. Rush, $325.
28, King's Memory 9th, roan, Jan. 1914,

and B. C.; Wm. McGrath, Watsonville, $275.

29, Glenbrook's Memory 10th, roan, Mar. 1913, and B. C.; Geo. M. Haight, Montague, $285.

31, College Memory 2d, roan, Oct. 1917; C. P. Mauser, Porterville, $260.

32, Champion's Maid, roan, Oct. 1917 and C. C.; Geo. M. Haight, $250.

33, Glenbrook's Memory 27th, red, May 1914, and B. C.; Wm. McGrath, $275.

34, Whitehall Mirth, roan, Feb. 1910; Howard Vaughn, $275.

35, King's Memory 17th, red, May 1914 and B. C.; R. J. Coonrod, Montague, $225.

36, Little Countess, red, Sept. 1914, C. P. Mauser, $210.

38, Grenadine 2d, roan, Jan. 1920; Newhall Land and Farming Co., $200.

39, Glenbrook's Memory 41st, red, Nov. 1919; Newhall Land and Farming Co., $215.

40, King's Viscountess, red, Sept. 1919; P. B. Cross, $230.

BULLS

43, San Benito King 7th, white, Jan. 1920; E. A. Briggs, Healdsburg, $220.

44, Sultan's Marvel 16th, red, Jan. 1920; P. B. Cross, $310.

45, Aberdeen Archer 2d, roan, Mar. 1920; R. L. Creps, Wheatland, $335.

46, San Benito King 8th, roan, Feb. 1920; E. A. Briggs, $255.

47, Champion Jr. 10th, roan, Jan. 1920; R. J. Coonrod, $250.

49, Sultan's Marvel 15th, red, Jan. 1920; R. J. Coonrod, $200.

50, Pine Grove King 22d, roan, Jan. 1920; Gardner Pierce, Davis, $290.

51, Sultan's Marvel 7th, roan, Jan. 1919; L. E. Middleton, Wheatland, $220.

52, Sultan's Marvel 10th, red, Feb. 1919; Wm. McGrath, $240.

VAUGHN SHORTHORNS AT BARGAIN PRICES

The Howard Vaughn sale of Shorthorns which was held at Dixon May 26 suffered a considerably lower average than had been expected, due to the fact that one-half of the offering consisted of bulls the demand for which has slackened as the season has advanced. Another factor to affect the sale seemed to result from buyers who attended the Caledonia sale the day previous filling their needs. In general it can be said that the female values represented unusual bargains in a most useful class of cattle. An average of $155 surely leaves plenty of margin for the buyer to make a fine return on his investment.

The sale which was the initial sale for Mr. Vaughn since moving to this state from Iowa was planned more to get the herd and farm before the buying public. A fair crowd was present but the offering was absorbed by a few buyers. The following buyers appear in the sale list: Caledonia Farms, West Sacramento; Wm. McGrath Co., Watsonville; Edward C. Flint, Sacramento; Newhall Land and Farming Company, San Francisco. The William McGrath Company was the heaviest buyer. All during the sale Mr. Vaughn showed his gameness and never once complained at the prices being paid.

The sale was managed by the California Breeders Sales and Pedigree Company, Sacramento. Col. Ben A. Rhoades and Col. John A. Davis were the auctioneers.

AS TO "ORGANS"

We referred last week to the "organ" as found in the livestock newspaper field. These, in one form or another, have long been with us. Some have done good work, and some have not. Still a correspondent wants to know what we really think of them.

A breed "organ" is a good or an evil influence, just according as it is conducted. If along sane, constructive, helpful lines, with a view towards building instead of unrestrained "boosting," the organ doubtless has its proper place in the general scheme. Papers of more general circulation have so broad a field to cover that after discussing fundamental principles of breeding, feding and management, reviewing leading shows and sales, they are unable to publish miles of matter relating to this herd or that, to this strain or the other—to the detailed exploitation, in short, of the individual operations of large numbers of owners. Still many people seem to want this, and if they are willing to pay for it that is a perfectly legitimate service. If, on the other hand, the prime object of the publisher is to just fatten his own purse all he can by catering to the fads and fancies and speculations of professional breeders—as against actual users for practical farm purposes—we do not hesitate to say that the influence of any publication so conducted is distinctly bad; tending to encourage foolish speculation, with the editorial voice muzzled and prostituted to a mere merchandising service.

Organs owned and controlled by the breed organizations are, as a rule, free from the taint of money grubbing. There is no question of "you tickle me, and I'll tickle you" in their service. Unfortunately not all of the organs place breed interests above those of their patrons, and to the extent that any such periodical contributes to the setting up of false standards of value it undermines rather than builds up a breed.

It all depends upon the "organs." They are not necessarily good, nor necessarily bad, any more than any other class of farm publications. What is the editorial policy? What do the editors or publishers stand for in the business? That is the key to the answer to such a query.—Breeders Gazette.

INCREASE IN NUMBERS

Reports from special livestock reporters to the bureau of crop estimates, United States department of agriculture, indicate the following changes in supplies of hogs and cattle in the United States, during the first three months, in the past three years.

The number of hogs increased 1.6 per cent this year (from January 1 to April 1) as compared with a decrease of 0.2 per cent in like period last year, and an increase of 0.9 per cent two years ago. The births during the first quarter of 1921 were 1.9 per cent less than in like period last year and 12.6 per cent less than two years ago. The net movement from farms was 3.2 per cent less than last year and 23.8 per cent less than two years ago.

Cattle numbers increased 2.38 per cent during the first quarter of 1921, as compared with an increase of 0.25 per cent last year, and an increase of 4.23 per cent two years ago, during like period. Calves born this year were 4.8 per cent less than last year and 25.9 per cent less than two years ago. The net movement from farms was 21 per cent less than last year and 11.3 per cent less than two years ago.

"I AM A SCRUB"

I am a scrub—
Speaking bluntly—
But here is the rub—
Why will people feed me—
On pedigree food;
Why breed me
To honest blood?

I am a scrub;
My sire was a scrub,
And my children will be—
For long generations—
And then,
One happy day,
My offspring may be,
Like honest pigs.
Years after this,
Some will hark back
To my old line—
And spoil a dream—
Some breeder's pretty dream.

I am a scrub,
And thrive like one;
I eat more than a full-blood,
And sell for less.
When I am fed
On pedigree corn,
And have eaten five tons
Of registered hay
A purebred farmer comes
And drives me away.
And then he says, "By Heck!
You're loser a peck
Of iron men,
Old scout!
Oh, Aleck!
Get the ax,
And knock the others
Hard
On the snout."
—E. Gregory, in Breeder's Gazette.

Chas. W. Paine, secretary of the California State Fair, has announced the following judges for the 1921 show: Holstein cattle and Duroc swine, H. W. Kildee of the Iowa State Agricultural College; Jersey and Guernsey cattle, E. W. Majors, Los Angeles; Hereford cattle, Frank W. Van Natta, Highland; Shorthorn cattle, Capt. T. E. Robson, London, Ontario; Berkshire swine, Ralph Jenkins, Orleans, Indiana. Other judges have not been definitely decided upon.

89 cents a day-

A FARMER of Mound Valley, Kansas, recently replaced his old cream separator with a De Laval. Immediately, with the same amount of milk, his cream checks jumped from $1.37 to $2.26 per day—89c a day gain, or $324.85 a year.

This is only one instance of thousands where a De Laval has checked waste and added to its owner's profits. You may be losing even more than this; you may be paying for a De Laval and not getting it by using a cream-wasting separator or by hand skimming.

There never was a time when a De Laval Separator would pay for itself sooner, or when it would make you more money, than now. There are over 2,500,000 De Laval Separators in use the world over, because they save the most cream and serve the longest time.

See your De Laval agent now about getting a new De Laval — or write us for full information. The De Laval Milker, like the De Laval Separator, is a quality product. Send for full information.

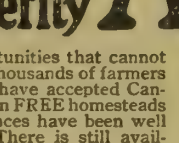
De Laval Pacific Company

61 Beale Street San Francisco

Sooner or later you will buy a

De Laval

Cream Separator or Milker



WESTERN CANADA

Land of Prosperity

offers to home seekers opportunities that cannot be secured elsewhere. The thousands of farmers from the United States who have accepted Canada's generous offer to settle on FREE homesteads or buy farm land in her provinces have been well repaid by bountiful crops. There is still available on easy terms

Fertile Land at $15 to $30 an Acre

—land similar to that which through many years has yielded from 20 to 45 bushels of wheat to the acre—oats, barley and flax also in great abundance, while raising horses, cattle, sheep and hogs is equally profitable. Hundreds of farmers in western Canada have raised crops in a single season worth more than the whole cost of their land. With such success comes prosperity, independence, good homes and all the comforts and conveniences which make life worth living.

Farm Gardens, Poultry, Dairying

are sources of income second only to grain growing and stock raising. Attractive climate, good neighbors, churches, schools, good markets, railroad facitities, rural telephone, etc.

For illustrated literature, maps, description of farm opportunities in Manitoba, Saskatchewan, Alberta and British Columbia, reduced railway rates, etc., write

GILBERT ROCHE
3-5 First St., Sheldon Block
San Francisco, Cal.

Authorized Agent, Dept. of Immigration and Colonization, Dominion of Canada

160 ACRE FARMS IN WESTERN CANADA FREE

Let's Get Acquainted

We Know the individuality; the type; and the high production of the Ormsby family of the Holstein breed and we want you to know them.

You can buy a young bull that will bring all of these traits to your herd at a

PRICE THAT WILL ASTONISH YOU

A line bred Ormsby out of a high record dam.

Get in touch with us at once.

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Near Universal City

Hollywood, Cal.
Office, Garden Court

GLOBE "A1" FEEDS

-Judge them on Business Principles!

FEED FOR SWINE, STOCK AND POULTRY

ASK YOUR DEALER

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

June 9, Burr Farm and Agee Bros., Burr Farm, Los Angeles.

The Ortega Underhill Ranch at Santa Barbara has sold the great line bred Tipton boar, Masterpiece, to H. G. Cartledge of Columbus, Georgia. This boar has been used by Mr. Underhill as a link in the development of the ideal type of Hampshire hog and he leaves a lot of progeny behind him in the O. U. R. herd.

V. F. Dolcini of June Acres Stock Farm, Davis, reports the sale of five Duroc-Jersey gilts to the Alameda County Sanitarium and a spring boar to the Newhall Land and Farming Company of San Francisco. All of the above animals were sired by Choice Wonder 3d, grand champion at the last state fair.

Dr. Maynard Rosenberger recently purchased 75 head of grade Guernsey cows in Oregon for the Adohr Stock Farm, Los Angeles. The Adohr herd is one of the largest collections of Guernseys in the West.

The Diablo Stock Farm, Danville, reports a brisk demand for Polled Herefords and Duroc-Jerseys. Recent sales include two bulls, nine yearling heifers, four bred sows, six gilts and one herd boar to the Hammond Lumber Company, Eureka; two bulls of service age to A. M. Bemmerly of Woodland; two yearling bulls, one two year old bull and two females to W. E. Clark of Modoc County; a yearling bull to J. W. McClellan of Martinez and a boar to J. Overacker, Mission San Jose.

Dean H. E. Van Norman of the University Farm School, Davis, has been granted an extended leave of absence in order that he may undertake the direction of the proposed World's Dairy Congress to be held at Chicago in 1922. Dean Van Norman expects to leave shortly for a visit to several European dairy centers to confer with delegates to the congress.

In the Eastern Guernsey Breeders Association sale 56 Guernsey bulls and females sold for a general average of $1,087. Westbrook Ultra Rose, a cow with a record of 621.99 pounds of fat, topped the sale at $4,000.

That there is developing a growing demand for American Shorthorns for the Argentine is indicated by the fact that 116 head recently were exported from a New York port. Included in the shipment was Pelipar Iris, the grand champion bull at the last International.

This office has received the catalog for the Warren Gray sale of Jersey cattle to be held at Marion, Oregon, June 8. Forty head are listed by Sales Manager Chas. M. Talmadge of Salem.

T. E. Lovell, manager of the Blackhawk Rancho, Diablo, states that Collynie Prince Lavender, the Shorthorn bull that he selected from the Duthie sale in Scotland last year, is developing nicely and before long many of the Blackhawk cows will be safe to his service. Collynie Prince Lavender is the only bull in America that was bred and sold by Mr. Duthie, dean of the Shorthorn world.

Announcement was made last week that J. A. Robson, general manager of the Associated Dairymen of California, had resigned.

Following the sale of Shorthorns at Caledonia Farms, last week, the Newhall Land and Farming Company of San Francisco purchased at private treaty nine open heifers, a three year old cow and four young bulls.

Judging from the list of nominators in the California State Fair Futurity the Poland China show promises to be a "hummer." The following herds have been entered: Nettie E. Andrews, Modesto; A. L. Bassett, Hanford; M. Bassett, Hanford; Bassett Bros., Hanford; Geo. V. Beckman & Sons, Lodi; Alfred Buckland & Son, Fresno; W. L. Choisser, Turlock; Jas. H. Clark, Fowler; J. M. Crawford, Fresno; Marvin Cross, Bakersfield; Chas. E. Dack, Fresno; A. J. Elliott, Tulare; Fred Gatewood, Fresno; Johnnie Glusing, Winton; W. L. Haag & Son, Hanford; J. F. Harriger, Gridley; C. Harold Hopkins, Woodland; H. A. Johansen, Fresno; K. C. H. S. Boys' Agricultural Club, Bakersfield; J. F. Lehman, Lodi; P. B. Long, Tulare; H. D. McCune, Lemoore; Charles McNutt, Fresno; Fred D. Ross, Hanford; Howard Stephens, Bakersfield; W. D. Trewhitt, Hanford; A. J. Vancleef, Riverdale; R. L. Waltz, Hanford; R. J. Yates, Orland.

The Kings County Cow Testing Association has reorganized and, according to W. G. Maxfield, every herd in the association is headed by a pure bred bull.

In the dispersal of the Finnel Stock Farm's herd of Herefords at the farm near Galt, May 28, 98 lots made a general average of $137. The sale was held under the handicap of a large number of bulls, a small crowd and cattle in only moderate condition. I. L. Borden of San Francisco was the heaviest buyer with 35 head to his credit. Lafe Ward of Galt bought 18 head of the better lots, including the exceptionally well bred herd bull, Cardinal, a son of Domino. Chas. F. Silva of Sacramento selected 13 head. Other buyers are included in the following list: W. F. Pierson, Slough House; Diamond Ranch Company, Red Bluff; H. J. Buchanau, Berendo; W. C. Hildredth, Manzanar; H. M. Barngrover, Santa Clara; Anna C. Hall, Galt; Weis and Jones, Eugene; W. W. Murphy, Milton, and H. J. Need, Galt. The sale was managed by C. L. Hughes of the California Breeders Sales and Pedigree Company. Cols. Rhoades and Davis were the auctioneers.

THE KIND OF CATTLE TO BUY

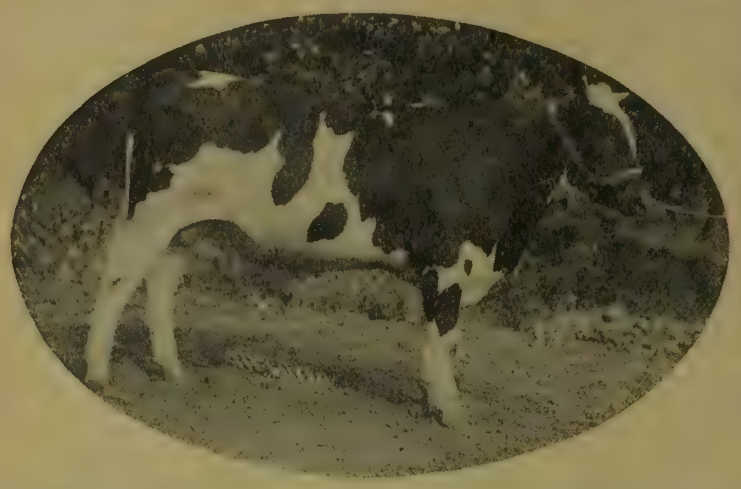
It is important for every beginner to consider the kind of cattle that he should buy. This matter should be given much thought by anyone who desires to begin with the assurance of success, and this is the ambition of everyone, or should be, who engages in the business. The writer has repeatedly stated that the important factor—the one which is secondary to no other—is the man behind the business. If he is endowed with personal traits which make for success in stock production; if he likes good livestock, which means that he will study animals and properly care for them, give them the opportunities of developing, and use good bulls—that man will succeed when the one who does not possess such traits will fail. Successful breeders are only found among those who like animals of good form, and who take pride in seeing them grow, noting their defects and studying how to mate so as to overcome them. Such a man has a pride in his work. That pride guides him to the proper goal.

Every man who invests in a registered animal should aim to produce good stock. He should, of course, take into consideration the class of trade that he will endeavor to supply, and, to some extent, local conditions. The small breeder of today often is the big one of tomorrow. No matter how humble the beginning, there is room at the top in livestock production as in any other calling. Many of the big men of today in the livestock breeding world were unknown when they began their stock breeding careers. Many of them were men of small or limited resources. They invested wisely. They took care of their holdings and forged ahead and to the front solely on the merits of their productions.

As a rule, the successful and discriminating breeder who knows blood lines is willing to pay fair prices for cows of this class. Price does not make the animal, but good form, as a result of blood recognized as productive of the best, usually does justify and make top values, and if one is to get the most out of one's investment one must aim to produce the kind of cow which will produce the kind of young that will sell near the top values current. If one is producing that kind and exposes them for sale at a point where there are buyers who do know and value good breeding maximum values usually will result, even though the owner be a stranger to the show ring and his name seldom seen in an advertisement.

My advice to a beginner is to keep his head but buy good cattle and take care of them. He will reap his reward where one who does not make such a beginning will not make much progress. If there are buyers for $3,000 cows, aim to produce them. It is not often that conditions in the trade make for such values, but the right beginning, the right blood lines, plus the right care and the use of good sires, will place a breeder in the enviable position of having good stock to sell, and maximum values which average well for a series of years will be his, and his profits will grow proportionately. The right kind of cows is

Sir Prince Aaggie Mead



We would like to have every breeder of Holsteins who is interested in securing greater production in his herd, and a larger market value for the surplus breeding animals he may want to sell, to consider carefully this outstanding young bull representing one of the very best Aaggie Acme De Kol of Valley Mead matings to date.

He is just now beginning to see service, and of course it will be some time before we shall have any of his get to offer, but you may well plan ahead to own a son of this outstanding young sire some day. Remember that a half interest in him sold for a higher price than has ever been recorded for a total price on a Holstein bull in California, with the single exception of the half interest price in his more than half brother, Sir Aaggie De Kol Mead, out of the same dam.

His Sire: KING AAGGIE MEAD, by King Mead of Riverside and out of the foundation cow Aaggie Acme of Riverside, 1,054.1 lbs. butter in one year at 11½ years of age. He is thus a full brother to Aaggie Acme of Riverside 2nd, 1,331.70 lbs. butter in one year, the world's strictly official record, and she in turn is the dam of Miss Aaggie Acme Burke, 1,034.66 lbs. butter from 24,338.9 lbs. milk in one year as a first calf junior 2 year old, world's milk record when made, and this year as a junior 4 year old she made 35.38 lbs. butter from 726.4 lbs. milk in 7 days.

His dam: MISS VALLEY MEAD DE KOL WALKER, the greatest female descendent of De Kol of Valley Mead, with 36.81 lbs. butter in 7 days and 1,113.57 lbs. in one year as a junior 3 year old, breaking three world's records as a 2 and 3 year old, and her dam, De Kol of Valley Mead 2nd, held the world's record for two year butter production as a 3 and 4 year old. She is widely rated as one of the great young matrons of the breed, and has three splendid sons now in active service.

SIR PRINCE AAGGIE MEAD will alternate in service in our herds with his maternal brother SIR AAGGIE DE KOL MEAD, where they will both be given very heavy service on high class females.

Owned Jointly by:

Fred Hartsook
Lankershim, Cal.

and A. W. Morris & Sons Corp.
Woodland, Cal.

Stop & Consider

TYPE -I-
World's Record in Production

SYCAMORE ACRES

I have more females in my herd who are either sisters or daughters of the following bulls than any herd in the United States:

KING SEGIS PONTIAC

King Segis Pontiac Alcartra—His $50,000 son.
King Segis Pontiac Chicago—His $20,000 son.
King Segis Pontiac Count—"The Marvel Sire."

Could you go wrong on some of these? I can spare a few. Fresh cows, springers or yearlings. Priced right; tuberculin tested and guaranteed right in every way. Come and see them. One hundred twenty-five head to select from. Six miles east of Perris.

ROBT. N. CLAPP—NUEVO, RIVERSIDE CO., CAL.

Herd Bulls

Harris Standard 2d

Beau Blanchard 76

Nevada Hereford Ranch

J. H. Cazier & Sons
Wells, Nevada

A government accredited herd. No reactor in 16 years. A herd whose record in the show and sale ring is only surpassed by the esteem accorded its productions by cattlemen. We can furnish bulls or females to fill any need—and at sound prices. Visit our herd or write for information.

HOLSTEIN Fred Hartsook RANCH CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

Italian Vineyard Company
Big Type Berkshires

Some dandy young boars for herd headers. The choicest breeding and ready for service.

Every one tuberculin tested and cholera immune.

Alex. M. Wilson, Supt. **Guasti, Cal.**

available now at reasonable prices. It is a good time to lay a foundation for a real herd. Many men, however, put off buying until "boom" times, when there is a general scramble for stock and not enough to go round. Values then soar, and $3,000 cows are numerous. A few years previously the same cows might have been had for much less.

The wise buyer puts in his stock when it is selling at a fair value. He should be ready to sell when values are high. This rule has been adhered to by thrifty men from the dawn of civilization. The $3,000 cow under present values of her produce, the get of a good bull, is a good investment, and, properly handled, her young being properly fed out, will yield a greater return than will an indifferently bred cow that is an indifferent producer at one-sixth of the investment. This has been demonstrated time and again. Bear in mind that the value and desirability of stock depend on pedigree, quality and the care given it.

A man's success as a producer of real cattle, and the profits that he gets out of the business, are gauged largely by the facts here outlined. The cost does not matter so much as the kind, in the case of a lover of animal form who has an ambition to make a place among the constructive breeders of the country.—Geo. E. Martin, in Breeders Gazette.

BEET PULP AND ALFALFA

Good alfalfa hay needs no amendments to make it palatable to cattle, but additional food is needed for producing dairy cows, and other materials may be mixed with it that will add both food value and greater palatability. This would be still more true of alfalfa damaged by rain. Alfalfa hay, according to Professor F. W. Woll, contains 9.70 per cent of digestible protein and 38.50 of carbohydrates and fat, with a nutritive ratio of four per cent. Dried beet pulp contains: digestible protein, 4.10; carbohydrates and fats, 64.90, with a nutritive ratio of 15.80. Therefore a mixture of the two make a better feed than either separately.

Professor Woll says: "We note that a ration of only alfalfa contains larger amounts of digestible protein and less digestible carbohydrates and fat than called for by accepted feeding standards. While furnishing sufficient nutrients for low producing cows, such a ration of alfalfa only does not enable good dairy cows to make the best possible production." It will be noted, from figures herein quoted, that by mixing alfalfa with beet pulp the protein content would be lowered and the carbohydrates increased, nearly an ideal combination. One dairyman suggests 20 pounds of alfalfa to ten pounds of beet pulp. Prof. Woll says: "Barley, dried beet pulp, coconut meal and mill feeds are ordinarily the cheapest concentrates in this state and these feeds have approximately a similar feeding value, pound for ponnd."

"WIN WITHOUT BRAGGING—LOSE WITHOUT SQUEALING"

The slogan adopted by the Iowa Junior Clubs, "To win without bragging—to lose without squealing," is worthy of consideration by grown ups. If the junior club work does nothing more for the youngsters than to thoroughly instill that thought into their minds, it will have done an inestimable amount of good.

The frequent illustrations that are given by adult exhibitors that they are not good losers makes it evident that they did not learn the Iowa slogan when young. Certain it is that there is much too much "squealing" done now in the judging ring and other places.

MUNICIPAL CAMPS IN NATIONAL FORESTS

Free permits for eight municipal recreation camps in the national forests of California have been issued by the U. S. forest service. This state is taking the lead in establishing these camps where the residents of the cities which maintain the camp may obtain a summer outing at cost.

Last year four such camps were operated in the California national forests, two by the city of Los Angeles and one each by Sacramento and Oakland. These four represent an investment of $70,000, and nearly 5,000 guests were accommodated.

This year Los Angeles will have a third camp in operation, and San Diego and Fresno and Riverside Counties expect to open camps also. In addition to its camps the Los Angeles playground department organizes and supervises two week hiking outings in the Angeles forest. Three of the eight camps are in the Angeles, two in the Cleveland, and one each in the Sierra, Stanislaus and Eldorado national forests. The camps are from 25 to 150 miles from the municipalities that maintain them.

Only residents or taxpayers of the municipalities that operate the camps are eligible as guests, and, because of the low cost of the outing, each camper is required to render on an average one hour's daily service, as outlined by the director in charge, and must also furnish his own bedding. Guests are well housed, fed and entertained. The following rates for a two week outing, including transportation, were in effect last year:

Los Angeles—Angeles forest, Camp Seeley, 75 miles, $12.75; Angeles forest, Camp Radford, 90 miles, $14.25.

Oakland—Stanislaus forest, Camp Oakland, 150 miles, $18.

Sacramento — Eldorado forest, Sayles Flat, 90 miles, $25.

These rates were all for adults, and the rates for children under ten were from 50 to 60 per cent of the above. The lower rates at the Los Angeles camps are probably accounted for by the fact that these camps have been in operation for several years, while 1920 was the first season for Sacramento and Oakland. The Los Angeles camps accommodated over 3,500 of the 5,000 guests at the municipal camps in the national forests of the state. The business men of Sacramento are so well pleased with their municipal camp that they are raising a fund of $10.000 to be donated to the city to build permanent cabins at the camp for sleeping quarters, such as are already installed at the Los Angeles camps.

THAT SPOILED ALFALFA

The unusually heavy May rains rendered thousands of tons of cut alfalfa valueless for hay, a total loss so far as feeding value is concerned. But mildewed alfalfa as a fertilizer and humus forming material is as valuable as the best warehouse hay. Every year orchardists make heavy purchases of alfalfa, bean straw and similar materials for turning under the soil and any and all of it is of greater value than fresh barnyard manure.

Dr. Van Slyke, chemist of the New York agricultural experiment station, gives the chemical composition of alfalfa hay: Nitrogen, 2.45; phosphoric acid, 0.50; potash, 2.10; mixed barnyard manure: nitrogen, 0.50; phosphoric acid, 0.25; potash, 0.50. It will be noted alfalfa hay has practically five times as much of that most valuable nitrogen as the average stable manure, twice as much phosphoric acid, and more than four times as much potash.

Of course the value of barnyard manure depends very largely on the care given, for 65 per cent of the fertilizing value is resident in the urine. Dr. Van Slyke says: "In regard to stable manure, the composition and history of which we have no means of knowing, any estimate of value nearer than 25 or 50 per cent must be regarded largely as guesswork." It is, of course, understood that alfalfa that has not mildewed, no matter how wet it may have been, is still of good feeding value, and its palatability and food value may be much increased by mixing with molasses, beet pulp and such similar amendments as are available.

The University farm at Davis is now planting 31 varieties of cotton, hoping to find one early enough to mature in the Sacramento Valley.

The state department of agriculture has just completed a survey of the Sacramento Valley, and finds young hoppers plentiful and eggs still hatching.

DISPERSAL SALE

50---REGISTERED HOLSTEINS---50

40 FEMALES—10 BULLS

H. A. De Wolf Herd, Ripon, Cal.

Wednesday, June 15, at 10 A.M.

In the dispersal of this herd there is offered a group of young cattle, popularly bred, and including a number of females with substantial official records and daughters of high record cows. The offering includes:
A 27 POUND COW with 589.92 lbs. butter in one year as a junior 2 year old, her dam a 28 lb cow.
TWO DAUGHTERS OF ABOVE 27 POUND COW, one by a son of Aralia De Kol, the other by a grandson of Tilly Alcartra.
A 24 POUND granddaughter of Colantha Johanna Lad that milked 601.9 lbs. in 7 days as a junior 4 year old, and her daughter by a son of Sir Skylark Ormsby Hengerveld.
A 23 POUND COW sired by a grandson of Pontiac Korndyke, and her daughter by a son of Sir Skylark Ormsby Hengerveld.
A 21 POUND junior 3 year old daughter of King Mead of Riverside, and her two daughters by a son of Sir Skylark Ormsby Hengerveld.
A DAUGHTER OF KING MEAD OF RIVERSIDE out of a granddaughter of Aralia De Kol, second dam a 27 lb. daughter of a 28 lb. cow.
A DAUGHTER OF SIR VEEMAN KORNDYKE PONTIAC out of a 22 lb. junior 4 year old.
A DAUGHTER OF SIR VEEMAN KORNDYKE PONTIAC out of a dam sired by a half brother to the 32 lb. cow Winifred Hotaling 3d.
A DAUGHTER OF SEGIS PONTIAC DE KOL BURKE, out of a 25 lb. three-quarter sister to Prince Gelsche Walker, and her two daughters, one by King Mead of Riverside, the other by a son of Sir Skylark Ormsby Hengerveld.
14 DAUGHTERS OF SIR SKYLARK ORMSBY KORNDYKE, son of Sir Skylark Ormsby Hengerveld. Here is one of the rare opportunities to secure granddaughters of this great sire.
THREE GRANDDAUGHTERS OF JENNIE TERZOOL HICKS 4TH that made 32.70 lbs. butter from 600.3 lbs. milk in 7 days, and 959.05 lbs. butter from 21,-550.6 lbs. milk in 305 days.
TWO DAUGHTERS OF KING GELSCHE WALKER KORNDYKE the good son of King Morco Alcartra and the 32 lb. Miss Gelsche Walker Korndyke, daughter of Prince Gelsche Walker.

TEN BULLS IN THE OFFERING

SIR SKYLARK ORMSBY KORNDYKE, born May 17, 1917. He is sired by the famous Sir Skylark Ormsby Hengerveld, one of the best sires the breed has yet developed in California. He is a high class individual, a sure, quick breeder, and is siring a most promising lot of calves, many of which are in this sale.
KING NETHERLAND SKYLARK MEAD, born May 25, 1919. By King Mead of Riverside and out of a 27 lb. daughter of a 28 lb. cow. One of the last opportunities to secure a young son of King Mead of Riverside.
8 YOUNG BULLS by the herd sires and out of some of the best dams in the herd. This is an opportunity for dairymen to buy young bulls of excellent blood lines.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer.

THIS IS A COMPLETE DISPERSAL, excepting only two heifer calves that are not catalogued, and every animal positively sells to the highest bidder.

TERMS OF SALE: One-third cash, balance in three, six, and nine months, with approved note. Terms are cash unless arrangements for credit are made with sale manager prior to the opening of sale.

PLACE OF SALE: The sale will be held on the farm until recently owned by Gotshall & Magruder, now owned by C. A. Miller, just north of the bridge on the main highway, about one-half mile south of the town of Ripon.

CATALOG FREE ON REQUEST

Auctioneers
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Sales Manager, Sacramento, Cal.

DISPERSAL SALE

125 Registered Holsteins 125

GOTSHALL & MAGRUDER, RIPON, CAL.

Wednesday, June 29, 1921

The sale of this splendid herd affords one of the most attractive buying opportunities of the season, and includes every animal in the herd excepting one high record cow that is not in salable condition.

In announcing this sale we wish to make the condition leading up to it perfectly clear. This herd was fast becoming one of the leading herds in California when Holstein breeding circles were shocked by the sudden death of one of the partners, Karl Gotshall. The development of the herd was continued, but in the settlement of the estate some changes were necessary and for the purpose of carrying on the breeding business a corporation was formed, The Gotshall-Magruder Company.

This sale includes every Holstein, except the one cow noted above, owned by Gotshall & Magruder, and will serve to wind up the breeding business of that firm.

The Gotshall-Magruder Company at present has control of a herd of considerable size, and recently acquired the excellent farm formerly owned by C. A. Miller on the French Camp Road about 6½ miles northwest of Ripon. This company will maintain a herd of substantial size on this farm, and plans are already under way for its development from the material now composing the herd.

The cattle will be sold under the usual guarantees as to breeders, and the usual tuberculin test conditions. Details of the offering will begin in next issue.

TERMS OF SALE: One-third cash, balance in three, six, and nine months, with approved note. Arrangements for credit must be made before sale with the owners, GOTSHALL & MAGRUDER, Ripon, Calif.

Auctioneers:
Col. Ben A. Rhoades, Los Angeles
Col. John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Co.
C. L. Hughes, Manager, Sacramento, Cal.

You'll enjoy the sport of rolling 'em with P.A.!

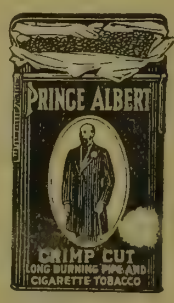
FIRST thing you do next—go get some makin's papers and some Prince Albert tobacco and puff away on a home made cigarette that will hit on all cylinders!

Do it while the going's good! Such flavor, such coolness, such more-ish-ness—well, the only way to get the words emphatic enough is to go to it and know yourself!

And, besides Prince Albert's delightfulness, there's its freedom from bite and parch which is cut out by our exclusive patented process! Certainly—you smoke P. A. without a comeback. Joy'us? You'll say so!

Prince Albert is the tobacco that revolutionized pipe smoking. If you never could smoke a pipe—forget it! You can—AND YOU WILL—if you use P. A. for packing!

Prince Albert is sold in toppy red bags, tidy red tins, handsome pound and half pound tin humidors and in the pound crystal glass humidor with sponge moistener top.



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Johnson's Defender Jr.

Heads my herd of carefully selected sows. He should be seen to be appreciated. I can spare a few choice females or young stock either sired by or mated to this good boar. You will be pleased with any purchases made from me.

H. C. WITHEROW Live Oak, Cal.

Distribution of Holsteins in the United States

Final census figures for the year 1920, given out by the Holstein-Friesian Association of America, show 352,071 pure bred Holsteins in the United States, of which total 304,595 are registered females and 47,476 are males, owned by about 28,000 breeders.

New York leads all states in number of pure bred Holsteins with 82,953. Wisconsin is second, with 59,266, Ohio third, with 29,061.

Grouping the states, the Central States rank first in numbers. Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, have a total of 175,269 pure bred Holsteins.

Ranking second are the Middle Atlantic States, comprising Delaware, Maryland, New Jersey, New York, Pennsylvania, Virginia, West Virginia, with a total of 121,098.

The New England States are third, with 27,999.

The Pacific Coast States, California, Oregon and Washington, show a large increase, the present total being 15,462.

The Western States, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming, have a total of 6,130.

The weakest of all are the Southern States, which eleven states, Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, show only 6,113 pure bred Holsteins.

The development of the dairy industry and the Holstein business follows the establishment of large cities and manufacturing areas where many small sized cities are located.

According to the United States department of agriculture, there are some 11,000,000 Holsteins of all kinds in the United States. The Holstein-Friesian breed is the largest of all the pure bred dairy breeds and holds all records for milk production from one day to a year, yet it has only 352,071 of this number on the books as pure bred. There are, according to government figures, some 26,000,000 dairy cows of all classes—grades and pure breds—in the country. It will take many years of breed development to replace with pure breds all of the grade and scrub dairy cattle now helping to supply the world with the greatest food known to mankind. But the use of pure bred Holstein bulls has done much to improve the milking tendencies of common stock.

The census further showed 4,224 breeders belonging to local Holstein clubs, 3,338 to be members of state Holstein associations, some 2,000 doing official testing work in their herds, about 2,500 belonging to cow testing associations.

The detailed figures of the census by states follow:

New England States—Maine, 4,557; NewHampshire, 3,722; Vermont, 8,924; Massachusetts, 6,986; Rhode Island, 339; Connecticut, 3,471; total, 27,999.

Middle Atlantic States—Delaware, 1,171; District of Columbia, 406; Maryland, 2,048; New Jersey, 4,994; New York, 82,953; Pennsylvania, 26,375; Virginia, 2,619; West Virginia, 532; total, 121,098.

Central States—Illinois, 17,308; Indiana, 5,440; Iowa, 7,251; Kansas, 6,445; Kentucky, 800; Michigan, 24,602; Minnesota, 14,855; Missouri, 3,182; Nebraska, 3,154; North Dakota, 1,461; Ohio, 29,061; South Dakota, 2,444; Wisconsin, 59,266; total, 175,269.

Western States—Arizona, 1,034; Colorado, 2,604; Idaho, 944; Montana, 822; Nevada, 47; New Mexico, 65; Utah, 453; Wyoming, 161; total, 6,130.

Pacific Coast States—California, 8,760; Oregon, 2,185; Washington, 4,517; total, 15,462.

Southern States—Alabama, 325; Arkansas, 359; Florida, 78; Georgia, 421; Louisiana, 311; Mississippi, 452; North Carolina, 316; Oklahoma, 1,552; South Carolina, 384; Tennessee, 777; Texas, 1,138; total, 6,113.

Army Aids "Better Sires" Campaign

G. Arthur Bell of the army remount service, U. S. army, states that the "better sires" campaign for the production of high class saddle horses suitable for army use is taking hold strongly in the western states. In an interview at the headquarters of the Horse Association of America he said that the cattle ranchers of the West had been most numerous of all in their requests for army remount service stallions.

The plan of the army remount service to bring about a supply of good cavalry horses is to place pure blooded stallions in communities where there are a sufficient number of mares of good type to warrant. The call for this service has been very strong in Virginia, Kentucky and Tennessee, and now the western states have joined in. The stallions furnished are Thoroughbreds, Morgans, American Saddle, Arabs and Standardbreds. While more than a thousand requests have been received, the army remount service is proceeding cautiously and has placed only 125 stallions on stand this year. Service fees are charged, which accrue to the government, but the net result of placing these stallions will be that a large number of horses suitable in type and breeding for cavalry work will be produced, which will be coming on for future needs of the army.

The necessity of work of this kind is clearly evident. Army officers are finding it next to impossible to buy suitable horses on the open market, and as the army requires at least 4,000 of first class cavalry type each year a plan to encourage steady production was evolved. It is interesting to note that the work now being carried on by the army remount service is along the same lines as that practiced in France for the last hundred years, where the placing of stallions owned by the French government has stimulated the breeding of good saddle and cavalry horses. It also brought about a material improvement in the character of horses produced in communities where government stallions have been permitted to stand for service.

The influence of this distribution of stallions is very great. It is an object lesson to farmers and breeders that to produce good saddle or cavalry horses they must breed to pure bred sires of one of the light breeds, suitable in size, conformation and blood lines. This, in turn, will have a far reaching effect on production of all types, for as soon as it is thoroughly realized that good stock cannot come without good sires, inferior sires in all breeds will be discontinued.

Experienced horsemen, conversant with the plan of the army remount service, state that this is the most constructive step ever taken to obtain a steady supply of horses suitable for army needs. This is important to the taxpayer, for good horses of the right type and breeding last ten years in army service, thus reducing army expenditures for replacement purposes.

The army remount service is exerting a powerful influence toward an increase in horseback riding, polo and all equestrian activities, bringing home to civilians the health giving advantages of horseback riding. The idea is to create such demand for saddle horses from civilian riders as to assure a wide and steady market for the saddle horse stock being produced. It will also create a reserve which will be available in the event of war.

NATIONAL SALE OF BERKSHIRES

There wll be three big Berkshire days at Riverside in February, 1922, when the National Berkshire Sale is to be held there. California being the second highest state in the Union in number of Berkshire transfers last year had a perfect right to claim the sale for 1922 and the Southwestern Berkshire Congress went to bat and demanded it for California and for Riverside.

The national sale is the one big event of the year as it accompanies the meeting of the American Berkshire Congress and the congress lays aside $2,500 for the entertainment of the guests. The city of Riverside has added $500 to this amount and the

Southwestern Berkshire Congress has agreed to raise $2,000 to supplement these amounts. This will probably be done by a donation sale of bred sows in August.

It is planned to hold a complete Berkshire show with full classes of California hogs competing against the Eastern animals brought out for the sale. It is hoped to have Prof. Russell of the department of agriculture to judge the display. The Berkshire celebration will be held a few days before the orange show at San Bernardino so that the Easterners who are coming in considerable numbers can take in both affairs.

Local arrangements are in charge of D. J. Bastanchury and Geo. Stengle, president and secretary of the Southwestern Berkshire Congress, with the entire personnel of the congress to help them out.

WELL BRED HOGS GAIN WEIGHT MORE RAPIDLY THAN DO SCRUBS

The importance of good breeding in the growth of livestock, and especially in the prevention of runts, is illustrated by the experience of an Indiana swine grower. "I started with stock," he remarks in a letter to the United States department of agriculture, "direct from the foundation stock of the breed, and the results were satisfactory. When I had time to read of the work of other men, the results of feed composition and experimental feed trials, I took from these experiences what I thought practical for me to follow, and the results, though not exceptional, have been the natural results of good blood and good feed. One of my boars, farrowed in April several years ago, weighed 165 pounds the following September. At 16 months he weighed 606 pounds, at 28 months 850 pounds, and the following fall 1,015 pounds. This boar was one in a lot of 15, as uniform a bunch as I ever saw. Others grew into 600 and 800 pound hogs under farmers' care."

"In addition to good blood lines," he adds, "care and the right kind of feed are important means of preventing undersized animals, but the most important of all is the man with the feed basket, for it is 'the eye of the master that fatteneth his cattle.' So far as runts are concerned, I have never found it profitable to raise them under any treatment. I have seen lots of 'before and after taking' illustrations on paper but not in the feed lot."

LOWEST IN TEN YEARS

Prices of meat animals (hogs, cattle, sheep and fowls) to producers of the United States decreased nine per cent from March 15 to April 15, according to a report issued by the bureau of crop estimates, United States department of agriculture. In the last ten years prices paid for meat animals have increased 4.5 per cent during the period from the middle of March to the middle of April. The report shows that on April 15 the index figure of prices for meat animals was about 37.9 per cent lower than a year ago; and 16.3 per cent lower than the average of the last ten years on April 15. The statisticians of the department point out that the high prices paid for meat animals during the last few years is the result of increased demand during and immediately following the war, and that the present prices are appoaching those maintained during normal times preceding the war.

CALIFORNIA'S RAW MILK SUPPLY

The result of a study of raw milk distributed in most of the larger cities of California, whose milk inspection departments have recently been approved for grading by the state department of agriculture, shows that the average quality of the raw milk retailed is of a very high order. In recent years dairymen generally have received the benefit of intensive educational training on the essential factors in the production of good quality milk and doubtless on account of the close association of the raw milk dairymen with the activities of city, county, and state inspectors, raw milk now reflects a high quality product. The raw milk distributers represent 77 per cent of the distributers of these cities and an estimate of the average bacterial count per cubic centimeter in the raw milk supply of these cities by the north curve shows 35,000 per c. c., which indicates the efficiency of the grading system employed in all of these cities and the very creditable work being accomplished by dairymen and inspectors.

In cities having a graded milk supply it is pleasing to note that regulations requiring testing of all animals introduced into raw milk herds are being enforced. This cooperation augments the work of the veterinary inspectors and is of immense value to the dairymen and much appreciated by the state division of animal industry. A comparative survey of the raw milk distributed in California conveys the assurance that this class of milk is safe and of good yuality.—John S. Hay, Cal. Dept. Agr.

LIVESTOCK AND SUGAR BEETS

There is a close and important relation between the production of sugar beets and the raising of livestock, especially cattle and sheep, according to Farmers' Bulletin 567, recently revised and republished by the United States department of agriculture, on Sugar Beet Growing Under Irrigation. Not only will the live stock, if properly handled, produce an important part of the farm income, but they are very essetial to soil improvement.

Sheep and Cattle Thrive on Beet Tops

The keeping of live stock enables the beet grower to make the best possible use of the beet tops, which, in connection with roughage, easily produced, keeps the live stock in good condition and enables the farmer to return the mineral element in the tops to the soil and increase the supply of humus which is of especial importance in irrigated sections. Sheep as well as cattle thrive on beet tops, but it is wise to feed them sparingly at first.

In some localities stock is pastured on the tops after the beet roots have been removed. This saves time and labor, but it is rather wasteful of the tops and frequently injures the ground. It is usually more satisfactory to gather and haul the tops to the feed yard and feed them from a rack, or they may be used as silage either in a silo or in a trench four or five feet deep and long and wide enough to hold the tops and the roughage necessary to make the silage. A layer of straw about six inches deep should be put in the bottom of the silo. The beet tops and straw or other roughage should then be added in alternate layers, and firmly packed to prevent spoiling.

The by-products of the beet field and sugar mill that are of especial importance to the farmer are the beet tops, pulp, molasses, and the waste lime. Many farmers sell the tops for cash, prices ranging from $2.50 to $5 per acre. This is usually not the best practice. The tops are of greater value as a stock feed and contain elements which should be kept on the farm. Beet pulp is likewise an excellent stock feed and may be used either fresh as it comes from the mill or dried. Beet molasses is the residue after the crystallizable sugar has been removed from the concentrated beet juice. It may be fed by itself or mixed with chopped roughage by spreading it over beet pulp, alfalfa, etc., or drying it with beet pulp. Waste lime is a by-product of the sugar mill, which, under certain conditions is of considerable value to the farmer in correcting the acid condition of the soil and in making the heavy soils more friable.

Sugar Beet Area Extensive

Sugar beets are grown in 17 states, in ten of which the growers depend, in whole or in part, upon irrigation. The successful production of sugar beets under irrigation depends not only upon an adequate supply of irrigating water, but upon a suitable system of crop rotation, a thorough preparation of the seed bed, careful planting and thinning, timely and thorough cultivation, in addition to a supply of live stock which will balance with crop production. In addition to a suitable irrigating system the land should be provided with a satisfactory system of drainage; furthermore, the soil should be well supplied with humus.

MINERALS FOR HOGS

Bone meal flavored with about ten per cent of tankage and fed at the rate of one pound per day for each 100 pounds of live weight fulfills the necessary mineral requirements.

The need for feeding mineral supplements comes under artificial conditions, as when hogs are confined in dry lot, or where they receive but little leguminous roughage, and for pure bred breeding animals.

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No 160—HOG BOOKLET. Covers the common hog diseases.

No. 185—HOG WALLOWS. Gives complete directions for the construction of a concrete hog wallow.

No. 163—POULTRY. How to get rid of lice and mites, also to prevent disease.

Kreso Dip No. 1 is sold in original packages at all drug stores.

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Big "Profitable Poultry" Summer Sale—Feed lower, eggs higher this fall. Buy your heavy winter laying pullets, hens now—at reduced price. Chicks off every week of year. Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, Andalusians, Ducks (Turkeys). Bred 25 years to lay winters, 180-290 eggs yearly, often clear customers $1.00 monthly, winters. Farmers convert your cheap feed into dear eggs. Write Profitable Poultry, 19 North Fair Oaks, Pasadena.

Petaluma Hatchery. Established 1902. Capacity 30,000 chicks a week. White Leghorn chicks from heavy laying free range stock after May 15th, 15c each, $13.00 per 100, $120.00 per 1,000. Brown Leghorns one cent more than White Leghorns. We positively guarantee safe arrival and full count of good strong chicks and no questions asked. L. W. Clark, Proprietor, 615 Main Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from heaviest laying (hoganized) stock. Safe delivery; live vigorous chicks guaranteed. No money in advance; pay on delivery. Price from May 15 to June 30 $3.50 per 25, $7.00 per 50, $12.50 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh St., Petaluma, California.

Ten Weeks Old Hudson White Leghorn Cockerels—Bred from our 200 egg hens. California winners in three Pullman, Washington, contests. We won "SPECIAL PRIZE" on pullet No. 3 for April in present Missouri National Egg Laying Contest. $1.50 each, $15.00 per dozen. CHAS. HUDSON, ESCONDIDO, CALIFORNIA.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

White Leghorn Baby Chix for May and June delivery from heavy laying, Hoganized stock. Safe arrival of full count, live, strong chix guaranteed. $12.50 per hundred; $120 per thousand. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks—"Only the best," May and June delivery. White and Brown Leghorn, R. I. Reds, Barred Rocks. Safe arrival guaranteed. All vigorous chicks from good layers. Send for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67-D, Palo Alto, California.

Success in business is attained by experilence and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. Eggs from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route 2, Box 47, Hanford, California.

Baby Chicks from my carefully selected, heavy laying strain of purebred S. C. White Leghorns, June and July delivery, $12.00 per 100; special reductions on lots of 300 or more. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

"Watch Us Grow" Baby chicks. We are now booking orders for May and June at reduced prices; White and Brown Leghorns, R. I. Reds, Barred Rocks, Anconas and White Wyandottes. E. W. Ohlen, Campbell, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once to W. Nicholson, Wasco, California.

Eastman's "Bred-To-Lay" Hoganized and Trapnested Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, California.

For Sale—White Wyandotte eggs, $2.50 per 15, $9.00 per 100. Mrs. Flora Cox, Anaheim, California.

POULTRY

Fine Young King Pigeons $3 a pair. Guineas $5 a pair. Wyandotte, Partridge Rock and Leghorn eggs $3 a setting. Are disposing of some of our breeding geese; offering them at a bargain price. Yearlings $15 a pair, 2 year old birds $20 a pair. All bred from imported stock. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

MISCELLANEOUS

WALL BOARD
GOOD AS PLASTER—MUCH CHEAPER
Schumacher (Firsts).....5c per sq. foot
Amiwud .....4 1/2c per sq. foot
Cornell .....4 4/5c per sq. foot
3 cars on hand—Immediate delivery.
French Windows—Doors
16 Lt. Garage Doors—$17.00 pr.
Everything in Building Materials
Specials in
Plumbing, Dimension Lumber, etc.
Large Stocks—Prompt Delivery.
SYMON BROS.
Wreckers
1501-1527 Market St., San Francisco.

Oil Means Wealth. Have your land examined by the perfect oil testing machine. Locates length, width and depth of oil stratas. Your land may be worth a fortune—find out, $50 and up for country property. Address H. B. Warren, 1401 So. Hill Street, Los Angeles.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Ship Your Hay to Us and receive cash when car is unloaded. Pacific Growers Exchange, Central Bldg., 6th & Main Sts., Los Angeles. Pico 3384. Alex. Thornton—Gordon Davidson.

Tobacco — Kentucky Homespun Natural Leaf Chewing and Smoking, 10 lbs. $3, 20 lbs. $5. Andrus Tobacco Agency, Box 367, Mayfield, Ky.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale—Hog fencing 30c per rod, also posts cheap. R. Fischer, LaVerne, California.

WANTED

Wanted—Small California ranch that will feed few cows and chickens. Near school, not isolated nor desert. Must be good soil with cheap gravity or own water for irrigation. Also fuel. Give location, character of soil, improvements, crops and lowest cash price. No high priced land considered. W. A. Linkletter, Colton, California.

Married Man, Age 35, expert in every line of farming; studied University Farm, Davis; specially interested in citrus line and orchard fruits; wants superintendent position on large ranch or estate. Can furnish best of references. Box B F C, California Cultivator, 115½ North Broadway, Los Angeles, California.

Wanted—A working manager for a deciduous orchard. Must be competent in every respect, with a small family; good house furnished; will pay satisfactory wages. Regular job for the right man. Box 4, Cultivator, Los Angeles.

Wanted Poultry and Eggs. Shippers write for our cash prices. C. W. Bedford, Santa Barbara, California.

Wanted—to hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin.

SEEDS AND PLANTS

Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch —767 S. Central Avenue, Los Angeles, Cal.

R*O*S*E*S—$1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue KAVAN NURSERIES, San Bernardino, California.

10 000 Zante Currents, 2,000 Malaga rootings, some Tokays, Sultana; farm and garden seeds and plants. Box 501, Fowler, California.

Pumpkin Seed — Mixed Pumpkin Seed Good germination. 25c per lb. Aurora Seed Mill, Stockton, California.

TRACTORS

For Sale—Fordson tractor with flanges, gougers and hitch. Also Oliver plow No. 7 and Roderick Lean 6 ft. double disc. Guaranteed to be in A-1 condition. Has been used very little. Price $750. E. W. Pitman, Whittier, California. R. D. No. 2. Phone Whittier 5101.

For Sale—Holt 75 with implements. Or exchange part for good dairy cows. C. E. Newman, Chowchilla.

Holt (60 H. P.) Caterpillar, good condition, good bargain, sell on time. Also 8 ft. land leveler price $500. Address Walter M. Hines, Manteca.

GOATS

For Sale—Purebred, Hornless, Shortcoated chocolate Toggenburg buck kids, 6 quart strain. Perfect conformation for milk production. Prices interesting. Pedigrees on application. High grade milk does, yearlings and kids. Carneta Goatery, Vista Street, Route 1, Box 81, East San Gabriel, Mrs. Harry Carnes.

For Sale—Pure Swiss Toggenburgs, does and bucks, from finest milk strains. La Corona Goatery, R. 1-416, El Monte, California.

DUCKS

Mammoth White Pekin Duck Eggs for hatching, $1.00 per dozen. A. Surtman, Petaluma, California.

FARM LAND FOR SALE

CALIFORNIA IRRIGATED LANDS
Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

For Sale — Five acre improved ranch, seven room house, other buildings, suitable for dairy or chicken ranch; complete irrigation system; lots of fruit of all kinds; all livestock included; owner must leave. Located near city limits of Pasadena. Address Box 114, Lamanda Park, California.

For Sale—50 acres full bearing prunes and apricots, 7 miles east of San Jose; completely furnished tractor and crop go at this price, $20,000.00 cash; balance 6 per cent, full price $50,000.00. Owner Route B, Box 216, San Jose.

For Sale—20 acres, Hemet, in bearing apricots, peaches, 2½ acres alfalfa, modern 5 room bungalow, gravity water, on boulevard. Special price $19,000, terms third cash, balance 3½ years, 6 per cent. Address Box 284, Hemet, California.

Miller & Lux Lands—Write or call for beautiful illustrated map and booklet, containing valuable information for homeseekers. Kramer, Lake & Co., 441 Monadnock Building, San Francisco, California.

For Sale—160 acres 8 miles N. E. of North Bend, Oregon, on county road; $2,500.00 cash, or will give terms. For further information address: William M. Brown, 544 Union Street, Salem, Oregon.

Akey & Skaggs, San Jose, California, Minute Men Realtors. Santa Clara Valley ranches a specialty. See us for anything.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California

MACHINERY

For Sale—Engine Pumping Plants:
Read the list below. Hundreds of satisfied customers. We have just replaced these plants by electricity, and can give you nearly any make or kind you wish at a remarkably low figure. Come and see us. We will guarantee to save you money. Telephone at our expense.
One 15 H. P. N. Type Fairbanks.
One 20 H. P. Witte.
Two 25 H. P. Westerns.
One 10 H. P. NB Type Fairbanks.
One 12 H. P. Foos.
One 8 H. P. Simplicity.
One 16 H. P. Stover.
One 8 H. P. International.
Two 15 H. P. Samsons.
One 20 H. P. NB Type Fairbanks.
One 20 H. P. Commercial.
One Continental engine and D. C. 6-inch pump.
One 12 H. P. International.
Two 15 H. P. Commercials.
One 12 H. P. Simplicity.
One 3 H. P. Simplicity.
One 15 H. P. N Type Fairbanks.
One 15 H. P. N Type Mounted Fairbanks.
One 16 H. P. Western.
One 18 H. P. Western.
One 10 H. P. R. & V.
One 20 H. P. Samson.
One 12 H. P. R. & V.
One 4 H. P. Samson.
One 3 H. P. Samson.
One 10-18 Case Tractor.
One 25 H. P. Fairbanks.
One 22-40 Case Tractor.
CROWE HDW. & ELEC. WORKS
Tulare, California.

1 Victory Oil Engine, 12 H. P. New, with Friction Clutch Pulley; regular price $775.00; will sell for $656.00. 1 20 H. P. Victory Oil Engine, two-cylinder, used two years, in first class shape; cost new $1150.00; will sell for $500.00. 1 New Associated Engine, 12 H. P.; will burn coal oil or distillate; regular price $736.00; will sell for $455.00. Edwin A. O'Donnell, Livingston, California.

Tractor Scraper for Sale—Have finished leveling my land with my Compton One-Man Tractor scraper. Would not want a better scraper if I had any more leveling to do. Will sell scraper for $130.00 cash, f. o. b. Fresno; $100.00, less than I paid for it. Scraper as good as new. Dan Hartwig, 2446 Rose Ave., Fresno, California.

For Sale 50 rebuilt windmills.
50 new and used tanks.
50 brass cylinders, rods, plunger pumps 1-in. to 30-in. capacity.
Why pay more? Used and new surface irrigating, most all sizes. Send for bargain sheet. Demmitt Co.'s. Office 120 North Main, Los Angeles. 15191.

For Sale—Six ton ice machine. Complete with tank and cans for freezing 750 pounds. Also bottle washer, Chilly King cooler, stanchions and other dairy supplies. Priced right. Hollow-Hill Farm, Colton, California.

For Sale—24 inch Acme ensilage cutter, good condition, and 40 feet blower pipe. Arden Dairy, El Monte. Phone El Monte 42.

ROOFING MATERIAL

Roofing Paper Firsts. Complete 1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35. Outside Bungalow Paint, $2.25 a gal. Roof Paint Special, 40c a gal. Prompt deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street. Phone Bdwy. 5401 Los Angeles, Calif.

LIVESTOCK

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks. Butte City Ranch, Box C, Butte City, Glenn County, California

White Rats—fifty cents pair. Smith, Route 1, Box 139, Pasadena.

RABBITS

Pedigreed Flemish Giants — No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

Guinea Pigs Wanted, highest price paid. Smith, Route 1 Box 139, Pasadena.

PIGEONS

For Sale—About three dozen pigeons, Carneaux and Giant Runts mixed. A. G. Morley, Rosamond, California.

TREES

PLANT CAROB TREES
Big Returns.
Trees and Seed for Sale.
H. S. Burns, 820 Story Building,
Los Angeles, California.

Avocados—I have a limited number of fine trees nicely balled and well established from two to six feet in height which I am offering for from two to three and a half dollars each. Fuerte, Linda, Puebla, Sharpless, Ganter and No. 2. Yearling Valencia trees 75c balled and guaranteed. A. R. Rideout, Rideout Heights, Whittier, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street., Santa Ana, California. Phone 472W

For Sale—100,000 Sour Orange Seedbed Stock. 10,000 Avocado Seedlings eight inches and up in pots. Also Washington Navel, Valencia Late Orange, and Eureka Lemon Trees. T. J. Walker, First National Bank Building, San Fernando, California.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

5,000 Valencias; 2,000 Eureka lemons; 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

For Sale—A few extra choice field grown Sharpless and Dickinson avocado trees for summer and fall delivery. Barrett-Chenoweth Nursery, Box 1206, Puente.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Budded Avocado Trees. Write for special prices for orchard planting. S. & S. AVOCADO NURSERY CO., 15 North Raymond Ave., Room 6, Pasadena, Calif.

Florida Sour Seed Bed Trees, six to sixteen inches high, straight roots, stocky trees. L. A. Tuttle Nurseries, Route 1, Pasadena.

Florida Sour Seed bed stock. Paul B. Magee, 100 Ventura St., R. F. D. 2, Box 499, Pasadena, California.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California

For Sale—One registered Duroc Jersey gilt 8 months old. Sire "Mammoth Sensation, Jr." Dam, "King's Golden Girl." Price $100. Otto Leander, R. F. D. 1, Fullerton, California.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California

For Sale—Pure Bred Duroc Jersey Boar, registered, 600 lbs., $100. R. Fischer, La Verne, California.

BERKSHIRES

Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

POLAND-CHINAS

Registered Poland Chinas. 40 tried brood sows; 40 gilts. Some choice young boars all at reduced prices to move at once. These Polands are as good as can be had anywhere at any price. W. D. Trewhitt, Route B Box 47, Hanford, Calif.

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

Bred Poland China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

Big Type Poland Chinas—Breeding stock of both sexes for sale at all times. Prices reasonable. J. N. Cook, Orland.

HAMPSHIRES

Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and their will send prices.

TURKEYS

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reseda, California.

Mammoth Bronze Turkey Eggs, 30 cents. W. L. Duvall, Pomona, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

CATTLE

Guernseys — Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Registered Jersey Bulls For Sale—Some excellent individuals of the St. Lambert strain with high testing dams. Ages, ready for service down to calves. The prices will suit you. E. M. Ward, Box 68, Lancaster, California.

Being Short of Pasturage, will sell few mature cows. Buyers' choice of herd. Tuberculin tested. Write Redwoods Ayrshire Farm, La Honda.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles

NEW AVOCADO ASSOCIATION OFFICIALS

In order to make as rapid progress as possible in marketing arrangements the directors of the Avocado Association have met twice since the annual meeting. The following officers were elected: President, W. L. Hardin, Los Angeles; vice-president, A. F. Yaggy, Santa Barbara; treasurer, J. M. Elliott, Los Angeles; secretary, R. Agnes McNally, Altadena.

An outline for starting active work has been formulated. A letter has been sent to the members of the association, urging them to cooperate in making the success of the new organization possible and offering special inducement to those who offer their support at once when the need is greatest. The active membership fee is $16 per year. All who have trees approaching a producing age and who expect to market fruit at any time within the next few years, whether in large or small amounts, should immediately give this marketing organization their support by becoming active members now. The initial financial support for the work and expense during the balance of this year is very necessary. Now is the time to build the foundation for the future market.

POTATO FIELD DAY

The next field meeting of the potato growers' department of the Los Angeles County farm bureau, together with allied organizations, will be held on June 7, and an unusually large attendance is expected as potato growers from all surrounding counties and as far away as Fresno and Tulare Counties will be present. At 10 a. m. the field demonstrations will be held on the Stahl ranch near Zelzah in the San Fernando Valley. Lunch will be served at the Van Nuys high school and the afternoon session held there. This program will be given up to standardization and plans for cooperative marketing. Geo. H. Hecke, state director of agriculture, has promised to be present, also some of his official staff.

PETRIFIED FOREST

The petrified forest of Arizona, really a series of petrified forests, lies a short distance south of Adamana, on the line of the Santa Fe railway. There are four "forests" included in a government reservation called Petrified Forest National Monument, created by presidential proclamation in 1906. The name "forest" is not strictly appropriate, for the petrified tree trunks are all prostrate and are broken into sections. The logs are the remains of giant trees that grew in Triassic time, the age of reptiles, according to the United States geological survey. The trees were of several kinds, but most of them were related to the Norfolk Island pine, now used for indoor decoration. Doubtless they grew in a nearby region and, after falling, drifted down a water course and lodged in some eddy or sand bank. Later they were buried by sand and clay, finally to a depth of several thousand feet. Their conversion to stone was effected by gradual replacement of the woody material by silica in the form called chalcedony, deposited by underground water. A small amount of iron oxides deposited at the same time has given the brilliant and beautiful brown, yellow and red tints which appear in much of the material. The sand and clay in which these trees were buried were afterwards washed away. Some of the tree trunks are six feet in diameter and more than 100 feet in length. In the first forest there is a fine trunk that forms a natural bridge over a small ravine, the water having first washed away the overlying clay and sand and then, following a crevice, worked out the channel underneath. The length of this log is 110 feet, and the diameter four feet at the butt and one and one-half feet at the top.

The petrified woods are beautiful objects for study. When thin slices are carefully ground down to a thickness of 0.003 inch or less and placed under the microscope they show perfectly the original wood structure, all the cells being distinct, though now they are replaced by chalcedony. By studying the sections F. H. Knowlton, of the geological survey, has found that most of these araucarian trees were of the species Araucarioxylon arizonicum, a tree now extinct. It is known to have lived at the same geologic time also in the east central part of the United States, where the remains of some of its associates have also been found. These included other cone bearing trees, tree ferns, cycads, and gigantic horsetails, which indicate that at that time the rainfall of the Southwest was abundant.

Cherimoyas

MODERN CONVENIENCES FOR FARM HOMES

The rural home is fast becoming a place of comfort and where all modern conveniences are had just as in the city. Electric lights, water works, sewage disposal systems and all of these things are reaching the point where they are looked upon in the country home as a matter of course. I venture to make the assertion that within the next ten years there will be practically as big a percentage of our country homes having electric lights, electric washing machines, electric ironing machines, electric irons, vacuum cleaners, waterworks, sewage disposal systems, etc., as are found in the towns and cities.

Right now is a good time to think about this matter and to make plans to properly equip the home with these modern conveniences. Look through our advertising columns and secure information from the manufacturers of these various products and you will be surprised how cheaply they can be bought and installed. — Progressive Farmer.

Rose Bowered California Home

MACHINE SIZERS AN AID IN GRADING POTATOES

Grading potatoes consists of two somewhat distinct operations, namely, sorting for size and sorting for defects. No machine is human enough to sort out the defective stock, therefore this must be done by hand, but machines have been devised which will size more accurately than can be done by hand. The eye is not a very reliable guide in sorting to a certain size. U. S. potato grades require White Rose potatoes to be divided as to size at the diameter of 1¾ inches. Experience has shown that when a person attempts to size such potatoes by hand he is inclined either to place many potatoes of No. 1 size in the No. 2 grade, or many of the No. 2 size in the No. 1 grade. This personal equation can be eliminated by the use of a good sizing machine.

Sizing machines vary widely in results accomplished. This variation is due in part to the manner of operation and in part to the type of machine used. They should never be loaded beyond their capacity for efficient work. The results observed show that a round mesh screen is more accurate than one of square mesh. This is because the diagonal of a square is much longer than the sides, and large potatoes, if turned cornerwise, can drop through the holes. Screens with round or nearly round mesh have holes of practically the same dimension in every direction. Before purchasing a sizing machine for potatoes, the grower should make careful investigations as to the different machines on the market.

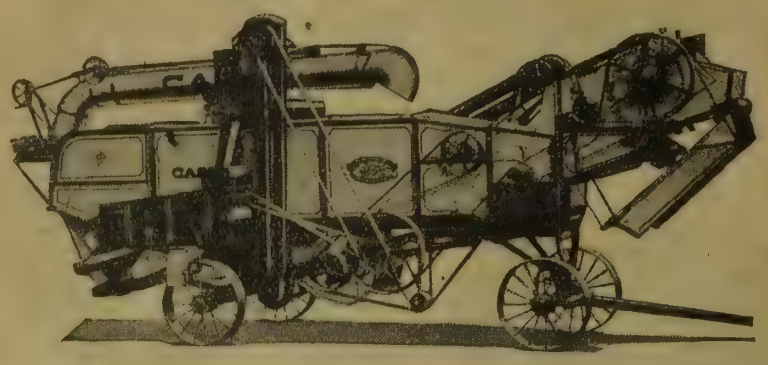
Many growers have hesitated to use machine sizers on account of the cost and the fear of "skinning up" the potatoes. Machines can be purchased at a cost of $50 to $400, according to size. It is true that any machine will skin the early potatoes to some extent, but a half hour after the operation the difference is not noticeable. The experience of growers and shippers in new potato sections where machines are used is that the small amount of bruising caused by their use does not affect their market value.

CALORO PROMISING RICE FOR CALIFORNIA

A new variety of rice, known as Caloro, and well adapted to both new and old land, is being distributed to California rice growers by the Sacramento Grain Association (Inc.), which has cooperated with the United States department of agriculture in rice breeding experiments at Biggs. This new variety is pronounced the best of several in selections made and grown under comparable conditions during the past few years. It has outyielded all of the standard varieties of rice grown in California from 8 to 30 per cent during the past four years. In 1919 it gave an average yield of 7,874 pounds per acre as compared as compared with 4,800 pounds from 5,800 pounds from Early Wataribune, and in 1920 a yield of 6,300 pounds as compared with 4,800 pounds from No. 1600.

Caloro matures about two weeks earlier than Late Wataribune, or five days earlier than Early Wataribune, seven days later than No. 1600, and ten days later than Onsen. It is the opinion of those who have the opportunity of watching the results from this new variety that it is superior to Early Wataribune, now generally grown in California, in every respect and eventually will replace it. Seed for 6,000 acres was made available this year.

22x36 Case Thresher Equipped with Re-Cleaner for Hulling Clover and Alfalfa



Salvaging the World's Crops
With Case All-Crop Threshers

In the important work of salvaging the world's crops after they are harvested, *Case Steel-built, Galvanized Threshers* each year render a great service to Humanity and Civilization. Without the help of modern threshers, such as Case Machines, it would be impossible for the farm workers of today to save the annual crops.

A Size for Every Need

Case Threshers have been built since 1842 and this line of justly renowned threshing machines now includes a thresher for *every seed crop* and a size suitable for every threshing need. There is the small 20 x 28 machine for individual threshing, while the light weight 22 x 36 and 26 x 46 threshers are ideal for average "community" service and the 28 x 50, 32 x 54, 36 x 58 and 40 x 62 big-capacity machines meet every requirement for custom threshing on any scale.

Look for the EAGLE Our Trade Mark

A Thresher for Every Seed Crop

In localities where grain and hay are the principal crops, *Case Grain* and *Grass-seed Threshers* are upholding and adding to Case reputation for clean threshing, thorough separation, perfect cleaning and complete saving of the threshed crop. In the pea- and bean-growing districts *Case Pea and Bean Threshers* are rendering a like service. In rice-growing sections of the world *Case Rice Threshers,* which are unaffected by moisture, are performing their work with equal satisfaction and the same is true of *Case Peanut Threshers.*

Case Threshers are "all-crop" machines. That is, at a slight additional cost, they can be equipped and adjusted to handle *grain, grass seed, peas, beans, rice or peanuts.* This may be done in the field in a short time.

Attachments for Case Threshers

All sizes of Case Threshers can be equipped with feeder or hand feed; windstacker or common stacker, or any one of a variety of improved grain handlers. All of these attachments are of our own design—*Case-made* for *Case Machines.*

No matter where you are, nor what crop you grow, there is a Case Thresher of a size and type to meet your requirements. Our catalog may prove of interest to you.

J. I. CASE THRESHING MACHINE COMPANY
DEPT. F4 RACINE, WISCONSIN

61 Factory Branches and 8,000 Case Dealers in the United States and Canada, located in the principal agricultural districts, serve the purchasers of Case Machinery.

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When Writing Advertisers Mention California Cultivator.

Poultry House Types

By Jean A. Koethen

"Our little systems have their day,
"They have their day and cease to be."

THUS wrote one of England's greatest poets. Lord Tennyson was not thinking of chickens. Probably he did not know a chicken house from a smoke house, but the lines will serve well as a text on which to hang a brief history of poultry housing in the past 15 years.

On a shelf with my other poultry literature is a little brown pamphlet entitled "The Philo System of Progressive Poultry Keeping." I paid a dollar for it soon after its publication in 1909. It professes to instruct the novice in the fine art of raising broilers on a city lot, and contains, among other details, the ground plan of a city lot, "showing the arrangement of 60 Philo System coops and walks where $31,450 worth of broilers can be raised in eight months on a city lot 50 feet square."

I do not know whether or not Mr. Philo ever accomplished the feat himself, but I have strong suspicions that he made more money with his book than he ever made with poultry. Certainly his venture came to grief in a few years. His system worked pretty well for a short time on a city lot. When he moved to a New York farm and later to Florida he passed out of the poultry world, and his system broke down by its own weight.

The trouble with the Philo system is, or was, that it was too much work. Theoretically it is possible to keep six hens and a rooster or 50 chicks or 25 broilers in a coop three by six, but it does not work out in practice. Birds so closely confined must be surrounded by the most sanitary conditions, and that, if any number of fowls are kept, means a tremendous amount of work. A good many people tried the system in its day, and some succeeded for a while, but always the labor involved led to its abandonment.

Figure 1—A Glendale Poultry House
Type of house as recommended by University Farm, Davis.

Labor the Secret

Success or failure in poultry keeping is very largely a question of the amount of labor required per hen. The man who can care for 1,200 hens or more without hiring help is in a position to reap more profit than the man who keeps 2,000 birds and a hired man. The one-man poultry farm is, other things being equal, the most profitable farm, and the poultry house which provides sanitary accommodation for the greatest number of birds is the perfect house.

Note the words "sanitary accommodations." Everything hinges upon that. How many hens can be kept together in a single house or unit and be kept healthy?

The Corning System

About the time the Philo system was being advertised, the Corning system was also occupying considerable space in the advertising pages of eastern poultry journals. The Corning system goes to just the opposite extreme, and confines from 1,000 to 2,000 hens in a single house without any yard at all. This system was originally a backlot system, but it was taken up and adapted to large poultry plants and is in quite general use in some sections of California. Its merit is that one man can care for more hens in such a house than in any other. It takes little longer to fill feed hoppers for 100 hens than for 25, and the cleaning of such a house is by no means proportionate to the number of birds, as compared with a smaller unit. The Corning house is divided into separate sections, each holding from 100 to 300 birds, in order to avoid drafts, but the sections are separated only by an open doorway, so that each hen has the run of the whole house.

The disadvantage of this system is that whatever affects the health of one hen, whether it be a contagious disease or some unsanitary condition, soon affects all. Foul drinking water in one single fountain poisons the whole flock. When hens are kept in small flocks it is easy to keep tab on their health. A sick hen is noticed immediately. If chicken pox attacks one unit it may be months before it spreads to the next. In a large flock it is not so easy to check disease nor to watch the health of the birds.

Figure 2—House Used on the McAllister Ranch at Inglewood

The Weeks House

Based to some extent on the Philo system, but involving far less labor, is the Charles Weeks house, which is

popular in some sections of this state. In this house 20 hens or 25 pullets are kept in a unit eight feet square, and the long house made up of these units is entirely open in front with windows for air circulation in the rear. Like those already mentioned this is a no-yard system. The hens are never out of the house till they go to market at the end of their career.

Larger No-Yard Flocks

"Do you mean to say," said a man the other day, "that hens can be kept healthy in a house where they are confined from one year to another without a chance to get out of doors?" I told him I wasn't saying; I only knew that some poultrymen were doing that very thing successfully. Whether it can be done year after year continuously I do not know. There are those who believe it can.

Between the Weeks house on the one hand and the Corning house on the other there is a long stretch of middle ground, and not a few advocates of intensive poultry keeping are

Figure 3—No-Yard House

On Eads Ranch near San Gabriel. The units in his house are 12 by 12, and accommodate about 50 hens, which are never outside the house.

taking their stand on it. I have seen a house 16 by 20 in which 75 to 80 hens were kept closely confined and doing splendid work. I have seen one 12 feet square in which 50 hens were kept, and another about 20 feet square in which from 100 to 125 hens were confined. Whatever plan is used, at least four square feet of floor space are allowed for each occupant, and absolute cleanliness is vital. The floor is covered with sand, with a thick layer of straw on top, which is removed when it becomes filthy. Adherents of this plan claim that more perfect cleanliness can be attained by this method of housing than by running the hens in yards which are not frequently purified by a green crop.

Houses with Yards

The house shown in Figure 1 is similar to that used at the university farm and recommended by the poultry division. It is arranged for 40 to 50 hens in two flocks. The elaborate system of windows and shades is by many considered too complicated, and I have seen such houses on only one or two plants. A house like that shown in Figure 2, divided into sections 16 by 20, each accommodating from 100 to 150 birds, with either a shed or gable roof, and with yards in front or behind or both, is the type of house most in favor all over this part of the state. The nests may be along the front or under the droppings board, and in some cases the front is boarded up to about one-third of its height. The yards may be large or small, single or double. As a rule the droppings boards are separated by a tight partition, and the space between droppings boards and front covered with wire in order to admit abundant ventilation. There is generally a window under the droppings board for summer use. Feed troughs may be built along the front under the nests or large square hoppers may be used inside. There are almost as many variations of this type of house as there are poultry men using it, but all are adapted to this climate and giving good results.

Poultry Queries

Conducted by Jean A. Koethen

Head Louse

Do the big gray lice found on the heads of chicks live on hens? If so, on what part of the hen? Are they the same as the common body louse of hens? I have two hens with chicks. One is clean, yet her chicks had head lice. On the other I found body lice, yet her chicks were entirely clean. I dusted both hens twice during incubation.—Mrs. C. H. Lancaster.

The head louse of chickens is described as "a dark grayish species nearly one-tenth inch in length, found on the top or back of the head, behind the ears or beneath the bill. Usually it is located close to the skin with its head very close to or against the skin, the body extending away from the skin on the down or along the feathers." This is the louse from which the poultryman must guard his young chickens. Lard rubbed on the head when the chicks are hatched is the best protection. If lice do appear, the lard may be used again.

The common body louse is light yellow and is found mainly around the vent and under the wings of adult birds. Various kinds of louse powders are recommended for these lice, but the United States department of agriculture prefers sodium flouride to all others, claiming that its effects last longer. A pound of commercial sodium fluoride, it is claimed, will treat 100 hens if applied by the "pinch" method, a pinch on the head, one on the neck, two on the back, one on the breast, one below the vent, one in the tail, one on either thigh, one under each wing.

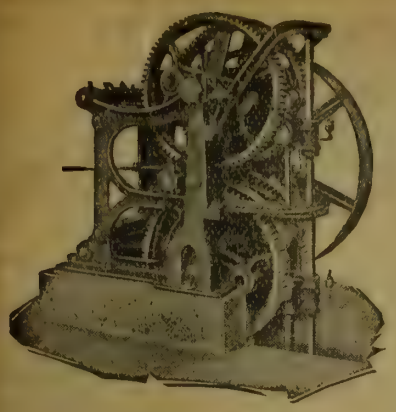
As to why head lice should have been found on chicks under an apparently clean hen, I can only suggest that the powder used was not efficacious for this kind of lice, and that some escaped alive and undetected. It is a good plan to grease the heads of all chicks hatched by hens, whether the hen seems clean or not.

(Continued on Page 763.)

POULTRYMAN'S CALENDAR—JUNE, BEGINNING TO CULL

By the first of June all the little chicks are out of the way, the cockerels ready for market, if not already marketed, and the hens beginning to let up in production. Now is the time to concentrate on eliminating the loafers. A hen that begins to drop feathers or goes broody (if she is a Leghorn), or whose comb is shrunken and pale, is almost certain to be an unprofitable hen. It is a good plan to put the hens in a pen by themselves and try them out. In most instances it will be found that the production of the rest of the flock remains about the same after they are removed. In a flock that has been carefully culled in previous years there may be no June molters. Where culling has not been practiced there are sure to be some.

The loafer hen may be distinguished not only by molting and broodiness but by her dull eye, her indifferent appetite and languid movements. She does not sing; she does not scratch, and her shanks and beak are more often than not a fairly bright yellow even at the end of the laying season.



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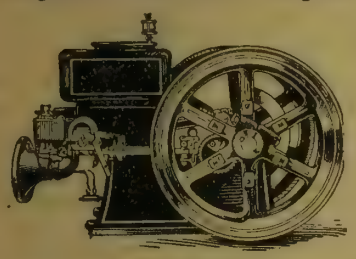
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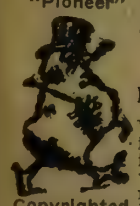
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Los Angeles Markets

Los Angeles, June 1, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price 33 cents.

CHEESE

Brokers' prices:
California flats, 16@18.

EGGS

Fresh extras (case included): Produce Exchange closing price 30 per dozen. Case count Produce Exchange closing price 29. Pullets, closing price 26 per doz. dozen.

POULTRY

Price to producers: Hens, 21; colored, 32; broilers, 21@25; roasters, 40; old roosters, 12; fryers, 35; ducks, old, 28; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live 50; dr., 54; squabs, 44@45.
Belgian hares, live, 12@16.

LIVESTOCK

Los Angeles, May 31. — Weighed and delivered off cars without food or water:
Hogs (hard grain fed), 125 to 175 lbs., 9.00; 175 to 225 lbs., 9.50.
Cattle (on foot, gross weight): Steers, good, 8.00@8.50; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Calves, 125 to 150 lbs., 9.50; 175 to 225 lbs., 9.00.
Sheep: Ewes, 5.00@5.50; lambs, 8.50@9.00.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered.
Green salted hides—No. 1 steers, 7½ per lb.; No. 1 cows, 6½ per lb.; No. 1 bulls, 6½ per lb.; No. 2 and kosher hides, 1½ per lb.; grubby hides, 1½ less per lb.; No. 1 horsehides, over 50 lbs., 2.00 each; No. 1 horse hides, 40 to 50 lbs., 1.50 each; No. 1 horse hides, 30 to 40 lbs., 1.00 each.
Green hides—No. 1 steers, 6½ per lb.; No. 1 cows, 5½ per lb.; No. 1 bulls, 4½ per lb.; No. 2 and kosher hides, 1½ less per lb.
Calf skins and kip skins—No. 1 calf skins, under 15 lbs., 14 per lb.; No. 2 calf skins, under 15 lbs., 11 per lb.; No. 1 kips, 15 to 25 lbs., 8 per lb.; No. 2 kips, 15 to 25 lbs., 6 per lb.; kosher skins, 1 less per lb.; slunks, 10@50 each.
Dry flint hides—No. 1 hides, 16 lbs. and up., 10 per lb.; No. 1 kips, 6 to 16 lbs., 11 per lb.; No. 1 calf skins, under 6 lbs., 12 per lb.; No. 2 hides and skins, 2 less per lb.; glue hides and skins, 2 per lb.
Pelts: Large, long wool, 40@70 each; medium, 20@40 each; short wool and shearlings, 10@20. Lambs, 10@30 each; badly damaged and very small lambs, worthless.
Goat skins: No. 1 common, 10@30 each; No. 2, 5@10 each; badly damaged and small kids, worthless.
Tallow: No. 1, white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.
Wool: According to quality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock May 31, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.
Potatoes: Supplies liberal, market dull. Idahos: Russets mostly 2.25@2.50, Rurals, 1.90@2.00. Oregons: Burbanks, 2.25@2.35; few 2.50. New potatoes: Supplies moderate, market steady, best 1.00 @1.25, small 60@85 per lug.
Onions: Supplies heavy, market dull. cold storage stock best 1.00, poorer 60@75 cwt.; local, bunch green mostly 12½. Coachella and Imperial Valleys standard crates Wax 1.15@1.30; Yellow Bermuda, 1.10@1.25.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock May 31, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.
Artichokes: Supplies heavy, market steady, 75@1.00; few fancy, 1.25 doz.
Asparagus: Market weaker; supplies liberal. Local: Mostly 10@12 per lb. Northern 9@12 per lb.; poorer, 6@8.
Beans: Supplies moderate. Per lb. Green Kentucky Wonders, 9@11 per lb., green pods, 6@8 per lb.; Wax, 6@8 per lb.
Beets: Doz., 30@40.
Cabbage: Field crate best mostly 3.25 @3.50; poorer, 2.25@2.35.
Carrots: Doz., 35@40.
Celery: Supplies light, market steady, best per cr., 9.00@10.00; poorer 8.00.
Corn: Supplies moderate, market weaker, best 40@50 per doz., 1.75 lug.
Cucumbers: Local best, 1.50@1.75 doz.; Hothouse, mostly 1.25@1.50; few best 1.75.
Eggplant: Supplies moderate. Imperial, mostly 17@20 per lb. Mexicans, mostly 12@15 per lb.
Lettuce: Local field crate quality poor, 75@90; best, 1.00@1.25.
Peas: Local best 5@7; Northern 11@13.
Peppers: Supplies liberal, market steady. Imperial Valley: Bells best, 30 @35; Chilis best, 25@30 per lb.
Radishes: 20@25 doz.
Rhubarb: Local strawberry 1.10@1.25 bx.; jobbing 1.00@1.15; Crimson Winter, 60@80.
Spinach: Mostly 20@25 doz.
Squash: Supplies liberal, market steady. Summer squash: Imperial Valley, best, 75@1.00 per crate. Local: 75@1.00 per lug. Italian 75@1.00 per flat.
Tomatoes: Supplies liberal, market stronger. Imperial Valley, per crate, best 2.00@2.25; poorer 1.50@1.75; jobbing, 1.85 @2.10.
Turnips: Doz., 45@50.

FRESH FRUITS

Cantaloupes: Supplies liberal, market weaker, pony crates 5.50, standards 7.50. Jobbing: ponies 5.00@5.25, standards 7.00@7.25.
Cherries: Black Tartarians, best 12 @15; poorer 10; Governor Wood 9@11; Royal Anne 13@15.
Apricots: Market steady, mostly 8@10 lb.; poorer low as 5; fy 2.25@2.50 per four basket crate.
Blackberries: Supplies light, market weaker. Best 3.25@3.75.
Loquats: Best mostly 5@7, few 9.
Strawberries: Supplies moderate, market stronger. Per crate, 30 pints, best 6.25@6.75, poorer 5.50@6.00; fy., 7.50@8.00.
Raspberries: Supplies moderate; best, 3.25@3.75; poorer, 3.00 per 30 pint crate.

CITRUS FRUITS

Grapefruit: Supplies liberal, market firm on good stock. Local: per box, market pack 2.00@2.50, special packed brands 3.00@3.25.
Lemons: Supplies heavy, market dull, wide range in prices. Local: packed box 2.25@2.75, few high as 3.00, loose 1.00@1.75 per box, per lug mostly 50@75.
Oranges: Supplies liberal, market steady. Navels, market pack, large size 3.00@3.50, small low as 1.75, special brands, large size 4.25@4.75, small sizes 3.00@3.50. Valencias, best brands, all sizes 3.75@4.00, packing house culls 50@75, few best 1.00@1.75 per box.

HONEY

As reported by the Bureau of Markets: Southern California, Los Angeles: Supplies of White honey light, of Light Amber grades heavy. Movement slow, market dull. Carloads f. o. b. usual terms, per lb. White Orange Blossom 10@12; White Sage 10½@12½; White Alfalfa 7½ @8½; Light Amber Sage, 8@9; Light Amber Alfalfa 6½@8. Hawaiian, White 7; Honey Dew honey 4½. Recent hot winds have badly hurt Orange and Sage honey prospects and with southern Sage already seriously damaged by cold and dry weather, a very light crop of the lighter colored honeys is forecasted. The Alfalfa crop is probably normal. High retail prices are still maintained throughout California, and hurt honey distribution locally. Some large shippers expect a firm market, account light crop this year; other factors are still pessimistic. New honey will move in light quantities this month and next, but shipments in large quantities are not expected before July. Beeswax: Sacked in l. c. l., Light 25@30; Dark, low as 23 per lb.

GRAIN AND FEEDS

Grain Exch. price bid May 31:
Corn: Bulk, No. 2, Yellow 1.66¼.
Kaffir: Eastern, No. 2, 1.75@1.80; No. 3, 1.66¼@1.75.
Milo: 2.10; No. 2 Eastern bulk, 1.80.
Barley: 1.23¾.

HAY

Alfalfa Growers of California report under date of June 1:

Rabbit Alfalfa	27.00
No. 1 Dairy	24.00
Standard	20.00
Stock	15.00
Fertilizer	15.00

About 50 per cent of the grain hay south of Tehachapi was cut before the rain. This will be nearly a total loss.
Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@28.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	22.00
Standard	16.00
Straw	10.00@13.00

San Francisco Markets

San Francisco, May 31, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras	34

Dairy Exchange prices extras this week and year ago:

May	10	11	12	13	14	16
'21	33½	34	34	34½	..	34
'20	55½	55½	55½	55½	..	..

CHEESE

Dairy Exchange quotations:

Jack, full cream, street price	14½@16
Oregon Trips	20½
Cal. Y. A.	19
Cal. Flats	16

EGGS

The prices paid by wholesalers to producers are eight per cent less.
Dairy Exchange quotations, dozen including cases:

Extras	27
Extra Firsts	26½
Dirties No. 1	25
Extra Pullets	23
Undersized	20

POULTRY

Wholesale prices are:
Young chickens, Leghorns, 1 to 1¼ lbs., 25@27; 1½ to 1¾ lbs., 32@35; 2 lbs. up, 40; heavy breeds, 1½ to 1¾ lbs., 45; 2 lbs. and up, 60. Staggy roosters, 20@25; old roosters, Leghorns, 13; do, heavy breeds, 18. Hens, Leghorns, large, 23; do, small to medium, 17@20; heavy breeds, 30@32.
Ducks: Young, 35 per lb., old 25.
Geese: 25 per lb.
Turkeys: Live, 40 per lb., do, dressed, 45@50 per lb.
Squabs: Fy. 45@48 lb., common, 3.50 per doz.
Belgian Hares: 20@22 per lb., do, dr., 25@28.
Pigeons: Old 3.00 per doz.

LIVESTOCK

Western Meat Company prices are:
Cattle: Steers, No. 1, 6½@6¾; do, second quality, 6@6¼.
Cows and Heifers: No. 1, 4¾@5¼; do, second quality, 3¼@4¾.
Calves: Light weight, 6½@7½; medium, 6@6½; heavy, 4½@5½.
Sheep: Wethers, 3½@4½; ewes, 2½@3½.
Lambs: Milk, 5½@6½.
Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 8½; do, 200 to 250 lbs., 7½; do, 250 to 350 lbs., 6½; light sows, 6½; heavy sows, 5½.

HIDES AND PELTS

No. 1 heavy hides, 60 lbs. and up, 5; medium, 45 to 60 lbs., 5; No. 1 light hides, 30 to 45 lbs., 7; No. 1 native bulls, 3; No. 1 center branded hides, in all grades, 2 less than base price; No. 1 wet salt kip, 15 to 30 lbs., 7½; No. 2, 5½; No. 1 wet salt calf, trimmed, 13; No. 2 calf 2 per lb. less. The price of No. 2 hides will be 1 less than price of No. 1. Hides having any of the following defects will be classed as a No. 2: Any cut over six inches from the edge, over five bad scores, five grubs, one grain slip, one rubbed spot where grain is gone, one dragged spot where grain is gone, one sore spot where grain is gone.
Dry hides, 16 lbs. and up, No. 1, 8; dry kip, 7 to 15 lbs., No. 1, 9; dry calf, under 7 lbs., No. 1, 10. Dry stags and bulls, one-third less than dry hides. Dry glue hides, kip and calf, one-half price or less, according to quality. Dry salted hides and skins 6.
Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 9 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good, 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20; milk lambs, 5@10.

California Farm Bureau Marketing Association reports:

No. Hogs	Avg. Wt.	Dock	Price
Tulare, May 24, 1921			
13	207	...	$9.20
92	159	...	9.10
89	198	...	8.70
58	168	20	8.40
55	250	...	8.20
30	269	350	5.90
1	550	220	5.40
Four cars, 30 consignors, $5,569.34.			
Visalia, May 25, 1921			
55	198	...	$9.45
95	163	...	9.30
53	137	...	8.50
17	250	20	8.45
10	256	110	6.50
Three cars, 18 consignors, $3,634.15.			
Hanford, May 26, 1921			
90	175	...	$10.60
90	180	...	10.50
43	209	...	9.50
99	150	...	9.50
5	270	...	8.50
18	398	330	6.00
3	466	560	4.00
Four cars, 31 consignors, $6,254.15.			
McFarland, May 28, 1921			
92	177	30	$9.65
79	196	...	9.45
90	200	...	9.35
80	220	20	9.25
101	161	...	9.00
47	231	...	8.35
2	315	...	7.85
22	115	...	7.10
7	231	...	7.85
Six cars, 30 consignors, $9,152.88.			

Total for the week, 17 cars, 109 consignors, total $24,610.52.

POTATOES AND ONIONS

Wholesale prices:
Potatoes: Street prices: River, nominal; do, Oregon Burbanks, 2.25@2.60. Nancy Hall, 5.00@6.00 per 100 pounds; Idaho Gems, 2.30@2.40.
New: 2½@3½ lb.
Onions: Australian brown, 35@50 per bag; Crystal Wax 1.50@1.75 per cr.; Green 1.85@2.00.
Garlic: New, 6@8 lb.

VEGETABLES

Wholesale selling price:
Asparagus: Culls, 3@4 per lb.; field run, 5@6; fancy graded, 8@11; green 5@6.
Beets: 1.75@2.00 per sack.
Beans: String, 10@17½; Wonder, 12@17½; Wax, 15@20.
Carrots: 75@1.00 sk.
Cucumbers: Hothouse, small, 2.50@3.50 box of 2½ dozen; English, 1.75@2.00 per dozen. Signal Hill, 2.25@2.75 per box of 2½ dozen.
Cabbage: Lb., 1.
Corn: Green, 40@60 doz., 4.00@4.50 sk.
Eggplant: Lb., 10@15.
Lettuce: Iced, 2.00@2.50; uniced 2.00.
Okra: 15@20 lb.
Onions: Green, per lug, 1.50@1.75.
Peas: 7@11 lb., fy., 7@12.
Parsnips: Sk., 2.00@2.25.
Peppers: Bells, large 20@30; small 10 @20; Chilis, 15@20.
Rhubarb: San Jose, 1.65@2.25.
Squash: Imperial Valley Summer, 90 @1.00 cr., 1.25@1.40 small lug.; Italian, 1.25@1.75.
Spinach: Lb., 2@4.
Tomatoes: Mexican, 3.25@3.50 for L. A. lug.; Imperial, 2.00@2.50 per crate; fancy Coachella, 3.00@4.00 crate.
Turnips: Sk., 50@1.00.

FRESH FRUITS

Apricots: 2.50@3.00 per four basket crate; 3.50@3.75 per lug.
Avocado: California, doz., 3.00@6.00.
Bananas: Lb., 8½@10.
Cantaloupe: Standard, 9.00@10.00; Ponies, 6.50@7.50; Honey Dew, cr., 3.25.
Cherries: Black, 1.00@1.75 per box; do, loose, 4@10 per lb.; white, 3@7 per lb; Royal Anne, 8@9.
Currants: Drawer, 1.00@1.25.
Pineapples: 4.50@6.00.
Figs: 3.00@3.50.
Blackberries: Cr., 2.00@2.50.
Gooseberries: 8@10.
Raspberries: Dr., 1.25@1.50; 3.00@3.25 crate.
Strawberries: Peninsula and Watsonville, 50@55 per drawer; fancy, 60; Salinas, 1.10@1.25 per crate; Watsonville, 1.00@1.20 per crate, according to quality.
Loganberries: Red, 75@1.00.
Plums: Cherry, 2.00 bx.
200s, 4.00@4.25; 216s, 3.25@3.50; 250s, 3.00
Loquats: Lb., 6@7.
Watermelons: Mex., 5@6 lb.

CITRUS

Navel oranges, 100s to 126s, 4.50@5.00 per box., 150s, 4.25@4.50; 176s, 4.00@4.25; 200s, 3.75@4.00; 216s, 3.25@3.50; 250s, 3.00 3.25; 288s and smaller, 2.75@3.00; Valencias, 3.00@3.75. Lemons, 2.25@3.75 per box. Lemonettes, 2.00@2.50. Grapefruit, 2.00@3.75. Limes, nominal. Tangerines, nominal.

DRIED FRUITS

Raisins: Vineyard run, layers, 100 lb. bxs., 16 lb.; Sunmaid, seeded, 36 oz. pkgs., 22 lb.; seedless Sultanas, 25 lb. bxs., 20 lb.; Thompson seedless, 25 lb. bxs., 21½ lb.; do, 48 5-oz. bxs., 23½ lb.; 3 cr. L. M. 25 lb. bxs., 19 lb.; 2 cr. do, 17 lb., 1 lb. clusters, 20 lb. bxs., 5.40 bx.
Figs: Fancy blacks, 25 lb. bxs., 12½ lb.; extra choice, do, 10 lb; choice, do, 9 lb.; fancy white, do, 16 lb.; extra choice white, do, 11 lb.; choice white, do, 8 lb.; 70 4 oz. white 3.25 box; 50 6 oz. white, 3.00 box; fancy, 4 layer 10 lb. bxs., 2.00 bx.
Prunes: 30-40s, 25-lb. bxs., 15 per lb.; 40-50s, do, 12 lb.; 50-60s, 9½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.; Persian dates, 14 lb.; Dromedary dates, 6.25 case; fancy silver prunes, 15 lb.
Apples: Fancy, 50-lb bxs., 11 lb.; extra choice, do, 10 lb.; choice, do, 9 lb.
Peaches: Blue Ribbon brand, 48 11-oz. to cs., 7.00 cs.; do, 24 2-lb. to cs, 8.00 cs.; fancy peaches, 25-lb. bxs., 16 lb.; extra choice, do, 12 lb.; choice, do, 11 lb.
Apricots: Fancy, 25-lb. bxs., 28 lb.; extra choice, do, 22; choice, do, 20, standard, do, 17.
Pears: Fancy, 25-lb. bxs., 15 lb.; extra choice, do, 12; choice, do, 10.

BEANS

Below California Bean Growers Association shippers prices choice recleaned.

Large Whites	3.25
Small Whites	3.35
Pinks	5.85
Mexican Reds	7.90
Red Kidney	9.15
Henderson Bush	4.90
Cranberries	6.80
Bayos	10.50
Blackeyes	7.50

HAY AND FEED

Under date of May 28, A. W. Scott Co. says:
Receipts past week 615 tons. These light receipts have mainly been caused by weather conditions and the interruption in baling and handling by the recent rains. Notwithstanding the light tonnage prices are easier. The immediate effect of the rains has been to damage a quantity of Volunteer that was down, and this being used as far as possible for local consumption has had serious effect upon the demand for first cutting alfalfa and stock hay. The secondary effect will be to put quite a quantity of stained and damaged hay upon the market at prices that will have a depressing effect upon sound and better grades. The Nevada alfalfa is seeking a market here on account of the immense carry-over from last year and the quantity of the new crop now coming along. Offers on good hay have been made as low as $14 delivered San Francisco.
We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	18.00@20.00
Wheat Hay, light 5-wire bales	15.00@18.00
Tame Oat Hay	15.00@17.00
Wild Oat Hay, old crop	11.00@13.00
Wild Oat Hay, new crop	10.00@12.00
Barley Hay	11.00@13.00
Alfalfa Hay	14.00@16.00
Alfalfa Hay, new first cutting	10.00@12.00
Stock Hay	10.00@12.00
Barley, Ground	31.00@34.00
Barley, Rolled	28.00@30.00
Oats, Rolled Feed	35.00@37.00
Bran, Red	34.00@36.00
Bran, White	36.00@38.00
Millrun	36.00@40.00
Middlings	47.00@50.00
Linseed Meal	37.50@40.00
Coco Meal	25.00@27.00
Alfalfa Meal, old crop	24.00@26.00
Alfalfa Meal, new first cutting	22.00@23.00
Cottonseed Meal	35.00@40.00
Sugar Beet Pulp	32.00
Molasses, Tanks	23.00
Milo	39.00@40.00
Corn Meal	39.00@41.00
Molasses, Bbl.	26.00

Citrus Markets

Los Angeles, June 1, 1921.

Citrus growers are generally well pleased with the heavy rains of last week. The holding back of shipments also had a beneficial effect on the market. Fruit is expected to size up better than if the rain had not come. There are still about 500 cars of Navels and miscellaneous varieties of oranges remaining for shipment and yet unsold before Valencias will have a clean field. Hot weather throughout the East has sent up the price of lemons, $9.70 being the record price.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 24,008 cars; lemons, 5,472; total, 29,480. To same date last season: Oranges, 20,125; lemons, 4,410; total, 24,535. From Central California to date this season: Oranges, 6,291; lemons, 138; total, 6,429. To same date last season: Oranges, 5,306; lemons, 288; total, 5,594. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

AT THE AUCTIONS

May 31

New York: 55 cars oranges, 5 mixed, 3 lem. Nav. 3.10-5.55, Val. 3.20-7.50, Sweets 3.40-3.75, Bloods 3.90-4.65, St.

Mikes. 2.40-2.60, Ruby Bloods 4.40, lem. 6.56-7.50.

Pittsburg: 6 or., 3 lem. Nav. 2.25-3.00, Val. 3.85-5.05, Seeds. 3.50, lem. 4.90-7.35.

Boston: 30 or., 5 lem. Nav. 5.00-5.55, Val. 2.85-5.80, Mikes. 1.95, Seeds. 4.80-5.00, Sweets 4.90, lem. 5.80-8.25, grapefruit 3.15.

Philadelphia: 22 or., 1 lem. Nav. 4.15-4.85, Val. 2.65-5.70, Sweets 3.50-4.15, Mikes. 2.00-4.95, Mediterranean Sweets 3.35-3.65, Crafton Late 3.65, lem. 6.65-7.25.

St. Louis: 6 or. Nav. 4.65-5.00, Val. 2.55-4.90, lem. 6.75-8.95.

POULTRY QUERIES

(Continued from Page 761.)

If you are interested in varieties of lice and the treatment for them, write the U. S. Department of Agriculture, Washington, D. C., for Farmers' Bulletin 801. It costs nothing and contains much useful information.

Droopy Turkeys

Can anything be done for turkeys a month old which stagger around and have no control of themselves, but still eat well? Also when they get chilled and droop, is there anything to do but let them die? — Subscriber, Santa Ana.

There must be something radically wrong in the way these turkeys are cared for, or they would not get chilled and droop. Have they no mother to hover them, no brooder to which they can go to warm up? Little turkeys are far more susceptible to chill than chicks till they are two months old, and must be kept warm. In rainy weather they must be shut in out of the rain, and if the mother hen is careless about covering them she should be shut in a small coop where she will have nothing to distract her attention. Turks that have already been so chilled that they droop may possibly be saved by a thorough warming up and a little cayenne pepper in their food, but it is much safer to keep them from chilling. If the mother hen won't do her duty, and you have no brooder, try a jar or jug of hot water in a covered box from which they cannot escape.

As for the staggering, what is its cause, I wonder? Are the poults getting too little exercise and too much food, so that their bodies have outgrown their legs, or are they dizzy from indigestion? I suspect the former, because turkeys that eat well are never very sick. The sick turkey gets off its feed immediately. Try cutting down the ration and making them forage for most of their food for a little while. If they have been running in the wet it may be they have developed rheumatism, and stagger because their legs are stiff or lame. Keep them warm and dry, and don't feed too much, if you want poults to be healthy.

I AM THE TRACTOR

I serve all mankind. I am fashioned from the mineral wealths of Mother Earth to aid her servants who till the soil. I plow the land; I cultivate the growing crops; I reap and thresh the golden grain. I release mankind from the bitter drudgery of constant toil. I bring the fleeting moments of opportunity within the grasp of him who wills. I make two stalks of grain grow where but one grew before. I labor incessantly. The burning suns of summer tire me not. In the cool winds of autumn I but hurry faster to make the harvest secure. I never strike—what I start I finish. I create play time for the man who feeds the world. I exact payment for my labor only while I work, and I never grow tired. All soils are like one another to me—whether on the small farm or the great ranch I go always on and on. There is no stopping my progress. Doubt and opposition must give way to my demands for universal recognition because I serve and set men free. Mine is the just call of the giant of power. The fields of the world are mine to till—none shall deprive me of this great right. for I AM THE TRACTOR.—Thomas P. Hallock in The Tractor Builder.

MORE ABOUT CORY'S THORNLESS BLACKBERRIES

In your issue of May 14 Subscriber, Los Angeles, is asking information in regard to Cory's Thornless blackberries. This article was answered by someone who failed to sign his name. Whoever it was that answered it has said all that is required. His answer fits my case exactly. We are here for the purpose of helping each other and the columns of the Cultivator are always open for questions and answers. Here is my experience with Thornless blackberries, hoping this subscriber may be benefited by same.

A year ago last February I bought five kinds of blackberries in order to cover an unsightly fence. The fence would accommodate only ten plants at eight feet apart. I therefore bought two Mammoth, two Himalaya, two Cory Thornless, two Phenomenal and two loganberries. The loganberries were so small they eventually died.

A Friend of the Family

I therefore bought from a friend two more Cory's Thornless to replace the loganberries. The Thornless blackberries my friend sent me were thornless all right, but I very soon realized that I had too much for my money. It was Burbank's Thornless I had instead of Cory's. This variety I regard as absolutely worthless. In the winter I rooted it out and got a couple more of Cory's. It was late when I planted them, but they are making nice growth. These plants were strong rooted tips which are regarded as the best stock to plant.

Last summer I mulched and watered my blackberries very freely and was rewarded with a very fine growth. I tied in every shoot that grew, and this year they are loaded with berries that are now beginning to turn color. I do wish it were possible for the Los Angeles subscriber to see my two plants of Cory's. I am satisfied he would no longer hesitate in planting that wonderfully fine berry. If he wishes to gather blackberries, plant Cory's; if he wants growth only, plant Burbanks, and I'll guarantee it will cover the side of his house in one season. With me this season Mammoth is a little earlier than Cory's. They are making wonderfully fine growth, which for experiment I intend to leave the entire length and then train them on the fence in the winter. In a week I shall be gathering Mammoth, while the Himalaya is only just coming into flower. Of course, by planting Himalaya it extends the fruiting season. I have no love for Himalaya, for the man that works amongst them should be fortified with a cast iron suit.—Geo. Walters, Ross.

HOW TO FIGURE COST OF POTATO CROP

Figures from which the potato grower can make a fairly close calculation of his own cost of production are given in a preliminary report on labor and material requirements in potato production, just issued by the United States department of agriculture. These figures, gathered by the office of farm management and farm economics in the summer of 1920, represent results on 461 farms in nine potato growing districts of Minnesota, Wisconsin, Michigan, New York and Maine.

It is shown that labor and material costs, that is, man labor, horse labor, fertilizers and seed constitute about 80 per cent of the total cost of potato production in average practice. The department points out that the farmer knows what his labor and material requirements are in hours, bushels of seed, etc., or can easily determine them, and that by using these with current rates for labor and prices for materials he can readily approximate these costs. Since these costs are, roughly, 80 per cent of the total operating expense it is then but a simple problem to find out the total operating expense, including overhead, taxes, etc. To this must be added the charge for the use of land, to get the total cost.

In calculating these costs per acre for the 1919 crop in Waupaca County, Wisconsin, the basis for man labor was 77.4 hours at 40 cents; horse labor, 77.2 hours at 20 cents; manure, 12.7 tons, $2; seed, 10.6 bushels, $3.75. This was considered to constitute 82.3 per cent of operating expense.

The costs per acre determined from these basic figures were: Man labor, $30.96; horse labor, $15.44; manure, $25.40; seed, $39.75; total, $111.55 (82.3 per cent operating expense); total, 100 per cent operating expense $135.54. To this was added charge for use of land ($9.66), making grand total cost of growing an acre of potatoes in that county $145.20.

In the case cited the man labor rate increased 20 per cent and the cost of seed potatoes 300 per cent over 1919 figures, though the expenditures as measured in hours of labor, bushels of seed and tons of manure were practically the same. The accuracy of the results obtained by the farmer in estimating his costs by the method here described will depend largely upon how closely he is able to judge how his own labor expenditure per acre compares with the average for his locality.

CLEANING MOSS FROM FIG TREES

Commissioner Fred P. Roullard of Fresno County writes in the Associated Grower:

In most any part of the San Joaquin Valley in the winter trees, especially figs, may be seen covered with green moss.

Moss is a plant growth which causes the bark to rot and, when exposed to the sun, curl up and drop off, and when removed in this way the bark is seldom replaced by a new layer. All varieties of trees are more or less susceptible to moss infestation.

An application of lime and water at this time of the year will completely eradicate moss on trees, providing the work is thoroughly done. Be sure that every portion of the tree is covered as only that part of the moss which is hit by the spray will be affected by the solution.

Mix quicklime 10 pounds, water 2 gallons. This gives a stock solution to which enough water must be added to thin it to the consistency of an ordinary spray, or thin enough to pass through a spray nozzle. Filter the stock solution through a fine screen mesh, as a lumpy mixture will be very apt to clog the spray apparatus and cause no little trouble.

Place the lime in a barrel or some other convenient container and pour water over it, then cover the container and let it stand for about an hour. With an insufficient amount of water the lime is "scorched" and not all converted into hydrate; on the other hand, too much water retards the slacking by lowering the heat. "Scorched" lime is generally lumpy and transparent, hence the practice of first slacking the lime before adding the full amount of water desired.

Besides being used as a direct control for moss, in many cases this spray is used to protect the trees from sunburn and frost which results in dead bark on trees. Dead bark encourages the attack of borers and beetles which seek entrance to the wood in any weakened spot.

The above spray can be applied to any tree infested with moss with satisfactory results. Spray all trees when dormant for injury may result if the buds are open and leaves begin to start.

HEAVY LOSSES SUSTAINED IN EXPORTING APPLES

As a step toward correcting faults in the present methods of handling export shipments of American apples and pears and other fruits, specialists of the United States department of agriculture are studying the prevailing transportation conditions. During the last few months one of these specialists accompanied a cargo of apples and pears from New York to London, and inspected other fruit cargoes upon their arrival in London and Southampton.

While foreign markets have generally proved attractive to American apple shippers, much dissatisfaction arises because of the uncertainty of transit conditions and the heavy losses suffered by the fruit. In two important cargoes during the past season this loss was more than 50 per cent, and in the total export movement of nearly 2,000,000 barrels it is estimated that at least 15 per cent of the fruit is a total loss or shows substantial deterioration with consequent loss in value.

Various factors contribute to the loss, and it is planned to inaugurate certain definite experiments at the beginning of the next season, giving attention to more careful culling of injured fruit at the packing house, better containers, prompt loading on the steamships, with special emphasis on proper loading equipment and careful handling, and proper refrigeration or ventilation en route. With careful handling at all stages the fruit should reach the European markets showing no greater damage than in the longer rail shipments in the domestic traffic.

MEALY PLUM APHIS

Field Entomologist Theo. D. Urbahns, recently returned from a survey of prune and plum orchards, says that based upon his inspection and further emphasized by many reports being received, these orchards are rapidly becoming grossly infested with the mealy plum aphis (Hyalopterus arundinis Fabr.).

The first generation of the plant louse which is now generally present can be controlled by spraying with the following: "Blackleaf 40" 1 pint, fish oil soap 4 pounds, water (to make) 100 gallons.

The necessity for timely control measures against the early generations of the pest is due to the fact that when the insect reaches the later stages it is invested with a "mealy or flocculent coating" through which the contact insecticide cannot penetrate or wet, thus rendering futile the only control measure that can be applied.

Well managed hens are making money for their owners when the price of eggs is low. Poorly managed flocks never pay for their keep.

Farm accounts make the farm more account.

WEATHER REPORT

San francisco, Cal., May 28, 1921.

Stations	Rainfall Wk.	Season	Norm.	Temp. Max	Min.
Eureka	.12	47.42	44.75	58	44
Red Bluff	T	27.47	24.48	88	56
Sacramento	.00	16.75	19.89	90	50
San Francisco	.01	23.04	22.04	70	48
San Jose	.00	14.88	16.65	82	48
Fresno	.08	8.13	9.52	94	50
San Luis Obispo	.01	19.21	20.33	76	46
Los Angeles	.12	13.61	15.54	70	51
San Diego	.20	7.01	9.95	64	51

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

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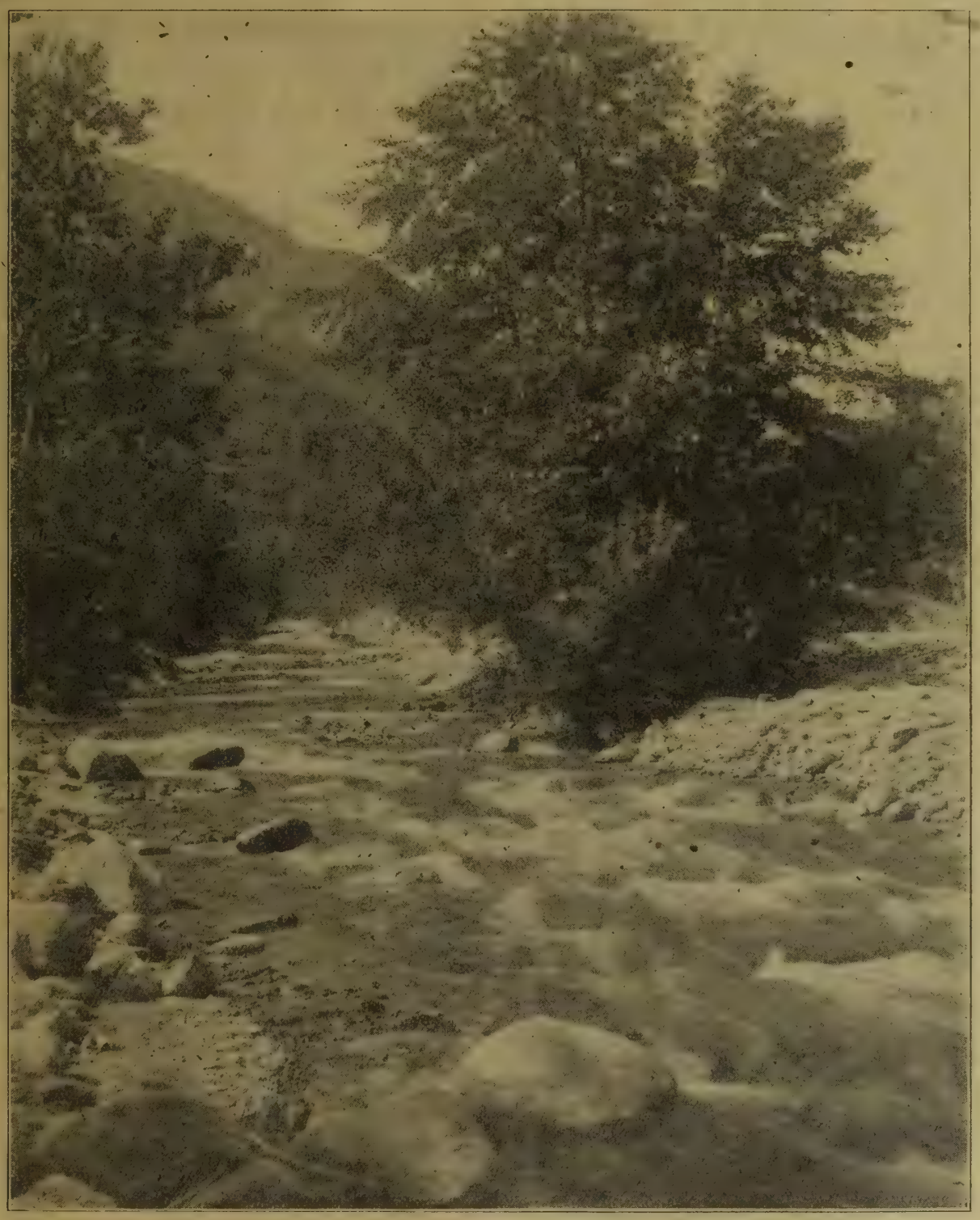

—Photo Courtesy Fontana Land Co.

Lytle Creek Canyon, in the Sierra Madre

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR

With LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

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J. W. Mills — J. B. Neff
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A. R. Gould — E. L. Koethen

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Saturday, June 11, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

"Handsome is that handsome does" applies with double force to the photograph on this week's cover. Over Lytle Creek boulders is flowing the golden wealth to thousands of acres of orange groves of southwestern San Bernardino County. With all this handsome service to humanity it is a wonderfully beautiful scene to look upon. This and thousands of similar scenes are made possible by the forest and underbrush which is protected on the watershed. It is protected and it should be given far greater protection by the carefulness and thoughtfulness of every camper and, in fact, everyone who has occasion to enter or even to pass through California mountains.

* * *

Teamwork has been again proven effective. Isolated interests have gone to Sacramento for many sessions of the legislature and appealed for consideration. As a rule they have gone home at the end of the session carrying expressions of heartiest sympathy from legislators who refused to grant that which was asked, but little of accomplishment. This year it's different. Agriculture has been recognized; it did not get all it asked; it did get sufficient to prove ample justification of the united work secured as a result of initiative taken at the state fruit growers convention held in Chico in 1919. In that convention the producers said; "We will have justice or know why." A committee was appointed which became a strong working force simply because the members dropped personal interests and cooperated. The extended article by Mr. Wilson elsewhere in this issue reviews a small portion of the work done by this committee.

* * *

Regarding the consideration given by the governor to the various bills which were sent to him by the senate and assembly, the horticultural commissioners of California recently in session in Sacramento resolved, "That we express to Governor Wm. D. Stephens our thanks and earnest appreciation for the active interest and support which the agricultural industry of this state has received at the hands of his administration. For the first time in the history of California agriculture has received from the state government the financial support which its importance merits, and which will enable the horticultural officials to properly execute all the measures devised for the protection of California's plant industry."

* * *

A look over one of the great piers at Los Angeles harbor, or more particularly at the six story warehouses where acres and acres of cotton bales are stored, and at vessels which are being loaded for Japan, for England and other sections of the world is convincing that the cotton industry adds materially to California's importance. In these warehouses there are now nearly 32,000 bales of cotton which are being compressed for steamer shipment as rapidly as the monster compress can handle them. The coming year's production will be materially reduced from that of last year. There will be more alfalfa, but California will still produce large quantities of the finest cotton on earth.

* * *

An Easterner, a New York City man, recently "did" California for the first time. He saw cotton, sugar beets, alfalfa, rice, truck farms, vineyards, deciduous orchards, citrus and subtropical fruits, all growing most luxuriantly. At two of the great harbors he saw ships loading with these products for all parts of the world. He stood on hilltops and looked over rich valleys which send by ship and trainload millions upon millions of the finest of products to the markets of the world. He was in packing houses, in factories, in great storehouses by the sea, and he looked back over the country to the other great factories by the Atlantic, and he remarked: "What a wonderful country this is!"

* * *

Many a field with its blackened and sunken haycocks exhibits an economic tragedy. Tens of thousands of tons of hay are ruined, yet with all its lessened value much of it will be baled and marketed, and those who have made careful examination, even analysis, maintain that this hay is vastly better in quality than appears possible. If it cannot be saved as feed, it can, much of it at least, be made into soil builders.

* * *

Today, Saturday, June 11, is Rice Day. Rice is high in nutrition, low in cost; it is delicious in everything from soup to dessert. Our health and our wealth may both be increased by more liberal use of rice.

THE FLAG

On June 14, 1777 congress officially adopted the flag which has now for 144 years floated over this nation. For nearly two score of years we have been observing Flag Day as an event of national importance.

There are various flag salutes. One of these, the silent salute, is observed daily in the military and naval service. The one pledge salute most common in California is:

"I pledge allegiance to my Flag and to the Republic for which it stands:
One Nation, indivisible, with liberty and justice for all."

D. S. PARKER

One of the very first cooperative farm telephone systems in California was that in the vicinity of Pomona, the organization of which some 20 years ago was recently referred to in the California Cultivator. D. S. Parker, one of its founders and manager since the beginning, died at his home in Pomona on May 27. Mr. Parker has been a lifelong cooperator, and under his management the Pomona Telephone and Telegraph Union has become a great success.

WATER TRANSPORTATION

The agitation for cheaper transportation is beginning to secure action. A slight reduction on some products has already been made. President Harding and congress have been reached in a way which makes it appear that a more sizable reduction will yet be made. Representatives of Pacific Coast producers recently met in Seattle and organized the Pacific Coast Producers Association with membership largely from cooperative associations of the coast and representing 57,000,000 boxes of fruit shipped annually. C. S. Whitcomb of California was made president of the association and a committee was appointed to confer with steamship companies and to pledge to those companies 9,000 carloads of apples, oranges, lemons and other fruits if the inter-coastal carriers would install cooled space.

Reduced railroad rates, or no reduced railroad rates, coast shippers will use water transportation as never before.

FARM LOAN

Federal farm loans cannot be made unless federal farm loan bonds are sold. This fact was fully appreciated by certain mortgage institutions when they began action to compel the recall of the federal farm loan bonds. Absolute failure resulted from their effort, but while the matter was in the courts no bonds could be sold, hence no loans were made. The bonds are now on the market in denominations of $100, $500, $1,000 and $5,000. Both principal and income are absolutely tax free. They are sold at par, or often slightly above, and are drawing but five per cent, but when it is considered that that five per cent is absolutely net whereas a public utility bond is often taxable, it is readily seen that the slight difference in interest rate is offset by this exemption. As this money is loaned to farm owners exclusively, appeal is made to farm owners to support it and increase their own wealth by purchase of these bonds. They should look wonderfully attractive to the farmer whose demands for operating capital do not require use of all his funds.

These bonds are as good as gold and have not yet suffered the depreciation which other securities, even other government securities, have. The federal land banks at Berkeley and at Spokane will send fullest information regarding these bonds, or arrangements may be made with the secretary of local farm loan association to secure them.

THANK YOU

The same mail brings to the editorial desk two envelopes. In one there is "Thank You," a pamphlet issued by a coach company in the city of New York. In the other is a circular from the state department of agriculture at Sacramento which is headed "Bruised Meat."

The "Thank You" pamphlet is of 32 pages and is given exclusively to expressions of appreciation on the part of patrons of the coach company because of little courtesies extended by its employes. Some 60 or more patrons have taken a moment from their busy days and written these appreciative words. The company is making a play upon this matter of courtesy and making it one of its principal features of business. It is resulting in money making.

The California department circular, however, shows wherein livestock people through their own employes, or perhaps transportation employes, are losing money because of brutality. It calls attention to bruised and injured carcasses often found in packing houses and in explanation the circular says: "The bruises are caused when the deliberate wielding of heavy clubs, prod poles which often are spike laden, whips, kicks from hob nailed shoes and even pitchfork prongs are brought into play."

There is a large farm on the Pacific Coast which is making money because of its contented cows, and the management of this farm insists that contentment can only be had by cows when they are treated kindly, and to this end they maintain signs in the milking stables: "Do not swear in the presence of these cows." Courtesy with cows pays.

RAILROAD BUNK

The proposal of the railroads to establish a flat rate on fresh vegetables and fruits of $1.75 to points east of Chicago and Mississippi and Missouri River points is stated by leading growers and shippers to lend practically no aid in relief of the present burdensome rates. Instead of the 33 1/3 per cent relief asked for in all zones, or a lifting of that one-third increase effective August 1, 1920, the present proposal reduces rates east of the points given but about ten per cent, while the bulk of our perishable crops like melons, cantaloupes and onions are marketed in Chicago and river points. Therefore the California Vegetable Growers Association and other organizations are sending telegrams to the railroads, interstate commerce commission, California senators and representatives at Washington.

We quote from wire sent by the potato growers of California, assembled this week at Van Nuys in the San Fernando Valley:

"It has been actually demonstrated in the handling of other California vegetable crops that the present railroad rates are prohibitive, the latest instance being the disastrous results attending the marketing of the Coachella Valley onion crop, recently harvested; therefore,

"Be it resolved, that it is the sense of this meeting, representing growers of about 20,000 acres of potatoes in Southern California, that the proposed rate adjustment is wholly ineffective and that the horizontal increase of 33 1/3 per cent should be immediately suspended and the entire matter considered in accordance with the recommendations of the California Vegetable Growers Association."

In other words, the railroads are handing the producers a lot of the usual bunk in the effort to show they are "reducing" freight rates.

California Cultivator

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New Agricultural Legislation

By R. N. Wilson

THE long fight of the deciduous fruit growers for appropriations and for attention by the college of agriculture and experiment station is bearing fruit in a very satisfactory manner.

Seven years ago a delegation made up principally of growers from the Santa Clara Valley, headed by H. C. Dunlap and L. Woodard, made a strong appeal to the university regents for more extensive investigations of deciduous fruit problems. The farmers' committee was met with courtesy but given to understand that little could be hoped for. Two years later the same experience was repeated with similar results. Three years ago a strong effort was made through a committee which was almost statewide in its make-up, to have the regents include $150,000 or $200,000 for deciduous fruit work in their budget which would be submitted to the legislature in the following January.

Some ill feeling was aroused at this time over the fact that the deciduous fruit growers were again given no encouragement, but it was not understood at the time that the state budget board had asked the regents not to increase their budget request over the previous biennium because of post-war conditions. Although the post-war outlook for finances was not the best for the state government, neither was it good for the farmer and with this in mind deciduous growers decided to carry their fight to the legislature. Although $150,000 was originally asked of the legislature this was reduced to $100,000 in committee and after a strenuous fight was passed by the legislature and signed by the governor.

The progress made with this $100,000 has been an inspiration to the fruit men who have known of the results accomplished to date. There has been some question as to whether or not this expenditure of $100,000 each biennium would be continued, but it has

(Continued on Page 786.)

Agricultural Legislation at Washington

By T. C. Atkeson, Washington Representative National Grange

THE emergency tariff bill was signed by President Harding on May 27 and becomes immediately effective. The schedules in this bill remain exactly as announced in the previous National Grange bulletins — wheat 25 cents a bushel, potatoes 25 cents, onions 40 cents, frozen meat 2 cents a pound, unwashed wool 15 cents a pound, butter 6 cents a pound, cheese 23 per cent, apples 30 cents a bushel, and a number of other agricultural items of equal importance. This act is to remain in effect for six months, and it is expected that the general tariff bill will be passed by that time.

The Washington representative of the National Grange has been in favor of this emergency tariff bill and has done what was possible to aid and expedite its passage on the broad and general ground that it was a step in the direction of giving agricultural products the same degree of protection as products of other industries in harmony with the protective tariff system which is the committed policy of the majority party.

Special attention should be again directed to the fact that vegetable oils are in this bill for the first time subjected to a tariff which affords some measure of protection to both American producers of vegetable oils and American swine growers and dairymen, which are subject to their competition. The oil importation business is of comparatively recent development and agricultural interests are only just now becoming informed in a national way of the competition which this involves, which competition is not confined to any industry or section but has adverse interests to practically every line of American agriculture.

General Tariff Bill

The ways and means committee is still working behind closed doors on the general tariff bill. Most of the sub-committees are understood to have completed their reports covering the different schedules, but each of these reports is being considered by the full majority membership of the committee with the implied understanding that whatever the majority members accept is to be made a party measure. One interesting feature is the reported proposal that when the bill finally passes it shall be effective from the date of its introduction. This is a proposition advanced by Congressman Longworth and is receiving serious consideration. How it can be accomplished is another question. The task of getting this bill into shape so that it can command sufficient approval from the multitude of interests affected is a gigantic one, involving not only a change in policy from that which has been in effect for eight years but also the changed economic relationship of the United States to the rest of the world. The National Grange representative has thought it the policy of wisdom to refrain from making any arbitrary demand on the behalf of special agricultural interests, particularly in this formative period of the bill, and to insist only that leaders and members in congress should accept at its full face value the principle adopted by the National Grange, that so long as a protective tariff is the policy of the country, the products of agriculture be given the same protection as the products of other industries. The Grange is prepared to insist upon a full and fair application of this principle and is assured of the support of a very large number of people, both in and out of congress.

Inside the ways and means committee itself there is growing evidence that not only the chairman but a fair proportion of the members, both majority and minority, are committed to this program, not at all because it is politically expedient but because they realize the fact that the business and economic prosperity of the nation rests finally upon a prosperous agriculture.

Careful observers think that the bill will pass the house in about the form in which it is finally reported from the ways and means committee but that there will be ample opportunity for change in details, if not in principles, before it is finally passed by the senate and that harmonious action by those interested in agriculture will secure full justice to this industry.

Sales Tax

Opponents of the sales tax have well nigh won the victory. The hearings were closed on May 27 after a series of attacks on the whole principle, practice and fabric of argument which has been built up for the sales tax. Inside the committee it already appears that Senator Smoot is about the only advocate left who is prepared to fight for the measure. Senator Watson, who was considered as in favor, is now said to believe that it is inexpedient at this time.

Following the statement of Professor Atkeson of the Grange, other farmer organizations, labor organizations, consumer organizations and business organizations as represented by the American Mining Congress, National Automobile Chamber of Commerce, the Retail Grocerymen's Association, and others went on record against a general sales or turnover tax. The case against the tax was summarized and closed by Professor Fairchild of Yale and Professor Seligman of Columbia University, recognized as two of the highest tax authorities in the United States, who completely answered every argument which had been made in favor of the sales tax. Both of these experts also disposed beyond answer of the contention that the excess profits tax was the cause of high prices by showing that on a rising market no excuse was needed and that in a falling market the excess profits tax could not possibly be passed on.

Filled Milk Bill

Congressman Voigt of Wisconsin has introduced a bill of great interest to the dairy industry, designed to prohibit the manufacture and sale of "filled" milk, that is, milk from which the natural cream has been removed and sold and cheap vegetable oil substituted to give the semblance of milk. There is real reason for the passage of a law of this kind at this time as a public health and honest business measure. The bill was referred to the committee on agriculture where it is hoped that hearings will be held at an early date.

Farm Loan Fund

The senate committee on banking and currency has reported favorably the Curtis bill which provides for the appropriation of $50,000,000 from the United States treasury to be used as a revolving fund to increase the efficiency and expedite the service to be rendered to farmers by the federal farm loan system. A strong spirit of friendliness to agriculture in the United States senate is shown by this action of the banking and currency committee and it is likely that this bill will be passed promptly.

Packer Control

As this is written the house of representatives is debating the Haugen packer control bill. The debate was opened by Chairman Haugen of the agriculture committee, who made a very strong speech in support of the measure, which is also being ably supported by Representatives Tincher, McLaughlin of Nebraska and Anderson of Minnesota, as well as other members of the agriculture committee, which is nearly unanimous in support of this measure. The bill will probably pass the house.

Grain Speculation

The Tincher bill for the control of speculative grain marketing seems to have stirred up considerable opposition from the grain exchanges.

Business Conditions in Agriculture

The house committee on agriculture has reported the Lenroot resolution to the senate, providing for a joint congressional commission of five senators and five representatives to investigate business conditions in agriculture. The committee has also reported the senate packer bill after amending it to give the supervising power to a livestock commissioner to be a part of the department of agriculture. It has been suggested that both of these measures should make use of the federal trade commission and Senator Norris has issued an open letter urging that this be done.

Collective Bargaining

The Volstead bill legalizing collective bargaining by cooperative agricultural associations is still held up by the judiciary committee of the senate. Secretary of Agriculture Wallace has been appealed to in support of this measure and has promised to do whatever is within his power to secure the passage of a measure in aid of cooperative marketing by farmers.

Agricultural News Notes of the Pacific Coast

Northern California

Mendocino County fair will be held at Ukiah, August 7-13.

Humboldt's county fair is to be held at Ferndale August 15-21.

The California International Show will be held at San Francisco August 14-21.

Over 1,600 acres have been planted to peaches in Sutter County this spring.

Operation of the farmers cooperative elevator at Oakland started on Thursday, May 26.

The 1921 potato crop, both early and late, in the Stockton section, will total about 38,000 acres.

Chico, Butte County, has bought the U. S. forestry station at that place, to add to Bidwell Park.

A boys' bee club is the latest organization within the Napa County farm bureau. It starts off with 14 members.

According to Horticultural Commissioner Stabler Sutter County last year produced 40,000 tons of canned peaches.

The Napa County farm bureau has four boys' clubs; a popcorn club, a sow and litter club, a pig feeding club and a bee club.

A group of ranchers on the northern slopes of the Sutter Buttes have petitioned for extension of power lines for securing irrigation water.

The state printer at Sacramento has just completed the printing of 405,000 arithmetics for free distribution to the public schools.

Glenn County farm bureau meetings: Board of directors, Willows, June 11; Codora, 13; Capay, 15; Plaza, 17; Grapevine, 22; Larkin, 24.

The Stockton district will harvest about 7100 acres of onions, though now dumping thousands of sacks of the 1920 crop for lack of market.

Recent rains did some damage to raisin and cherry crops in the Newcastle district of Placer County.

Organization of the Northern California Alfalfa Growers Association was perfected at a meeting held in Sacramento the last of May.

The farmers of Plymouth and Shenandoah districts of Amador County will meet at Shenandoah schoolhouse on June 12 to organize a farm center

A packing house manager at Marysville, Yuba County, says the late spring frosts were a benefit, thinning the grapes and fruit crops, yet not enough.

A cooperative warehouse is to be established at Redding, Shasta County, through the efforts of fruit growers and the Redding chamber of commerce.

The California Dahlia Society announces that official trial gardens have been established at the University of California for testing out new seedlings.

The Sutter County farm bureau intends to hold an annual peach growers contest. The first contest held last year aroused widespread interest, 82 orchards being entered.

Shasta County farm bureau meetings: Inwood, June 11; Clear Creek, 13; Latona, 14; Bella Vista, 15; directors at Redding, 18; Cottonwood, 20; Palo Cedro, 22; Hat Creek, 24; Fall River, 25; Mountain, 26; Millville, 28.

Central California

The Big Oak Flat road into Yosemite was officially opened June 2.

Grading has been completed on Coulterville road into the Yosemite.

Exeter, Tulare County, shipped 119 cars of Valencia oranges this season.

Monterey has been presented with a 20-acre tract to be used for a public park.

Hanford canneries and packing houses expect to start on apricots this week.

Fresno County reports a net balance of nearly $25,000 in its highway maintenance fund.

Bakersfield, Kern County, will acquire nine acres, within the city, for park purposes.

The annual Iowa picnic will be held in Mooney Park near Visalia, Tulare County, on June 14.

The apricot crop in the Hanford district of Kings County is now reported at 75 per cent of normal.

More than 30 herds are entered in the Kings County cow testing association; more than 1,000 cows.

Lindsay, Tulare County, is well pleased with its share of prizes taken at the Anaheim Valencia Show.

The first annual meeting of the California Peach and Fig Growers since their union was held June 7 at Fresno.

The California Bean Growers Association is now sending out its new contract to cover handling of crops of 1921 to 1926.

Twenty-nine farm bureau fire departments have been organized in Stanislaus County with the Modesto fire chief in charge.

The farm center at Hughson, Stanislaus County, has found its community auctions to fill a long felt need in exchanging farm machinery.

A serious break occurred in the Tulare Lake & Canal Company's ditch at Stratford, Kings County, causing loss of thousands of dollars.

The Hughson farm center of Stanislaus County sends out notice that Japanese are not wanted in that section and will not be tolerated.

A great orchard of over 300 acres near Planada, Merced County, is being planted to figs, plums and peaches. The land is the former Fancher estate.

F. A. Seymour of the raisin association says that from his knowledge of the present situation he has no doubt that prices for grapes will hold up close to last year's.

As part of the plan for reorganization of the San Joaquin Valley Milk Producers Association there will be an issue of $200,000 in association certificates running for a term of 15 years.

Fresno growers have contributed generous tonnage of dried fruits, beans, rice and other products to the cargo of the Esther Dollar, which sails from San Francisco on June 12 to relieve famine conditions in the near East.

Women of the Grangeville, Hardwick and Paddock centers of the Kings County farm bureau displayed articles made by them on the occasion of the visit of the farm bureau traveling conference to Hanford. One item of the display was 60 dress forms.

Southern California

Carpinteria bean growers are now replanting fields damaged by the rains.

Almond trees in the Banning-Beaumont section show an unusually heavy yield.

Orange County is already planning for a bigger and better Valencia show in 1922.

Anaheim citrus growers are planning to make the Valencia Show an annual event.

Residents of the Irvine ranch held a community picnic at Orange County Park, June 4.

Beaumont has picked and shipped out most of its cherries. The fruit has been of very fine quality.

The Alfalfa Growers of California will soon hold a series of organization meetings in Imperial Valley.

The famous Elwood Ranch at Santa Barbara sold last week for nearly a quarter of a million dollars.

San Fernando Valley alfalfa growers have formed an association which will affiliate with the state organization.

The Blythe chamber of commerce is heading a movement to make the river crossing at Blythe passable in flood time.

The board of directors of the Imperial Valley farm bureau has outlined plans for a county exchange and marketing system.

Ventura's county fair will be held October 5-8. A. L. Hobson is president of the association and L. P. Hathaway is secretary.

The Palo Verde Valley, Riverside County, is experimenting in hemp culture. It is reported that 400 acres is practically assured.

San Bernardino County farm bureau held its annual meeting and farm picnic June 4 on the Chaffey union high school grounds at Ontario.

Rural route number 1 of the Simi post office in Ventura County has been extended nine miles and will afford delivery to 45 additional families.

Citizens of Rialto, San Bernardino County, held a mass meeting last week to devise a community plan of building houses to supply needs of settlers.

Lemon growers are very much encouraged over the improved prices brought by the hot weather in the East and the fixing of the emergency tariff.

The Mojave River Valley Alfalfa Growers Association was organized last week at Victorville, San Bernardino County. It will affiliate with the state association.

The Yuma Water Users Association has demanded that the Imperial irrigation district destroy the weir at Hanlon's Heading to protect Arizona lands from flood water.

The entire pavement through the desert on the west side of the Salton Sea is expected to be finished the middle of the month and will be thrown open to travel the first of July.

A meeting of apricot growers of the Ventura, Los Angeles, Santa Barbara and San Luis Obispo district was held at the packing house of the association at Santa Paula last week to elect two members to the voting board of the California Prune and Apricot Growers Association.

The Coast and General

The Texas onion crop will run from 38,000 to 40,000 carloads.

Yuma, Arizona, is to have a new postoffice building at once.

The Georgia peach crop is estimated in excess of 7,000 carloads.

The new cooperative creamery at Fallon, Nevada, opened on June 1.

In the Walla Walla Valley, Washington, the beet crop covers 800 acres.

Thrips, after a lapse of several years, are doing much damage about Salem, Oregon.

The Toppenish district in the Yakima Valley, Washington, beet crop will be 100,000 tons.

A Yakima, Wash., cannery will this season handle 500 tons of spinach and 450 tons of cucumbers.

The Yuma, Arizona, Commercial Club is exhibiting two cabbage heads weighing 18 pounds each.

Snohomish County, Washington, will send a carload of local canned milk to the starving children of Armenia.

The 1920-21 cotton crop of Lower California will be nearly 100,000 bales, greatly in excess of early estimates.

The 1920-21 payment on the construction charges of the Salt River Project will be extended for one year.

The 4,000 standard refrigerator cars ordered by the Pacific Fruit Express Company early in 1920 have been completed.

The Oregon Jersey Cattle Club staged its Jersey Jubilee in Tillamook County, June 2-4, making a three day auto tour.

It is reported that a larger acreage of potatoes than ever before is being planted on the Yakima reservation, Washington.

Consul Yost, of Guaymas, Mexico, reports late frosts diminished the expected crop of garbanzos, or chick peas, by 30 per cent.

Apple growers of the Yakima Valley of Washington report 500 carloads of the 1920 crop of apples still in storage in the valley.

Last year the Olalla Berry Growers Association of western Washington marketed 40,000 crates; this season the estimate is for 60,000.

Up to May the Oregon Growers Cooperative Association had sold 8,296,007 pounds of prunes, one fourth to New York, one million pounds to England.

Four hundred and thirty-one carloads of shelled corn were contributed to hungry Europe by the farmers of the United States during the past three months.

The new community building in the Franklin County irrigation district of Washington was built by donated labor and the grounds will be improved and beautified in the same way.

At the recent annual meeting of the Washington Hay Growers Association at Toppenish, attended also by representatives of the Oregon Alfalfa Association, it was decided to establish one central selling association for the two states.

Representatives from railways of the United States and Canada and from nurseries of the Western states have been in attendance at the third convention of the Western Plant Quarantine Board held during the past week at Victoria, B. C.

The Farm Bureau Egg Laying Contest

By Jean A. Koethen

THE California Farm Bureau Egg Laying Contest closed the first half of its third year, April 30, covering a period of exactly 181 days. During this time the high hen, owned by Hollywood Farm, Washington, laid 146 eggs, and the leading pen, owned by J. H. Hanson of Corvallis, Oregon, an average of 125.7 eggs per hen.

When the contest was inaugurated in the fall of 1918 it was a private enterprise, participated in by a few Santa Cruz poultrymen who believed such a contest would stir up more general interest and greater effort for flock improvement in their own community. So great was the interest taken that by the end of the year plans had been formulated by the Santa Cruz County farm bureau and the poultry division of the University of California for a contest which should include poultrymen of the whole state. In this contest, which began November 15, 1919, and closed November 15, 1920, there were 54 entries of ten birds each, and the name, which had originally been "Santa Cruz Contest," was changed to "California Farm Bureau Contest." The final count for the whole flock that fall showed a yearly production of 48 per cent, or an average per bird of 175.5 eggs. Thirty-three per cent of the birds went over the 200 egg mark, while only nine per cent fell below 100 eggs. The ten highest hens produced an average of 260 eggs each.

Housing the Contest

Before this first year of the California contest ended it was evident that such a competition was abundantly worth while. Men whose pens made records began to receive inquiries about stock and eggs. Men who had not entered pens began to wake up to the importance of certified records. This contest, it was easy to see, would be a permanent one, and the next question was that of adequate housing. Business men of Santa Cruz began to realize what the contest meant to them, and with their assistance a permanent testing plant was erected in the summer of 1920 at an expense of $12,000.

The contest building is a full monitor type house 26 feet wide and 332 feet long with a six foot alley through the center. The indoor pens have an area of 160 square feet and the outside runs contain 720 square feet. Three entries (36 hens) are kept in each pen.

Entry Rules

There is an entrance fee of $2 per bird, and each entry consists of 12 birds, only 10 of which are counted as contestants, the other two being put in for use in emergency. Entries may be made between October 15 and November 1, and each pen must be entered for a year. The entrance fee is payable, $10 when the entry is accepted and the remainder any time before the fowls are sent to the contest grounds. The management reserves the right to refuse any entry in which the birds show signs of disease or evidence of cross breeding and does not hold itself responsible for loss by fire, disease, vices or unavoidable accidents, though every possible precaution is taken to prevent such loss.

All birds are fed, housed and handled alike under expert supervision, and all birds are trapnested. All eggs produced are the property of the contest, and all revenue derived from their sale is used toward the expenses of the contest. The entrance fee and proceeds from production are supposed to meet the operating expenses, but the low price of eggs this year has brought receipts down to $200 less than expenses.

California Farm Bureau Egg Laying Contest Headquarters at Santa Cruz

Contest Ration

Dry mash is fed in self feeding hoppers; fresh water is supplied by automatic drips; all grain is fed in straw in the pens. The scratch mixture consists of equal parts by weight of wheat, cracked corn, milo and whole barley. The mash is composed of 240 pounds bran, 180 pounds ground oats, 180 pounds middlings, 80 pounds soy bean meal, 60 pounds high grade beef scrap, 60 pounds fish meal, 30 pounds charcoal and 4 pounds salt.

When they leave the roost in the morning the hens find grain in the litter which has been put there the night before. Dry mash is before them constantly and chopped green feed in hoppers. During the winter barley is the green feed, and during the summer kale and red clover are used. At noon a small amount of the dry mash is fed moistened in troughs. About two o'clock oats sprouted till they are one-fourth inch long are fed. An hour before dusk grain is fed in the litter. Including the dry weight of the sprouted oats, from 10 to 12 pounds of grain is fed per day to 100 hens.

Electric lights are used in winter. They are turned on by a time clock in the early morning, at four o'clock when the days are shortest and a little later before and after this period.

All the work of caring for the birds is done by one attendant who is relieved one day in the week. Some extra help is hired for special cleaning, but the regular attendant is able to do nearly all that is required, trapnesting, keeping records, and doing whatever is essential to health and production.

Value to Entrants

"What do those who enter birds get out of such a contest?" is a question that is asked not infrequently. First of all, there is the advertising value which for a breeder who sells stock and eggs is enormous. Farmers and poultry people everywhere are looking for stock with a record back of it and are willing to pay for it. In my visits to ranches I have found several poultrymen who were sending to the Oregon agricultural college for their foundation stock and paying from $2 to $3 an egg for settings. Why? Just because they believe that the Oregon people are a little ahead of California when it comes to breeding for eggs. This is not a pleasant truth to Californians. Perhaps it is not a truth, but only a belief. Anyhow, it shows what progressive poultrymen are willing to pay for stock they believe in.

But such stock must be vouched for by a competent authority. It is not enough for the individual breeder to say, "This hen laid 250 eggs in her pullet year," or even to show his private record as proof. The record must be kept by a disinterested party, and this is what the California farm bureau is. Men whose hens make a record in such a contest as this have proof no one can question and are sure to have a big demand for stock and eggs at very profitable prices.

In addition to advertising value, cash prizes and cups are given, so the entrant need fear loss only in case his hens are such poor producers that they win neither prizes nor honorable mention. If our hens are not profitable the sooner we find it out the better, and no poultryman need fear the stern testing of the California contest.

The 1921-22 contest will begin on the first of October, and entrants are expected from all over the United States as well as from across the water.

Traveling Farm Bureau Conference

By Robert W. Hodgson

SINCE 1917 it has been customary in connection with the annual conference of farm advisers for the agricultural extension service to stage a traveling conference of farm bureau representatives and extension workers, three delegates from each county farm bureau attending as the guests of the agricultural extension service staff assigned to that county. The purpose of this traveling conference is primarily that of studying extension activities in agriculture as conducted by the college of agriculture and United States department of agriculture cooperatively through the medium of the various county farm bureaus. Incidental to these conferences much else is seen—the agriculture of the part of the state visited, the rural development to be found there and many other matters of agricultural interest. But the object of the traveling conference remains essentially that of studying the most successful methods for the improvement of agriculture and country life.

This year a departure was made in that instead of immediately following the conference of farm advisers held in March the traveling conference was not staged until spring activities were well under way, the dates being May 23 to 28 inclusive, the purpose of such postponement being to permit of the trip being held at the best time for studying the results of field tests and demonstrations. This year's conference itinerary covered the San Joaquin Valley, it being just four years since the last conference trip through this part of the state. During this period the farm adviser-farm bureau movement has made a notable growth throughout the state, the ten counties represented in 1918 now having grown to 40, with farm advisers at work in 37.

Starting from Berkeley Monday morning, May 23, at 8:30, the procession of 43 automobiles, carrying some 160 persons, traveled during the week some 600 miles and studied agricultural extension work and farm bureau activities in nine counties, ending the conference with a banquet held in the Hotel Southern at Bakersfield, Saturday night, May 28. Guests of honor accompanying the party during all or part of the trip included President David P. Barrows of the University of California, Acting Dean Walter Mulford, director of the experiment station, C. M. Haring, W. H. Walker, president of the California Farm Bureau Federation, with Secretary W. H. Heileman and R. N. Wilson, secretary of the agricultural legislative committee.

Listed by subjects the demonstrations and farm bureau projects emphasized during the week included soils, fertilizers and cover crops, field crops, irrigation and drainage, deciduous fruits, citriculture, pest control, viticulture, animal husbandry including dairying and poultry raising, marketing and purchasing, home improvement, community improvement, schools and education, agriculture clubs, farm management and agricultural economics, and farm bureau organization and program of work.

Of particular interest were certain test and demonstration plots and certain features of farm bureau and agricultural extension work which will be briefly reviewed here. It was evident that the fertilization of alfalfa is now a subject of interest to farmers, a number of test plots on this subject being visited. Some rather striking results were reported showing that su-

(Continued on Page 772.)

Fresh Grapes From France

By R. L. Nougaret

FROM time to time during the past two months the state department of agriculture has been receiving news items to the effect that agents from Europe, France being most frequently mentioned, were looking up the market situation in the East with a view of shipping fresh grapes across the Atlantic and taking advantage of the high prices that California grapes, especially those of the wine grape varieties, have been bringing during the past two years.

With foreign exchange as it exists at the present time in favor of the United States as against most of the European countries, especially those of the allies, the foreign grape industries might derive great advantage in shipping their products and competing with California grapes since handsome profits could be realized even when selling at a lower price than that for which California grapes can be landed in the East at only a fair profit. Such a condition would create very serious competition. But from an authoritative source information has just been received that casts much doubt upon the probability of such a foreign competition, at least for this year.

France has experienced a general damage to her vineyards by severe frosts, fully as severe as that sustained by California vineyards from the same cause. During the month of April on the dates of 16-17, 17-18 and 19-20, the two last dates being the most severe, the vineyards in different localities of France, according to reliable reports of the French viticultural periodicals, "Progres Agricole and Viticole" and "Revue de Viticulture," were affected as follows:

"A heavy frost has damaged almost all the vineyards of France, causing in some instances extremely important damages and again almost nil in other localities according as to how vineyards are situated and conditions of advanced vegetation. Vineyards of the eastern portion of France seem to have suffered most. General and important damage sustained by the vineyards of the Champagne district, severe damage to those of Burgundy and the Department of Soane-et-Loire. Nothing remains of a very advanced and promising vegetation; all the swollen buds have been frosted in the district of Chalons, causing a loss of a part of the crop. In the Department of the Ain, in the Savoy and the Bejolais districts, in several communes (subdivisions of departments) the vineyards of higher altitudes have been affected.

"The vineyards of the Departments of Ardeche and Gard have sustained quite a loss in the valleys and even others in higher situations have been affected; some vineyards have been completely frosted back. The northern portion of the Department of l'Herault has suffered in a like manner as the Department of the Gard, the Department of Aude has suffered but very slightly, while the vineyards of the Tarne-et-Gorone have suffered important damages. Throughout all the southwest considerable damage due to frost has been reported, the Gironde district has been hit hard in places and that of the Charantes has been likewise affected. Sections of the latter have been seriously hurt. The vineyards of the Department of Loir-et-Cher and of the Indre have been very seriously affected."

From this, even if the reports are somewhat exaggerated, as often happens, it can be concluded that the grape crop of France will be very materially reduced. Prices of grapes will be maintained at a higher figure and there will be but little or no inducement for seeking new markets on the Atlantic coast. "Later reports resulting from more accurate and detailed observations confirm the earlier ones, and if anything the damage due to frost is more severe than at first realized. In portions of the central northern parts of France the cold has been so severe that it is feared some of the vines in the most affected locations may have been killed. Of all the damaging frost years experienced by the vineyards of the Champagne districts of France recorded as far back as 1840, that of 1873 is the only one which is believed to equal that of 1921. This points out what may be expected as a grape crop this year in France. Other grape producing countries of southern Europe are most likely to be similarly affected, more or less, but as to this precise data are still lacking."

Further information has been received telegraphically through the U. S. bureau of markets to the effect that the grape crops of Spain and Jugo-Slavia have been more or less damaged by frost. A report also states that the vineyards of southern Europe have suffered in various degrees of intensity from a cold wave covering a period of several consecutive days, from April 16 to 21, inclusive. Although no specific report has been received relative to Italy, it is probable that the vineyards of that country are included in the general report and have suffered some losses from the same cause.

These reports in the aggregate should dispel, at least for this year, any anxiety that the grape industry of the state may have entertained concerning the possible foreign competition of fresh grapes from Europe. They should also help maintain a firm market and sustained high prices for the raisin trade.

Wines for non-beverage purposes, which at the present time are stocking the wineries to almost their full capacity, should find more ready sales by foreign importations from Europe being restricted because of a reduceed supply.

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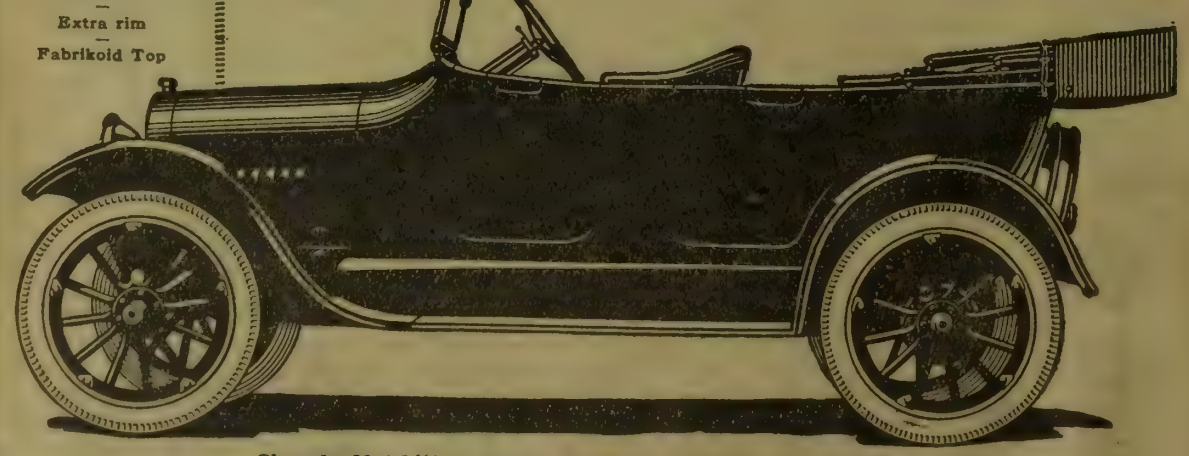

Chevrolet Model "Four-Ninety" Touring Car, $645 f. o. b. Flint, Mich. Canadian Price, $895 f. o. b. Oshawa, Ont.

GAS TIGHT TENTS

The Riverside citrus experiment station has been testing out gas tight tents in the field for a year and a half, and the results of this work indicate that fully 50 per cent of the cyanide may be saved by their use. The average cost of cyanide per tree with the tents in use at present is about 20 cents. This amount may be cut in half with gas tight tents. If a tent covers 800 trees in a season the saving in cost of cyanide will be $80 a season for each tent in use.

INSPECTING ALFALFA WEEVIL

County horticultural commissioners representing many alfalfa producing counties of California, together with officials of the state department of agriculture, left Sacramento June 3 for Reno, Nevada, to conduct a survey of the area infested by the alfalfa weevil, that according to recent reports now involves over 1,000 acres and has thus become a distinct menace to the alfalfa industry of California, owing to the facility with which it could be introduced in shipping from the infested region.

W. H. Fleet, manager Rancho Seepe, Ventura County, in a talk before the citrus institute at San Bernardino, 1921 meet, said: "One animal consumes on an average about 38 pounds of food per day, in round numbers seven tons yer year. Making an allowance of 30 per cent for waste, leaves five tons per animal a year. Figuring the value of this at $5 per ton delivered equals $25. Assuming an animal works 250 days a year, the value of fertilizer for one day is ten cents per animal."

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The only form of porous rubber suitable for this purpose is Willard Threaded Rubber. It lasts the life of the plates and reinsulation is therefore unnecessary, saving you time and money. Knowing this the builders of 173 makes of cars and trucks use only Threaded Rubber Batteries as original equipment. Can you do better, when you need a battery, than to follow their judgment and insist on Threaded Rubber?

You can buy the Willard Threaded Rubber Battery of any of the dealers in your territory listed below. They all give authorized Willard Service:

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Bakersfield, Auto El. & Batt. Co.
Berkeley.Auto Elect. Serv. Co.
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Concord..Ward's Hardw. Store
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Corona.....Walter Yance
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Glendale.....E. W. Cizek Co.
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Paso Robles, Hibbard, McBee & Hibbard
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Red Bluffs, Tehama Co. Batt Co.
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Redding..Mt. Shasta Batt. Co.
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Richmond, Pioneer Batt. Co.
Riverside, Mission Auto El. Co.
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San Mateo..Davis & Goodhue
San Jose..Electric Batt. Sta.
San Pedro, Ross Sto. Batt. Serv.
San Rafael.....Sparrow Bros.
Sanger.....Sanger Batt. Wks.
Santa Ana, Orange Co. Ign. Wks.
Santa Barbara, Santa Barbara Batt. Co.
Santa Cruz, Santa Cruz Batt. Co.
Santa Monica, G. C. Hammond
Santa Maria...Lukeman Bros.
Santa Paula..Fred A. Ransdell
Santa Rosa..The Battery Shop
Sausalito, Linderman's Serv. Sta.
Selma..Selma Batt. & Tire Co.
Sonora, Gibbs Sto. Batt. & Ign. Wks.
Stockton, Stockton Auto Ign. Co.
Stratford, Stratford Batt. Sta.
Suisun, Solano Supp. & Con. Co.
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Tulare.....Hopkins Elec. Co.
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Phoenix.....El. Equip. Co. of Arizona
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Willard THREADED RUBBER BATTERY

FARM BUREAU CONFERENCE

(Continued from Page 769.)

perphosphate and lime and sulphur have given the best results, in certain instances doubling the yield.

Mariout barley demonstrations were seen in a number of counties, the marked drouth resistance of this variety having been conclusively demonstrated, although shortness of stalk has in some instances prevented satisfactory harvesting.

The long system pruning for deciduous fruits came in for its share of attention, a number of demonstrations being studied. The universal statement was favorable both as to increase in yield and resistance to frost and other adverse conditions.

The work of the division of viticulture in shaping the cultural practice in the handling of vines was apparent in the large number of vine trellising and pruning and management demonstrations inspected, also in the number of cooperative demonstration vineyards seen.

Special interest was manifest in agriculture club work, particularly with livestock. The splendid showing made by the Stanislaus County calf club with its pure bred Holstein calves and the excellent work of the Kern County high school agriculture club with Poland China hogs did much to demonstrate what agriculture club work may be made.

Other demonstrations of outstanding interest were those on poultry culling where the year's summary shows most excellent results and the unanimous experience as to the benefits from home demonstration work.

Among the outstanding impressions of the trip as seen by the writer were the rapid expansion of the grape industry, together with the adoption of better cultural methods, the rapid development in the fig industry, the seriousness of the alkali problem, the rapidly expanding acreage coming in under irrigation districts, and the great development occurring along the lines of cooperative effort in community improvement as well as in the marketing of farm produce. Of particular interest to Southern California delegates was the function of the local farm center as a vehicle for the expression of community activity.

Points of special interest visited or seen in the course of the trip included the terminal elevator, controlled by the California Farm Bureau Elevator Corporation, on the Oakland water front, the Delhi Land Settlement Colony, the 12,000 acre Forkner fig gardens near Fresno, the famous 5,500 acre Kearney vineyard farm owned by the University of California, and the 2,500 acre Hoover Ranch near Wasco, Kern County.

There was much of good fellowship and acquaintance developed during the six days the party spent in the trip, changing cars and experiences with every stop. It is perhaps not too much to say that the acquaintance occasioned by previous conferences of this sort did more to bring the California Farm Bureau Federation into existence than any other one thing. And these conferences will likely do as much to continue to build up a working relationship between the different parts of the state as anything else. It is indeed difficult to estimate the value of such conferences. Certain it is, however, that they mean much for the future of California agriculture.

Needless to say, true California hospitality was extended to the party at every stop made, the best possible testimony to the high regard in which the farm adviser-farm bureau movement is held in the great farming districts of the state. And last, but not least, it was clearly apparent that every farm bureau delegate and extension worker returned to his county with a greater appreciation of those things near at home than ever before.

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92 Branch Houses in the United States

WHITTEN ON SOUR SAP

During May Dr. J. C. Whitten made observations in several northern counties where "sour sap" has been working havoc in deciduous orchards. Investigation is still under way and definite conclusions have not been reached but Dr. Whitten makes the following recommendations:

Plant trees no deeper than they stood in the nursery. Most fruit trees are planted too deep.

Sour sap seems to be associated with hardpan or periods of surplus water in the soil. Good drainage should be emphasized. A furrow may be opened, in early winter, on either side of the tree row, to carry off surplus winter rains and prevent the soil from remaining saturated for prolonged winter periods. Numerous instances have been observed where open irrigation ditches have drained adjacent tree rows during winter. Trees in the drained soil have escaped sour sap, while those in soil saturated with winter water, farther from the ditch, have suffered badly.

If there is a thin layer of impervious hardpan with drainable sub-soil below, the hardpan may be shattered with dynamite or a subsoiler to afford drainage. If hardpan is continuous it is not wise to blast openings in it that will form water tight "pot holes" below.

Trees that made steady growth during the past summer, ceased length growth moderately early and ripened their wood thoroughly for winter, show less sour sap. On the other hand, trees that show intermittent growth, especially late autumn growth, and failed to ripen their wood for winter show more sour sap. It is advisable to plan tillage and irrigation so steady summer growth will be maintained to midseason when the growth should slow down and the wood ripen for winter.

Spray for red spider or leaf insects and diseases so the trees will carry healthy leaves until normal times for leaf shedding. Leaf injury or partial leaf shedding in summer is liable to be followed by a late autumn growth just when the trees should be ripening.

Whitewash the trunks of trees in December to reflect heat from the growing layer on sunny days. The coloring matter in the bark of exposed tree trunks absorbs heat enough to raise the temperature of the growing layer 35 degrees Fahrenheit above atmospheric temperature. As soon as the sun goes down the tree cools rapidly to atmospheric temperature which may be freezing or below at night. Whitewash reflects the heat, keeping the growing layer a little below air temperature during the day.

LABORATORY OF FRUIT AND VEGETABLE CHEMISTRY

E. M. Chace, chemist in charge of the citrus by-products laboratory of the United States department of agriculture, located on Anderson Street, Los Angeles, writes as to increase in scope and change in name as follows:

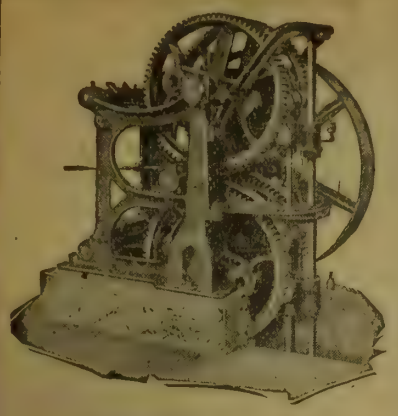
"Owing to the increased scope of the activities of the citrus by-products laboratory, the secretary of agriculture has authorized a change in the title, and it will hereafter be called the 'Laboratory of Fruit and Vegetable Chemistry.'

"When it was established in 1913, the greater part of the work was connected with the citrus by-products investigation. Since that time, other investigations pertaining to the maturity of fruits, the inheritance of composition in citrus fruits and the curing of lemons have been undertaken. Under the circumstances it seemed that the old title was inadequate and the present change to be desired."

GARDEN SLUGS

Garden slugs are serious and destructive pests on the Pacific Coast. They are voracious, reproduce often and in large numbers, and feed upon nearly every variety of plant life. Control practices usually adopted against insect and other animal pests are of little use in repressing garden slugs.

Extensive experiments conducted by Lovett and Black, of Corvallis, Oregon point to the efficiency of the following poison bait: Calcium arsenate, 1 part



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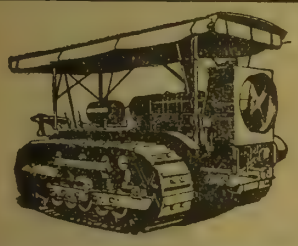

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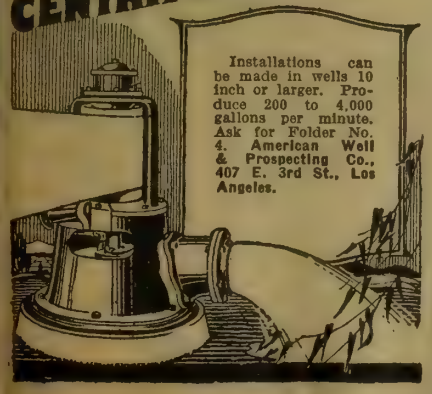
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(by weight) to 16 parts of chopped lettuce. If lettuce is not available use cabbage, kale or clover. The poisoned bait should be scattered in small heaps at frequent intervals over the slug infested area. Spraying foliage with liquid Bordeaux mixture or dusting with commercial dry Bordeaux mixture also has met with success.

VALUE OF LONG PRUNING

Dr. J. C. Whitten wrote an atricle in the Monthly Weather Review, published at Washington, D. C., from which we glean the following touching upon the influence of pruning on the resistance of fruit trees to cold:

"The general condition of a plant at a given time, the degree of maturity or quiescence, the quickness of growth, have all a more or less marked influence on the plant's resistance to unfavorable surroundings. Investigations made at the Missouri agricultural station have shown that sap concentration is least (minimum sugar content) during the periods of rapid growth in spring and at the beginning of summer. The suspension or slowing of growth brings about an ever increasing concentration of sap, with a rise in reserve stores.

"The earlier that growth stops in autumn, the greater will the concentration of sap be and the greater will the quantity of reserve material be. On the other hand, as the degree of concentration increases, the freezing point becomes lower and thus the plant is able to stand lower temperatures than would be the case if the juices were weaker. For example, in a peach orchard, vigorous growth of branches continued up to the first autumn frosts. The following spring the blooms were killed in a single night by a fall of temperature to 2.7 degrees C. In another orchard in the same district growth stopped much earlier, with the leaves kept healthy and active until the first frosts. The following spring the flowering buds were very resistant to frost.

"With the old pruning methods, trees underwent every winter a very severe pruning which brought about a vigorous growth of shoots at the ends of the pruned branches. These shoots continued lengthening and producing leaves all summer, thus preventing the concentration of sap and the storage of reserve material. With the new pruning system, on the other hand, the main branches are untouched; they are only cleared every year by the removal of useless side branches, so that growth stops early. These branches and their leaves, of slow growth, have compact tissues, evaporate and transpire very little and thus keep their sap concentrated. In addition, the leaves do not remove moisture from the fruit during dry seasons. By this pruning system not only is resistance to low temperatures obtained, but also resistance to drought."

JAPANESE STRAWBERRY VENDERS IN TOILS

The state department of agriculture reports: "Eight Japanese strawberry growers from various parts of the state are in the Oakland city jail charged with violating the standard packing laws of the state. D. P. T. McDonald, deputy horticultural commissioner of Alameda County, swore to the warrants before Judge Mortimer Smith.

"The Japanese were traced through boxes of strawberries placed on the Oakland wholesale markets. These boxes, it is alleged, were packed with a top row of fine ripe berries while the bottom rows were composed of overripe and diseased berries.

"Repeated warnings have been sent to the growers, declared Fred Seulberger, county horticultural commissioner, and every effort has been made to compel the growers to comply with the laws before the warrants were issued. Several hundred chests of strawberries were seized by the arresting officer shortly after the warrants were served.

"Commissioner Seulberger requested that the bail in each case be set at $1,000. In making this request he said every effort will be put forth to rid Alameda County of this type of berry packing and he will appeal to the courts to impose a heavy fine."

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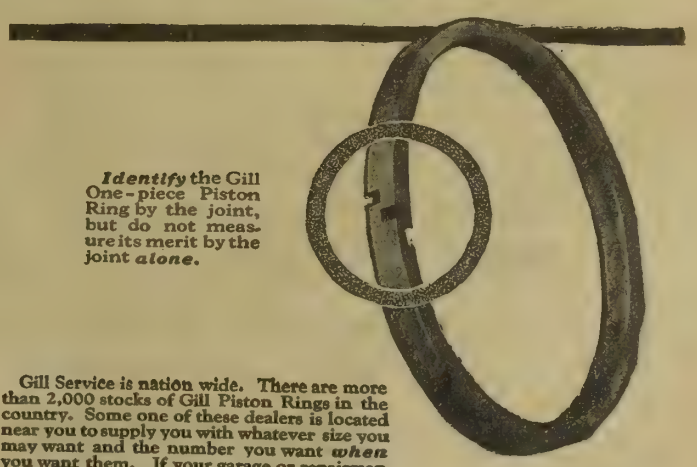

Identify the Gill One-piece Piston Ring by the joint, but do not measure its merit by the joint *alone.*

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Electric Power and the Raisin Industry

By Wylie M. Giffen, President, California Associated Raisin Growers

IN this great West of ours electricity is playing a part so important that he who does not recognize it as the backbone of all industrial expansion must be short sighted indeed. But to develop these resources of ours we must have power, and of power there is an inexhaustible supply awaiting our command in our mountain ranges. Coal mines may yield their last ton to greedy furnaces, forests may bow to the axe and the wood supply vanish like the mist, but nature will continue on to the end of time piling the eternal snows on the mountain sides, sending the streams that mean power down through the canyons, ready for their harnessing at our hands.

Electricity has played an important part in the development of the raisin industry. It is beyond question destined to play a far greater part in the industry's future. Looking over the fertile acres surrounding Fresno where the jack rabbit, the horned toad and the ground owl lived precariously only a few years ago, I marvel at the wonders wrought by irrigation and I am impressed with the amount of water pumped out of the very ground itself by electricity. And when I visualize the possibilities of the West that depend upon and must result from hydro-electric development, when I survey what electricity has done in promoting efficiency, economy and cleanliness in the manufacturing of our own product, I cannot but say that as develops the hydro-electric industry in the West so develops the West itself.

Sitting in my office here in Fresno, I see in my mind's eye a map of the West beyond the Rockies. I see its mineral wealth, its timber, its fisheries, its agricultural products, its citrus fruits, its acres of apple orchards, and here, stretching out beyond Fresno as far as the eye can reach, its acres upon acres of fertile raisin land. Throughout the West I see here and there factories springing up, either as assembly plants, fostered by Eastern enterprises, as branch factories, or as new plants to meet local needs for construction material, specialized mining machinery, and so on. I see the possibility of coordinating a great section of our country so that it will have an industrial program as a whole, and I see electricity playing a master part in this because it can furnish energy for light and heat and motive power.

Electricity is a civilizing influence in the world. The whole fabric of industry here in the West through this giant motive power can be moved forward. The California Associated Raisin Company has proven to its complete satisfaction that electricity makes possible a lower cost and cleaner product. Electricity has proven essential to irrigation of much of our valley land whereon are produced the grapes from which our raisins are made. Furthermore, in the raisin packing factories there is a tendency to take over more and more the processes from hand operation to the operation of the method electrical, and it is our hope eventually to have the fruit go through "untouched by human hands."

I will cite one or two instances of how electricity has helped us. By the installation of electrical driers a saving in time of from four to five hours has been accomplished and the services of from ten to 15 men saved in one of our factories in Fresno. With the taking over of the packing house and its complete electrification, the services of more than 100 girls have been dispensed with. By means of belt conveyors and elevators electrically operated the fruit is taken to upper stories and transferred to other buildings, and a so-called "elephant truck," which swings constantly from side to side of an elongated hopper, ingeniously secures the even distribution of the raisins on the conveyor. From here they are seeded and packed. There is always danger of nails or other iron refuse being included among the fruit, which would endanger the machinery of the seeder as well as prove objectionable if not caught, and a system of magnetic pulleys has been devised by which practically all metal is extracted as the raisins pass between the two buildings.

I could go on indefinitely describing to you the economic processes open to the method electrical in the operation of the raisin packing plants, but I think I have said enough to show why it is that in 1920 Fresno County alone produced 122,500 tons of raisins for which some $36,750,000 will be received by the growers when final payment is made, and why it is that this association has a membership of 12,000 growers and handles more than 92 per cent of the raisins grown in America.

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TRADE MARK REG.
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Now $695

THE price radically reduced is $150 *less* than this car ever sold for before; *Quality* is higher than ever! *Rugged* as ever! *Economical* as ever! *Comfortable* as ever! Its gasoline averages 25 miles per gallon. The unquestioned leader among *Low Priced* cars to own and use!

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Touring, $695; was $895 Coupe, $1000; was $1425
Roadster, $695; was $895 Sedan, $1275; was $1475

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TOLEDO, OHIO

PERMANENT "BRACES" FOR TREES

Deciduous fruit growers might be interested in the method which the undersigned has hit upon for supporting branches heavy with fruit.

A single No. 16 gauge galvanized wire circles the tree at or a little below the level of its widest spread. Staples are driven into the several limbs on the side toward center of tree, the wire is passed through the staples and ends twisted together. Each limb so stapled helps to support all the other limbs. Low limbs below the wire belt requiring support may be tied up directly overhead to the wire. The plan works out fine in actual practice, the more symmetrical the tree the better it works. The center of the tree is thus left free of obstructions when standing in the crotch or head of the tree to pick fruit or prune.

The wire when once installed remains indefinitely and the annual expense of propping is saved, except in occasional cases where the unsymmetrical form of the tree requires the use of a few props. It is well, before wiring the tree, to prop the limbs temporarily in the desired position to facilitate the work.—F. L. Douglas, Covina.

SHORTAGE OF FRUITS PREDICTED

The state agents of the bureau of crop estimates, United States department of agriculture, report that there will be a short fruit crop this year. The shortage will be fairly general east of the Rocky Mountains, except in portions of Michigan, New York and New England. The reports refer particularly to stone fruits, such as cherries, plums and peaches, but also indicate that there will be a material shortage of apples and grapes, though not as extensive as the shortage of stone fruits. It is too early, the statisticians say, to make an estimate of the probable yield of blackberries and raspberries. With the shortage of stone fruits it is expected that the fruit supply for domestic canning purposes will be limited in many sections. While considerable frost damage has occurred in some parts of California, the general outlook for deciduous fruits on the Pacific slope is still regarded as good.

SHIPPING POINT INSPECTION

From a survey of the experiences of the new shipping point inspection service of the state department of agriculture and recapitulating the favorable attitude of producers, shippers, transportation companies, and consumers, it may be safely stated that the service is welcomed by all and that it will become a powerful factor from many angles in stimulating the production and marketing of wholesome fruits, vegetables, nuts and other products of farm and orchard. In addition, it will unconsciously serve to raise the standard, in individual cases of certain recorded orchard and farm brands and trade-marks.

CARGOES OF CITRUS FRUIT

Carrying a total cargo of approximately 60 cars of citrus fruits, making it the largest shipment for any similar period, three steamers sailed from the port of Los Angeles during the week ending May 14 bound for Eastern and European markets.

Twenty cars of Valencia oranges were shipped by the California Fruit Growers Exchange via the Panama Canal on board the S. S. Moerdyk, a refrigerated steamer of the Holland-American Company, May 13. Six thousand boxes of this cargo are destined for London and 2,000 boxes of the oranges are scheduled for Rotterdam. This is the first direct all water shipment of oranges ever sent to Rotterdam. Bound for New York, the S. S. West Isleta left Los Angeles harbor on May 11 carrying a shipment of 12 cars of Valencias and 21 cars of lemons. This shipment is proceeding under ventilation. That the New York trade is enthusiastic over the success of the all water shipments through the Panama Canal is evidenced by the ready sale with which previous shipments of citrus fruits have met upon their arrival at this port.

"A new ray of hope has entered into the romantic task of feeding New York's hungry millions," is the way

one of New York's large daily newspapers comments upon the experiments of the California citrus shippers.

According to the latest reports from New York, there were sold in this market during the month of April 21,550 boxes of California lemons shipped via the all water route by the California Fruit Growers Exchange. In addition 23,687 boxes of lemons shipped by rail were sold during the same period.

The fact that during April only 3,137 more boxes of lemons shipped by rail were sold in the New York market than those shipped by water is indicative, say members of the trade, that all water shipments of citrus fruits have marked a new epoch in the history of transportation.

CITRUS EXPERIMENT STATION

By Ernest Braunton

SOME time ago a considerable number of visitors were shown over the grounds, old and new, of the state citrus experiment station at Riverside. The initial gathering at the administration building was divided into three groups and conducted through the orchards by Acting Director Barrett, Dr. L. D. Batchelor, and Professor R. S. Vaile. A total of 17 persons are now employed at the station.

Some curious and interesting trees and fruits were seen. One of the first lots encountered consisted of four year old trees of sour stock from Florida, Africa, and Brazil, also trees of greater age of Poncirus (citrus) trifoliata. There were trees loaded with the huge round Hawaiian pomelo, shaddocks and citrons of many shapes and sizes. Several young trees were bearing the Samson Tangelo, a cross between the Dancy Tangerine and the pomelo, as its name implies. The fruits are globose in shape, about two-thirds as large as a Navel orange, with a very thin skin, few seeds, and a flavor, in the estimation of the writer, second to no citrus fruit he has tasted. They are full of juice, too, with very little "rag." A fine fruit for home use and bound to become popular—better plant a tree of tangelo.

There is a young trial orchard of 50 acres four years old. Up to date all have received the same treatment. Next year the differential treatments will be begun. The trees are set out in linear blocks of nine with "guard" trees on all sides. There are five such blocks for each treatment, or a total of 45. This allows for all possible range of soil, moisture content and factors beyond control of human agencies. Blackeye beans have been grown over all and the bean straw replaced about the trees after harvest. This four year program will be broken by a crop of melilotus and then Whippoorwill peas. No other fertilizer has been given. The first two years the trees did not seem to be thriving vigorously but in the third the effect of the bean straw was plainly noticeable, and now the orchard is second to none of its age in the land. Though there are about 300 varieties and strains on the station grounds the experimental treatment plots consist of Navel and Valencia oranges and Eureka lemons, each on four seedling stocks: sour, sweet, trifoliata, and pomelo. The fertilizer experiments with this great variety of blocks of trees will begin next year. The most elaborate records possible have been made up to the present as a basis upon which to build the records of the coming differential fertilizing.

ORANGE SALES AGENT STUDIES FOREIGN MARKETS

For the purpose of studying foreign markets and the possibilities of marketing greater quantities of citrus fruits abroad, D. C. King, orange sales agent for the California Fruit Growers Exchange, will make a first hand investigation of the more important European markets, leaving Los Angeles on June 16.

Mr. King will visit London, Liverpool, Rotterdam, Antwerp, Glasgow and Paris for the purpose of acquiring personal information as to the future of citrus fruits in these and various other large European centers of population.

With the promise of at least nine huge refrigerated liners for the transporting of citrus fruits to Europe next year, as compared to only three that have been used up to this time to carry California oranges and lemons across the Atlantic, the various shippers of the exchange felt the necessity of securing accurate data on the estimated supply and demand that could be expected from these markets. One fruit broker in London has requested that the exchange ship ten carloads of oranges a week to him during the summer season for general distribution.

CROP REPORTS

J. W. Mills, Farm Adviser Solano County

Almonds: 10 per cent.
Apricots: 15 to 20 per cent.
Cherries: 75 per cent.
Peaches: 50 per cent.
Pears: 30 per cent.
Prunes: 80 per cent.
Grapes: 90 to 100 per cent.

Oregon Growers Report

Up to June 1 fruit crop conditions in Oregon were as follows, according to advices received by the Oregon Growers Cooperative Association:

Apples: Rogue Valley has prospects for big crop, double that of one year ago. Umpqua Valley will have the heaviest crop ever shipped. Willamette Valley has prospects of big crop of good quality and large sizes.

Cherries: Umpqua Valley about 50 per cent crop. Willamette Valley estimates are from 60 to 70 per cent.

Pears: Rogue River Valley, about three-fourths of last year's crop. Umpqua and Willamette Valleys, about same as last year.

Prunes: In the Umpqua Valley Italians promise above the ten year average, but spotted. Petites, setting less than normal. In the Willamette Valley river bottom orchards promise fair crop with other orchards having light crop.

As a whole Oregon will have an extra heavy apple crop, average pear crop, cherry crop somewhat lighter than last year, and about 50 per cent prune crop.

The U. S. department of agriculture recognizes the fact that the Northwest will have a heavy fruit crop. A recent bulletin says: "Prospects for the fruit crop in general are quite favorable in the far Northwest. Practically all stone fruits and early apples have suffered a severe loss in the Central and Atlantic Coast states. The crop of late apples in these states will depend on the size of the June drop and a heavy drop is feared. The outlook for a berry crop, especially blackberries, is quite favorable for the country in general."

BERGTHOLDT PLAN

The Pioneer Fruit Company gives heartiest endorsement to the Bergtholdt plan in a letter to Mr. Bergtholdt, from which we quote:

"The potentialities of your plan would in a few years make California by far the richest state in the Union. Your plan is founded on common sense and easy of accomplishment. All it needs is the united efforts of those who will reap the richest reward. We can see without any stretch of the imagination that:

"It means hundreds of thousands more acres planted and producing.

"It means hundreds of millions more money to Californians.

"It means a doubling of our population and wealth in a few years.

"It means greater prosperity for every person in California.

"It means, Mr. Bergtholdt, so many big things for California that we hesitate to mention them.

"Your plan is big enough to command the active support and campaign of every chamber of commerce, newspaper, publisher, merchant, banker, grower and shipper of California.

"Your plan is for the benefit of all, and anything that is for the benefit of all the people is bound to be successful, and California some day will owe you a debt of gratitude. — Yours for success, Pioneer Fruit Company, by Geo. W. Bisbee, president."

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Tire Mileage at the Lowest Cost in History

30 x 3

NON-SKID Old Price	NON-SKID New Price	RED-TOP Old Price	RED-TOP New Price
$17.55	$12.85	$21.05	$17.00

GREY TUBES Old Price	GREY TUBES New Price
$2.75	$2.15

30 x 3½

NON-SKID Old Price	NON-SKID New Price	RED-TOP Old Price	RED-TOP New Price
$20.80	$15.00	$27.75	$22.00

RIBBED CORD Old Price	RIBBED CORD New Price	NON-SKID CORD Old Price	NON-SKID CORD New Price
$32.60	$25.00	$34.25	$27.50

GREY TUBES Old Price	GREY TUBES New Price
$3.25	$2.55

Plus war tax

Prices reduced on all styles and sizes

For 20 years Fisk Tires have been built to one ideal: "To be the best concern in the world to work for and the squarest concern in existence to do business with".

The same good tires and the same interest in your personal experience with them will continue to be a part in every Fisk Tire sale.

Sold only by dealers

A New Low Price on a Known and Honest Product

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department..

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Avoiding Probate

Husband and wife have limited amount of property, real and personal, in this and other states. Each, having heirs, desires to give each a power of attorney covering all of this property so that in the case of the death of either the other can take it all. Would this be valid?—Subscriber, Palm City.

A power of attorney is merely an appointment of an agent. The authority ceases with the death of the principal; consequently, such arrangement would be absolutely invalid. The method of probate of estates has been established out of the wisdom of the ages and any variation from that rule is always attended with the risk of litigation. It may be that if you go to a local attorney matters may be satisfactorily arranged, but such methods are never recommended.

Water Contract

A large tract of land with a well is subdivided and the parcels sold under contract wherein it is provided that water will be piped to each lot. The advertisements state that a mutual water company will be formed and the water furnished at a stated price, or, if the purchasers desire, a public utility system will be established under rates to be regulated by the railroad commission. The promoter of the tract now seeks to form a stock company, retaining the majority ownership and selling stock at a high price and making a high charge for water service. He refuses to furnish water unless this stock is purchased. What are the rights of the parties?—Subscriber, San Gabriel.

The particular action which might be taken would largely depend upon the exact reading of the contracts and advertisements, but very probably a lot purchaser would have an action either in recission or for damages for the misrepresentations in respect to the water system. It would undoubtedly seem that the owner could be required to furnish the water at the stated rates. There is the one element of the alternative offer which might render this uncertain.

Trust Deed

What is the time required to foreclose a trust deed? Can a deficiency judgment be rendered in such foreclosure?—Subscriber, El Centro.

A trust deed is not foreclosed by court action. The term of the trust deed itself usually states that the trustees shall advertise the property for sale for default of the trustor for a certain time—usually 30 to 60 days. On sale, the amount for which the land is bid in is credited on the note. If the property does not sell for sufficient to cover the note the note is then turned over to the creditor who may bring suit against the maker for the balance which remains unpaid.

Homestead—Mineral Claim

I have completed my proof upon homestead claim in manner satisfactory to the government, made final proof and payment, and am now awaiting the issuance of patent. Party states that there is oil on this land. What protection have I? Must an oil well be established and the fact that there is oil there proven before a mineral claim would hold good? — Subscriber, Rosemond.

In the case of an entryman who has done all which the law requires and made final proof, the government holds the legal title to the property solely in trust until patent is issued, subject, however, to its right to cancel this patent for fraudulent entry or subsequent non-compliance with the laws upon contest. If the land was agricultural land, containing no reservation of mineral rights, it would then seem that no oil prospector would have any right to enter thereon. The usual rule in respect to oil matters is that such are considered as placer claims and it is necessary to make actual discovery of the oil. This, of course, necessitates the entry upon the land and drilling of the well. Lately, this rule has been to a certain extent changed by the rule of insurance of prospective permits, which gives the holder of this permit the exclusive right for not exceeding two years to prospect for oil or gas upon the lands wherein the deposits belong to the United States. Such permit is issued for only a definite tract. Where land has been entered as agricultural land wherein mineral rights are reserved, the entryman is given the preference right to a permit.

Community, Separate Property

What is the rule for classifying property as community or separate?—Subscriber, Upland.

The code definition of separate and community property is as follows: "All property owned by either of the spouses before marriage and that acquired afterwards by gift, bequest, devise, or descent, with the issues, rents, and profits thereof, is separate property of the respective spouses. All other property acquired after marriage by either spouse or both is community property."

Inheritance Tax

A single man dies leaving an estate of $26,000 to be divided equally among a brother, a nephew, and a nephew's son. What is the state inheritance tax that each heir would be required to pay?—Subscriber, Riverside.

The state inheritance tax would be approximately $200 each. The federal inheritance tax touches only estates of $50,000 or more.

Deed in Escrow

My wife and I have made a deed of real property to my two children and placed this deed in escrow to be conveyed at our death. Can an additional clause be inserted in the deed, conveying money in bank, or can a separate deed transfer such money? Property is homesteaded. In case of the death of either or both children, can the name of the deceased be stricken from the deed?—Subscriber, Hollister.

The essential of such a deed is that it be delivered and the title thereto conveyed; that the grantor has no power to change or withdraw it. No change could, therefore, be made in this deed. If a conveyance of the personal property was made, by the very fact of the continued use of the money in the bank it would possibly tend to invalidate the whole transaction, as, if title is not passed, then the conveyances are valueless. As the property is homesteaded it would seem that there is no cause for this transaction in any event, as upon the death of either husband or wife the survivor becomes entitled to the property and a very simple probate procedure is needed to establish the fact of death of record. Upon the death of both of the spouses the homestead would then operate to convey the property to the children jointly without the necessity of any such dangerous proceedings as are outlined above.

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CONGRESS has given you a farmers' co-operative mortgage loan system. And the United States Supreme Court has declared it constitutional.

It is now up to farmers to make the Federal Farm Loan System meet the needs of farmers. Thousands of farm owners have surplus capital for *safe* investment; other thousands need more capital.

The Federal Land Banks distribute the surplus of the men who have more capital than they need to the men who need more capital than they have. And they do this in a manner safe and profitable for both.

Buy Federal Farm Loan Bonds

Denominations: $100, $500, $1000 and $5000

Both Principal and Income Are Tax-free

Federal Farm Loan Bonds are *safe*. They are secured by first mortgages on productive farms, the kind of assets with which you are already familiar, and in addition they are guaranteed jointly by the 12 Federal Land Banks with a combined capital of over $24,000,000.

Federal Farm Loan Bonds are *tax-free*. The principal is exempt; likewise the income from it.

Federal Farm Loan Bonds *yield 5%*—a better *net* income than that received from most farms rented to tenants.

Federal Farm Loan Bonds are *staple*. They bring a steady, dependable income twice a year, good seasons and bad. They are quickly convertible into cash. Farmers, merchants, millers, livestock buyers and others will find them A-1 security for bank loans.

Farmers who buy Federal Farm Loan Bonds help to build a farmers' national co-operative banking system—profits earned are paid to the farmer-borrowers who will eventually own all the stock of the Federal Land Banks.

Farmers' money invested in Federal Farm Loan Bonds keeps the profits made from farming in farm operations—helps to build up the whole farming business and helps every man in the business.

The farm tenant who invests his surplus every year in Federal Farm Loan Bonds is accumulating capital with which to own his own farm.

Farm boys and girls who buy small Federal Farm Loan Bonds are on their way to farm ownership.

The farm hand who purchases Federal Farm Loan Bonds is forming habits of thrift and investment which lead toward ownership of land.

Buy Federal Farm Loan Bonds from Any Federal Land Bank

Springfield, Mass.	Berkeley, Cal.	Wichita, Kan.	Louisville, Ky.	Baltimore, Md.	Houston, Texas
New Orleans, La.	St. Louis, Mo.	Omaha, Nebr.	St. Paul, Minn.	Columbia, S. C.	Spokane, Wash.

Send today for free bulletin giving detailed information as to these bonds. Address the nearest Federal Land Bank. Talk it over with your county agent or secretary of your local national farm loan association.

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TREASURY DEPARTMENT WASHINGTON, D. C.

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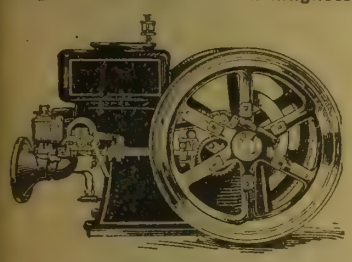

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Rhubarb and Berry Specialist, Pasadena, Cal.

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

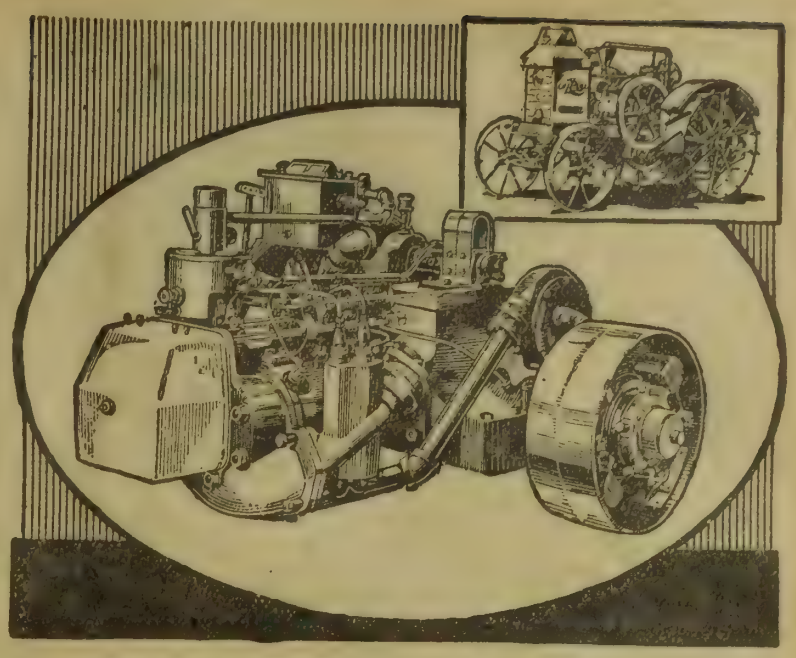
Aphis

Answering several queries as to control of aphis: Tobacco dust, nicotine sulphate or a decoction made from slowly steeped tobacco stems for several hours is about the cheapest, most effective remedy. Kerosene emulsion is of course good but rather more expensive.

First Threshing Machine

When was the first threshing machine invented and where manufactured?—Subscriber, Oxnard.

When they tired of shelling the "corn" from the head of wheat by hand the Egyptians many centuries ago began threshing on a circular floor, using sheep, oxen, goats, or other animals to tread out the grain. After the animals had finished their work the winnowing was done by tossing the material in the air on a windy afternoon and the straw and chaff were blown free from the grain. Next came the flail with its five foot stick with an added 30 inch piece attached by rawhide thongs. This flail was in use until late in the '60's, and the writer of this recalls many a thump on the head because of childish effort to swing this formidable weapon. We understand the flail is still used in Japan and some other countries. But going back a ways in history it seems the first machine operated by power was invented by a Scotchman named Michael Menzies in 1782. This was a system of flails operated by water power, in no sense like our modern threshing machines. In 1758 another Scotch farmer invented a rotary proposition still continuing the long arms from a large drum. The first really successful cylinder type of machine was invented in 1786 and improved somewhat in 1800. This was a drum or cylinder in which pegs were placed, this somewhat along the line of the common threshing machine cylinder. Early in 1800 a crude system of winnowing was added to this machine. American farmers were also making crude implements in the early 1800's. One of these machines was known as the "groundhog," operated by tread power. It consisted of a spiked cylinder revolving over a spiked concave. There was no cleaning mechanism. The straw was forked away from the tail of the machine and the pile of chaff and grain was cleaned by running through a hand fanning mill. All machines made in the early 1800's were stationary, usually being built in as a part of the barn. The first portable threshing machine was invented by Hiram and John A. Pitts at Winthrop, Maine. George Westinghouse, father of the inventer of the air brake, made threshing machines as early as 1840. Later he made a number of practical improvements in separating and cleaning devices. After 1850 wheat growing became a more important industry, and endless aprons or belt type of carriers came into use. The real vibrator type of separator was not made and brought into general use until after the Civil War. Cyrus Roberts of Belleville, Illinois, patented a series of vibrating racks and other features which have made the modern threshing machine possible.



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It is the type of tractor motor that has proved the most efficient and durable in public and private tests for the last twelve years—two cylinders, low speed, heavy duty, valve-in-head.

It stands absolutely alone for fuel economy—especially built for fuel oils and guaranteed in writing to operate successfully on kerosene under all conditions.

It is the only oil cooled tractor motor—unaffected by extremes of heat and cold.

Its crankshaft is built to U. S. Naval specifications—80,000 lbs. tensile strength as against the usual 50,000 lbs.

It is throttle governed—the engine speed is automatically and instantaneously adjusted to meet changes in load.

And throughout, the OilPull tractor possesses the same perfection of design as is found in the motor.

The OilPull is made in four sizes, standard in design.

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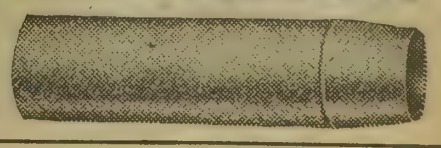

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Rhubarb From Seed

Will rhubarb seedlings come true to the variety of the seed?—Subscriber, Paradise.

No, not as a rule. The Crimson Winter has been largely reproduced by the use of seed but severe culling has been necessary in order to reduce the number of non-profit making plants. The larger, old time rhubarb plantations were secured through division of plants.

Farm Loans to Soldiers

Can you give me any information in regard to the law passed for the soldier farm loan and how a loan is secured?—Subscriber, Tecnor.

There is no provision as yet made for loan to soldiers but there is provision for soldiers who have had experience and who have some means to secure an allotment in the state land settlement at Delhi, Merced County. For information regarding that write Dr. Elwood Mead, University of California, Berkeley. There is always opportunity to secure money from the federal farm loan bank at Berkeley.

Weed Pests

A and B have ranches joining and A has Johnson grass growing on his property. The seeds are blown over onto B's property. Is there any way of preventing him from allowing this grass to go to seed?—Subscriber, Los Angeles.

Yes, report to your horticultural commissioner, H. J. Ryan, Hall of Records, Los Angeles. His office has the power to compel property owners to eradicate Johnson grass and other weed pests.

Citrus Gum Disease

Is there any cure for gum disease on citrus trees?—Subscriber, Anaheim.

Scrape or cut away all diseased bark or wood tissue until clean white wood is reached. Paint over with Bordeaux paste made as follows: 1 pound bluestone, 2 pounds fresh burned lime. Dissolve the bluestone in one gallon water, using wooden or earthen vessel, by hanging it in a sack near the top of the water; slake the lime in about one-half gallon of water. Stir together when cool, making a mixture about the consistency of whitewash. Apply with a brush. May be applied to healthy bark as a preventive. Mix fresh each day or two.

Garget

Our cow gives curdy milk from one teat. That part of the bag seems feverish and swollen. This has occurred several times, then she gets all right. What causes it and what shall I do for her? Would the milk in the other teats be unfit for use? It appears to be all right.—Subscriber, Rialto.

It is possible this is inflammation of the udder or even contagious mammitis. In such case a veterinarian should be called. However, we presume it is simply congestion of the udder, or ordinary garget. Regarding this trouble "Diseases of Cattle" suggests: "In heavy milkers, before and just after calving, it is the rule that the mammary gland is enlarged, hot, tense and tender and that a slight exudation or pasty swelling extends forward from the gland on the lower surface of the abdomen. This physiological congestion is looked upon as a matter of course and disappears in two or three days when the secretion of milk has been fully established. This breaking up of the bag may be greatly hastened by the sucking of a hungry calf and the kneading it gives the udder with its nose, by stripping the glands clean thrice daily, and by active rubbing at each milking with the palm of the hand, with or without lard or, better, with camphorated ointment."

Pruning Almonds

What is the best method of pruning almonds? Where I cut off the ends of the limbs nearly always three or four limbs grow and it makes nearly an endless job of pruning.—Subscriber, Terra Bella.

There is nothing to do with these almonds so far as pruning is concerned until the next dormant season. According to present methods topping back should not be followed. We take it that is what has been done with this orchard. It is probable that when the trees are entirely dormant some of these numerous branches coming out at the tips may be removed, thus thinning the tree and allowing the light to reach the center of it.

Tomato Blight

Will you tell me how to prevent blight or wilt in tomato plants?—Subscriber, San Joaquin.

If this is the true summer blight, which it probably is if showing at this period of the year, the only prevention is to carefully loosen every plant which is showing the blight and destroy by burning. This may prevent its spread to other plants. No spray will reach this disease for as soon as the leaves begin to show the wilt the roots have become so infected that it is impossible to control. For the fall blight or that which comes as a result of warm, moist weather later spraying with a weak Bordeaux is best control.

Cucumber Beetle

Can you tell me what to do for my string beans which are infested with small green bugs with 12 or 14 black spots? Some call them lady birds but they are not. They eat the vines and breed fast in extremely hot weather. I have seen them clean a whole patch in a couple of days.—Subscriber, Newman.

These pests are the 12 spotted cucumber beetles, or diabrotica, but are in no way connected with the lady bird family. Lady birds are almost invariably friends of the grower and are increased and distributed by the state department of agriculture because of their aid in controlling aphis and other insect pests. The cucumber beetle, however, is an unmitigated pest and should be controlled immediately he makes his appearance. Use neutral arsenate of lead, eight pounds per 100 gallons of water, as a spray.

Preventing Flies from Breeding

Please advise me what to use in pig pens, outside toilets, etc., to keep down flies.—Subscriber, Pixley.

The best treatment of all is to make frequent distribution of the manure from pig pens in orchard or in the fields, where the sun soon removes possibility of increase of this pest. The privy vault, however, is another and far more dangerous proposition. The distribution cannot be made daily, hence greatest care must be taken in perfectly screening about, so adult flies cannot possibly secure entrance to the vault for depositing eggs. Note we say "must," for the greatest menace to health, in fact one of the most serious causes of death in this entire United States is the house fly which has been bred in privy vaults. In addition to the screening and preventing of the flies having access to the vault, use freely of chloride of lime, at least one pound to every eight quarts of manure. Freshly burned lime or even air slaked lime in large quantities is also beneficial. Either of these, especially the chloride, destroys or greatly lessens the fertilizing value of the manure. Very liberal use of kerosene sprinkled over manure is also effective though expensive. Iron sulphate, two pounds to the gallon of water, is effective, but the best treatment of all is thorough cleanliness, and if it is impossible to distribute in orchard daily then absolutely fly tight screen for vault or container for the corral cleanings should be provided. After thoroughgoing cleaning and disinfecting some flies will persist, and for them fly traps (there are many different types and all more or less effective), insect powder and poisons should be freely provided. One of the best solutions for killing is a diluted mixture of formaldehyde. Use a couple of tablespoons of the common formaldehyde in every pint of equal parts of milk and water.

Set this about the house. A piece of bread dropped in the middle of the saucer on which the flies may rest while drinking makes for more effective poisoning. Be careful that this is kept where children may not drink it. Also use the same, or even greater, care as to the ordinary poison fly paper. There are other fly poisons and sticky papers offered on the market which are effective.

Artichokes

Please advise in regard to artichokes. Just what is the best time to plant, also what variety and how to plant. We would appreciate this information if you can give it to us.—Mrs. A. E. J.

It really matters little what month you plant artichokes as they are evergreen and dealers keep them in pots. If to be planted in numbers it is better to get suckers or offshoots and set out during winter or early spring. No directions as to how to plant are necessary except as to distance. Rows in fields are six or seven feet apart and four or five feet apart in the row. You may plant seeds at any time of year and plant seedlings in field when six or eight inches high. Artichokes require good water supply and one must guard against aphis, which always infest plants in early spring and have also many protecting ants. Spraying with a 40 per cent solution of nicotine will get rid of these, though the writer banished them quickly last spring with tobacco dust sprinkled liberally over the plants.

Sweet Potatoes

Will you inform me through your columns as to the care of runners on sweet potato vines after they have attained a length of three feet or more? Is it advisable to cut the runners off so they will not cross the furrows? I have noticed that these runners take root and bunches of very small potatoes form, especially on the sides of the ridges and in the furrows. This is more noticeable in medium heavy soil. About what size should the potatoes be when one stops irrigating?—Subscriber, Van Nuys.

It is not advisable to cut away any foliage, for it alone manufactures food for the growing crop. Throw the long vines up on top of the rows. Irrigate until time of harvesting.

Cucumbers

Please advise in regard to planting cucumbers, just what variety, also what is the best time of year to plant. We are located on the coast in Monterey County and in frostless belt.—Subscriber, Watsonville.

For early cucumbers seeds are generally planted in hotbeds in February. For field culture any time from March to October will do. Plant four to six feet apart and a half dozen seeds to a hill. Four of the strongest plants are enough to a hill. As cucumbers are ready to pick in about six weeks from planting seed some do not irrigate. Soil dictates this, but damp soil is needed and time of year dictates water supply. The good varieties are many. Arlington, White Spine and Klondyke are recent favorites and for pickling nothing surpasses in crop or value Chicago Pickling.

Fruitless Currants

Once more I turn to you for information and assistance. We always read and rely on your columns. About eight years ago we set out some currant bushes from Massachusetts. They have never borne much, though looking fairly well. Do they need some other kind to pollenize them or is the ground not adapted to currants? If so, what kind is best?—Subscriber, Buena Park.

There are a few sections of Southern California where currants bear well and in the northern third of the state, especially in coastal districts, they thrive. The same is almost as true of gooseberries. In damp climates, as England or Oregon, these bush fruits attain perfection, bearing larger crops and fruits than the Eastern states. Cool weather and especially cool, damp, humous soil are necessary to success. Heavy summer mulches of straw or leaves or top soil of leaf mold, or one heavy in decaying vegetable matter would contribute to success, but a sandy soid without such amendent will not produce currants. We doubt if cross pollination would prove an aid.

Alkali in Water for Animals

Is alkali water injurious to animals that drink it?—Subscriber, Lancaster.

That would depend entirely upon the percentage of alkalinity. Certainly high percentage of alkali would be injurious if the animals would drink it at all. If there is any question the water should be analyzed.

Sick Tomatoes

I have about 5,000 tomato plants which seem to have some kind of sickness. They turn yellow and then die. Will you let me know what the trouble is and what should be done to remedy it?—Subscriber, Winton.

This is possibly blight although that is usually manifested by wilting and curling of leaf rather than by yellowing. There is a yellowing of spots, a disease called leaf spot, in which the oval or circular spot, usually very small, is yellowish with a darker margin. This may be corrected by a spray of Bordeaux, 3-4-50.

How to Secure Farm Loan

Can you give us any information in regard to a government loan to apply on a ranch of 90 acres? It is in need of repairs on dwelling house and buildings. There is a mortgage of $2,500 against the ranch now. The ranch is valued at $25,000.—Subscriber, Escondido.

Write Federal Farm Loan, Bradbury Building, Los Angeles. The loan may be secured up to half its appraised value, the appraisement to be made by committee appointed by local association and to be verified by a representative of the bank at Berkeley. The loan may be made for the purpose of paying off a prior loan or for improvements on the ranch. It is made only to owner who lives on it and farms the place.

Poisoning Squirrels on Highway

Is there a law in California requiring the poisoning of squirrels along the state highways, county roads and railroads as well as on the farms? If so, whose duty is it to see that such things are done? Is it not against the law to let Russian thistles grow on public or private property in the state of California?—Subscriber, Saugus.

Yes, the county or state is expected by law to keep its property free of these pests and the horticultural commissioner of your county will doubtless aid in encouraging railway people or others in ridding their lands of these pests. Even the federal government joins in these campaigns where it has holdings near improved property. The above also applies to weed pests.

Jerusalem Artichokes

Am writing again to the "old reliable" for information. I wish to know two things, viz: What about the practice of cutting back the tops of Jerusalem artichoke? What effect will it have on the plant and the yield?—Subscriber, Paradise.

Every plant is dependent for food upon plenty of green leaves. Every one of these cut off deprives the food factory of a workman. Occasionally a plant may have too many leaves, but such cases are rare. Therefore leave the leaves. To cut off flowers alone would doubtless benefit the crop, diverting the plant food from the development of seeds to the development of tubers, thereby increasing the yield of the latter.

Rot of Lettuce Leaves

Will you please tell me what causes some of the leaves to rot in head lettuce? How may this be prevented? How long after lettuce begins to head before the seed stalk starts growing? Is lettuce an astringent?—Subscriber, Tracy.

The most common cause of rotting of lettuce leaves is dampness. Commercial growers use every possible

(Continued on Page 791.)

Paints

Standard Paints Are Lower Now

We cannot reasonably expect these prices to remain in force much longer. The cost of everything that enters into paint manufacture is showing an upward trend, and as soon as present stocks are exhausted these prices will probably advance.

Remember, too, these prices are quoted on pure oil paints, not these so-called "mineral" paints.

Standard House Paint, Gallon, $2.25

This price on all our standard paints for outside uses—a wide variety of colors to select from, floor paint for interior use. Hard finish, quick-gallon.

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This price on a full range of colors of standard floor paint for interior houses. Hard finish, quick-drying paint.

Porch Paint, Gallon $2.90

A special paint for porches and exposed floors. Has an unusually hard finish enabling it to withstand weather conditions. Choose from a variety of colors.

Graphite Paint, Gallon 80c

Graphite roof paint, an excellent paint for old and leaky roofs. This price is only 5c a gallon higher than the price in 1916. 80c a gallon in 5 gallon cans only. Single gallons, add 10c a gallon.

Shingle Stain, Gallon 75c

Our own Red and Brown shingle stain, made from standard ingredients. This price for 5 gallon cans. For single gallons, add 10c. Green stain, gallon 85c in five gallon cans.

Roof Paint, Gallon $1.20

Red or slate roof paint for new or old roofs. Heavy body and covers well. Price, in five gallon cans, $1.20. For single gallon, at 10 cents.

Electric Irons, with Switch in Cord, $4.65

A special price on high grade electric irons fully guaranteed. Has split plug to screw into socket, making it easy to disconnect, and a handy switch in the cord so you can turn off the current without disconnecting the iron. Weighs 6 pounds.

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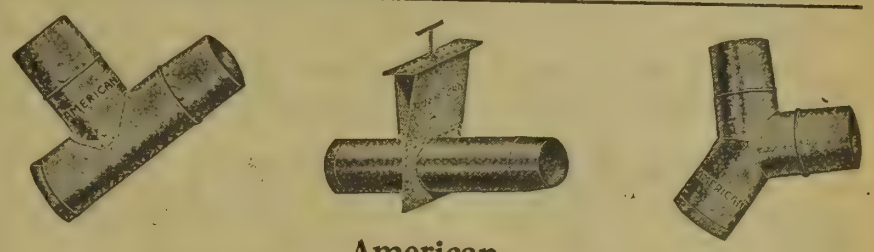

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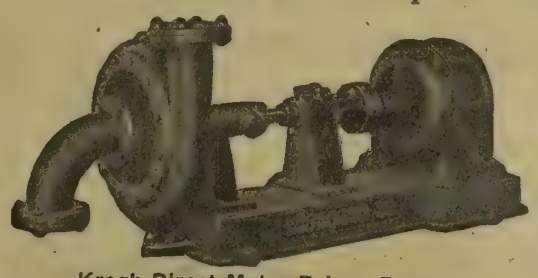

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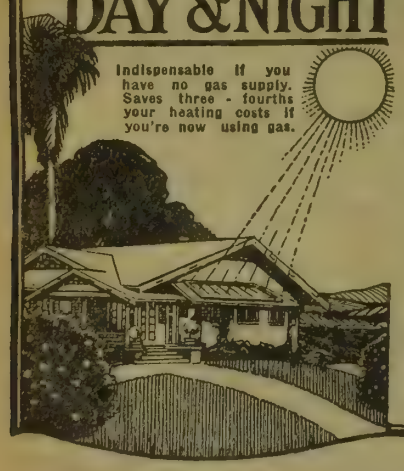

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Household Department

THE FLAG GOES BY

(Flag Day, June 14)

Hats off!
Along the street there comes
A blare of bugles, a ruffle of drums,
A flash of color beneath the sky.
Hats off!
The flag is passing by!

Blue and crimson and white it shines
Over the steel-tipped, ordered lines.
Hats off!
The colors before us fly;
But more than the flag is passing by:

Sea fights and land fights, grim and great,
Fought to make and save the state:
Weary marches and sinking ships;
Cheers of victory on dying lips;

Days of plenty and years of peace;
March of a strong land's swift increase;
Equal justice, right and law,
Stately honor and reverend awe;

Sign of a nation great and strong
To ward her people from foreign wrong;
Pride and glory and honor,—all
Live in the colors to stand or fall.

Hats off!
Along the street there comes
A blare of bugles, a ruffle of drums;
And loyal hearts are beating high;
Hats off!
The flag is passing by!

—Henry Holcomb Bennett.

HOUSEHOLD QUERIES

Using Honey

Will someone kindly send in recipes for cakes, cookies or pies using honey instead of sugar. Some of us are not allowed by our physicians to use sugar and the recipes would be very acceptable.—Mrs. L. G. Rapp, Glendale.

Pumpernickel

I wonder if one of our good housekeepers, subscribers of Cultivator, would favor me with a recipe for the old time real pumpernickel. One cannot buy it here. It is made into brick shape loaves and looks almost black. They sometimes name it black bread and it is very good. We find so many inexpensive good recipes in your corner that I am truly fortunate to call myself a subscriber.—Mrs. M. M., Los Angeles.

Lemon Juice

Will you please reprint directions for putting up lemon juice so it will keep. It was in the Cultivator some time ago but I sent my paper east so lost the recipe.—Subscriber, Los Angeles.

This was first given in the Cultivator of March 26 and reprinted in the issue of May 21 on request of a Reedley subscriber. We hope that our inquirer noticed this reprint. If not and she will send name and address we will mail copy to her.

Canning Beans and Peas

Would someone kindly give me two good recipes for canning green peas and also for canning string beans? I like your household department very much and your recipes are all very good.—Subscriber, Willows.

As canning season is upon us we reprint directions given in a University of California leaflet, which gives comprehensive instructions for handling all vegetables.

1. Preparation of vegetables: Shell peas, string and break green beans, husk corn, remove tops of beets, turnips and carrots, cut asparagus into lengths to fit the jar and in general remove waste parts and prepare as for cooking.

2. Scalding (blanching): Place the prepared vegetables in a cheesecloth bag or wire basket and immerse in boiling water—corn on the cob, peas, beans and asparagus, five minutes; tomatoes, one-third minute; beets, 15 minutes. Other vegetables, three to five minutes.

3. Chilling: While still hot and as quickly as possible plunge into clean cold water for a few seconds and allow to drain for a minute. The colder the water the better.

4. Packing: Pack the dipped vegetables immediately while still hot in cans or jars. Jars should be heated before filling. Beets and tomatoes are peeled and corn cut from the cob before packing.

5. Preparation of brine: Dissolve three ounces (three level tablespoons) of salt in one gallon of water and add five ounces (a small jelly glass) of lemon juice; corn requires eight ounces. Tomatoes are acid and require none. Strong vinegar may be used instead of lemon juice.

A glass measuring cup should be used to measure the lemon juice. If only one quart of brine is to be made up add two level teaspoons of salt and two and one-half tablespoons of lemon juice to a quart of water. Use twice this amount of lemon juice for corn. The lemon juice may also be used by filling the jar of packed vegetables with hot water and adding two teaspoons of lemon juice to a pint jar and four to a quart, with salt to flavor. Sterilize as above.

6. Heating and filling with brine: Heat the brine to boiling and pour over the vegetables in the jars. If the jars are hot and a funnel used there is little danger of breakage. Apply rubbers and loose covers as with fruit and place in sterilizer. Pack tomatoes without brine.

7. Sterilize in a wash boiler: Sterilize as described for fruit, but leave corn two hours, beans one and one-half hours and other vegetables one hour after steam issues from the boiler. Remove, tighten covers and allow to cool in an inverted position as with fruit.

How to Candy Cherries

I should like very much to know how to candy fruits, especially cherries.—Subscriber, Orland.

Puncturing, peeling and cutting: Small crab apples, apricots, plums, cherries and ripe but firm figs are used whole after puncturing in numerous places with a wooden toothpick. Peaches and pears are peeled and cut in half. The peels of citrus fruits are used without the pulp. Peeled and cut fruits do not require puncturing.

Cooking until tender: After preparing as above, the fruit is cooked gently. This requires from three to five minutes for most fruits. Hard fruits require longer. Citrus peels may require 30 minutes or longer. Too much cooking will spoil the shape and texture. Too little will result in slow penetration of the sugar, dark color and toughness.

Placing in syrup: Make a syrup of 25 degrees Balling, about one part sugar to three of water. A little more sugar for very sweet fruits. Heat the syrup to boiling and pour over the cooked fruit placed in an earthenware pot while still hot.

A Balling saccharometer is convenient when working on a large scale, but is not necessary for small quantities. Half the sugar in the first syrup may be replaced with Karo or other liquid glucose. This prevents the hardening of the finished fruit by crystallization and makes it more translucent.

Increase of sugar: Keep submerged in syrup. Remove the syrup every 24 hours, increase five degrees Balling by the addition of about one-quarter the amount of sugar used originally, boil, and pour back on the fruit. When the syrup reads 68 degrees Balling (as thick as honey) it is dense enough.

Drying: Leave in the last thick syrup until it has penetrated the fruit (three to four days) and then place on a wire screen to drain a few days until the outside of the fruit ceases to be sticky. The fruit will drain more quickly if placed in the sun or other warm place.

Packing: The finished fruit may be packed in candy or cardboard boxes lined with paraffin paper or in open jars. In air-tight containers they may mold; some ventilation is necessary.

Drying Prunes and Figs

Would someone give a good recipe for drying prunes and figs. — Subscriber, Orange.

Prunes and figs are dried whole. Both are allowed to ripen on tree and drop naturally to ground before drying. In this way they reach the maximum sugar content and the flesh is more tender.

The Cultivator Patterns

3612-3220. Ladies' Costume—Waist 3612 cut in seven sizes: 34, 46, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3220 cut in six sizes: 22, 24, 26, 28, 30 and 32 inches waist measure. Its width at the foot is 1¾ yards. To make this model for a medium size will require 6 yards of 38 inch material. TWO separate patterns 10 cents FOR EACH pattern.

3620. Girl's Dress.—Cut in four sizes: 6, 8, 10 and 12 years. A 10 year size will require 3⅝ yards of 27 inch material. Price 10 cents.

3313. A Simple House Dress.—Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size requires 6½ yards of 27 inch material. The width of the skirt at lower edge, with plaits extended is 2¼ yards. Price 10 cents.

3604. Boy's Play Suit.—Cut in four sizes: 2, 3, 4 and 5 years. A 3 year size will require 2⅝ yards of 36 inch material. Price 10 cents.

3591. Ladies' Dress.—Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 3⅝ yards of 54 inch material. The width of the skirt at the foot is 2 yards. Price 10 cents.

3314. Junior's Dress.—Cut in three sizes: 12, 14 and 16 years. A 14 year size requires 4¼ yards of 40 inch material. Price 10 cents.

3605. Ladies' Apron.—Cut in four sizes: Small, 34-36; medium, 38-40; large, 42-44; extra large, 46-48 inches bust measure. A medium size requires 3½ yards of 36 inch material. Price 10 cents.

3300. Girls' Dress.—Cut in four sizes: 8, 10, 12 and 14 years. A 10 year size will require 3⅛ yards of 27 inch material for the blouse and 2⅛ yards for the skirt. Price 10 cents.

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send 10 cents in coin or (1 or 2 cents) stamps for each number. In order to furnish our readers with the very best NEW YORK styles, all patterns ordered are filled in NEW YORK. Therefore, we promise to deliver all patterns ordered within TWO WEEKS; we guarantee safe delivery of all patterns.

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Send 15c in silver or stamps for our Up To Date Spring and Summer 1921 Catalogue, containing over 500 designs of Ladies', Misses and Children's Patterns, a concise and comprehensive article on dressmaking, also some points for the needle (illustrating 30 of the various, simple stitches) all valuable to the home dressmaker.

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California Cultivator
Los Angeles

Prunes are placed in a wire basket and dipped for a few seconds in a solution of lye (one pound to 30 gallons of water), held at the boiling point. Shake basket sharply so fruits will shift position and be wet on all sides. Dipping the prunes causes a slight checking or cracking of the skin near the stem end, which facilitates drying. If the lye is too strong or immersion too long, the skin may peel off. After dipping, the prunes are spread in a single layer upon trays and dried in the sun. They may dry unevenly. In the cool of the day the properly dried fruits may be removed. Prunes are dry when they are leathery to the touch but not hard enough to rattle against the tray. When too dry they may be dipped momentarily into boiling water and piled in bins or on a clean floor while still damp. The moisture is soon equalized. It is well to turn them over with a shovel a few times.

Mission figs are dried on trays in the sun. No further treatment is generally necessary. The second crop of the Adriatic and Smyrna is the only one of sufficient size and importance to be of value for drying. The limp and partly dried figs drop naturally or are lightly shaken from the tree and are picked up within three or four days since an inferior product results from too long exposure to the effects of sun, dust and insects. The figs are spread on trays after which the Adriatics are sulphured to bleach the skin and improve the appearance. Sulphuring in lug boxes is often practiced but does not give as uniform or as good results as on trays. Smyrnas which are properly handled should not require sulphuring. Adriatics are dried in direct sunlight from one to three days depending upon the heat and humidity, while Smyrnas are best dried by stacking the trays one above the other so as to allow free circulation of the air between. Over-dried figs become tough, woody and inferior. After sorting out the bird pecked and split fruit, the figs are dumped from the trays into perforated boxes or containers, washed for 20 minutes in cold water containing four ounces of salt to the gallon of water, and again spread out for a final drying of half a day in the sun. They are then placed in piles on a clean floor or in sweat boxes, where they are allowed to go through a sweat for about two weeks, being turned with a shovel two or three times during that interval. Sweating equalizes the moisture and gives the product a better texture. The figs can then be stored for packing, to prevent infestation by insects.

HINTS FROM HOUSEKEEPERS

Bluestone for Ants

I see in Cultivator of May 14 "The Exasperating Ant Nuisance." If anyone bothered with ants can find the hole where they live and in the evening after they have gone in for the night, put a teaspoon or tablespoon of bluestone on the hole and pour a gallon of water (pour slowly) through the bluestone and down the hole he will never see the ants again. With best wishes to Cultivator and all concerned.—J. B. Cloud, Cedarville.

Sending Orange Blossoms East

Noticed in your paper of May 14 that a subscriber from Colton wants to know how to send orange blossoms East. I once sent some from Florida to Colorado. Take a good sized potato and insert the stem of the branch in it. A good way to do this is to make the hole in the potato smaller than the stem to prevent the bark from peeling off, but not too big so the branch will come out again. It would be best to nail or fasten the potato to the end board of the box, as the potato is heavy and will roll about and break the blossoms unless fastened. Then a ribbon or cord should be tied over the middle of the branches from side to side to hold in position on bottom. Would like to hear from the subscriber how it worked if she uses my idea.—Reinhold Kruger, San Diego.

* * *

Another: I think I can solve the problem for the Colton subscriber. If she will punch small holes in a raw potato, then take a narrow bladed knife and scrape the holes larger,

Raisins—a "Beauty Food"

It is iron in the blood—a tiny supply of it daily—that helps to bring the bloom of youth to women's and children's cheeks.

Raisins, rich in immediately assimilable iron, therefore may be called a "beauty food." Eat raisins daily and be sure that you get all the iron you need.

The Luscious "Energy Dessert"

Serve to tired men at dinner

Raisin Pie

1 cup SUN-MAID Seeded Raisins
1 cup water
1 level teaspoon salt
1 tablespoon corn starch
1 teaspoon sugar (may be omitted)

Wash the raisins, put in saucepan with cold water, bring slowly to a boil; add sugar, salt and corn starch, which has been mixed with a little cold water; boil three minutes; pour in pie tin which has been lined with crust, while hot; cover; brush top with cold milk.

Pie Crust

1½ cups flour
½ teaspoon salt
2 tablespoons shortening.

Sift flour and salt together; add shortening, rub in very lightly with tips of fingers; add a little very cold water, just enough to hold together. The less you handle the dough the better the crust will be, and if made as the recipe tells, it will be a very dry crust.

Try a raisin pie tonight—made according to the recipe at the left.

See how delighted your men folks will be. And note how it "sets them up" in spirit and in strength after a hard day's work.

They'll be surprised to feel the energy and new vigor which are almost immediately imparted through the raisins.

Raisins are nature's own confection in a pie — sweet, tender and delicious. The juice forms a luscious pie sauce. It's an epicurean dessert.

Try it now. Learn what *real* raisin pie is like. Every first-class baker has this pie.

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Luscious, tender, juicy, meaty raisins, made from finest table grapes. Always ask for them *and get them.* Use in cakes, pies, cookies, puddings, salads, etc.

Three varieties: Sun-Maid Seeded (seeds removed); Sun-Maid Seedless (grown without seeds); Sun-Maid Clusters (on the stem). Insist upon the Sun-Maid brand. Send coupon for free book, "Sun-Maid Recipes." Learn how to use in many attractive ways.

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place the stem of an orange bud in the hole and pack the scrapings around the stem, by the time it reaches the East the buds will be in full bloom. The potato must be fastened to bottom of box to prevent crushing in handling.—J. E. Meier, Jamestown.

* * *

For "Subscriber," Colton: I have sent flowers long journeys and this is how I prepare them. I cut them late at night or very early in the morning before the sun has touched them, cutting only those just beginning to open. I put the stems in fresh cool water and keep them in a cool dark room (cellar) 24 hours or a little longer. This seems to make them firm and add greatly to their freshness and keeping qualities. I then place water-soaked absorbent paper around the stems, taking care not to wet the blossoms or they might mildew or drop from the stems. I use waxed or oiled paper for an outer covering and to protect the pasteboard box, and sometimes when I send the more fragile flowers I pack each blossom separately so that they do not touch each other. I have sometimes wrapped orange blossoms in paraffine paper and have been told they were received in good condition and without loosing any fragrance. This, however, was only used for a long journey. Often wilting flowers can be made fresh again if the stems are cut back a little and then inserted in a vase with hot water and put in a cool dark place for a few hours.—Mrs. A. Stainton, San Fransisco.

* * *

Paraffining Blossoms.—I think it is possible to send so much embalmed perfume to Massachusetts they will need to open doors and windows. I have sent blossoms to six different places this winter, and those to Illinois were picked April 1, in the morning, waxed, sent and received on April 6. Pick flowers without dew or rain. Pick sprays with only one or two open flowers and some nearly bursted buds, but none with formed fruit as they discolor more easily. Have plenty of melted wax, but cooled to prevent cooking the flowers, and dip each twig in and out to insure a good paraffine bath. Just dip them head first as they are not burnt by the wax as you might imagine. Lay on a board or newspaper to harden. Line a box with tissue paper or waxed paper, fern if you have it, and lay in the waxed blossoms. Put more fern on top and double over the remaining tissue paper for padding and put on cover. It may sound queer to say put on cover, but I discovered that the nearly bursted blossoms opened one night after I waxed some blossoms in the afternoon. I left the opened box on the table and the perfume was quite strong. I sent some blossoms to a wedding and the fragrance from the few on the bride's veil was quite sweet. Rose buds of rose, golden, or red are lovely when waxed as above. They retain their color and shape. Also geranium and honeysuckle do well. This has been my experience but I have been told that flowers picked and stood over night in water and the ends dipped in wax the next morning are very nice. The lady then wrapped each flower branch in waxed paper. The editor's suggestions are good. If you are afraid the perfume won't be as strong as you might wish put in a sachet of orange blossom and if you fear a delay at the last minute (as I did for the wedding I attended) put on a special delivery. My friend received her blossoms before breakfast on her wedding day because of added postage. I surely hope for the success of your "waxing bee" and that the flowers arrive in time with plenty of fragrance. —Mrs. E. F. Kraschel, Orange.

Muffins—Fig Cookies

In response to a request for recipes for muffins and fig cookies in recent Cultivator will send the following hoping it may be liked.

Muffins.—Beat 1 egg well in mixing bowl with 1 teaspoon salt and 2 tablespoons of sugar. Add 1¾ cups sour milk or buttermilk, 1¾ cups of whole wheat flour. Stir until smooth, then add 1 teaspoon (level) soda dissolved in a little water and 2 tablespoons melted shortening, if sour milk is used. Buttermilk requires no shortening. These may be made with graham flour and ½ cup of white flour if one prefers. Be sure not to have batter too stiff.

Fig Cookies.—One cup butter or ¾ cup of Crisco, 2 level cups sugar, 2 eggs separated, 1 cup sweet milk, 1 teaspoon orange extract, 3 level teaspoons baking powder, 5½ cups flour, sifted before measuring, 1 teaspon salt. Beat butter and sugar to a cream, add yolks of eggs, beat well, add milk, extract, whites of eggs stiffly beaten, flour sifted with baking powder and salt. Knead lightly on a floured board and roll out very thin. Cut in shapes and spread half with the fig filling, place other half on top, pressing edges lightly together. Place on an inverted cookie pan, bake for 15 or 20 minutes in a moderate oven.

Filling for Cookies.—One pound figs, 2 teaspoons grated orange rind, 1 orange, 1 cup honey. Squeeze the juice of orange in a cup, fill with water, then add 1 more cup of water. For Filling: Wash figs and cut into dice, put them in sauce pan, add orange rind and strained juice, honey and water; cover and simmer, stirring often, until reduced to jam.—Mrs. E. K. Peirce, Azusa.

Fig Cookies—Raisin Muffins

Here are two recipes asked for by an Oakdale subscriber.

Fig Cookies.—One cup sugar, ½ cup butter or substitute, 1 egg, ½ cup sweet milk, 3½ cups of flour sifted with 2 teaspoons baking powder, 1 teaspoon vanilla. Mix well and roll very thin. Cut and place on each cookie a teaspoon of the following mixture and put another cookie on top, pinching the edges together.

Filling.—One cup chopped dried figs, ½ cup sugar, 1 tablespoon flour, ½ cup water, lemon juice to taste. Cook until thick, cool and use as above. This is fine with raisins in place of figs also.

Raisin Cornmeal Muffins.—(This is adapted from the recipes sent out by the Sunmaid Raisin Association.) Three-fourths cup cornmeal, 1½ cups flour, ½ teaspoon salt, 1 cup seedless raisins, 2 tablespoons sugar, 1 cup sour milk, ½ teaspoon soda, 2 tablespoons shortening. Mix well and bake in hot oven about 20 minutes. These are delicious made with rich buttermilk and no other shortening.—Mrs. J. R. Beam, Ceres.

Gems—Oatmeal Muffins

Two cups rolled oats, 1½ cups sour milk, 1 egg, 1 cup flour, 1 tablespoon shortening, 1 teaspoon soda, ¼ cup sugar, pinch of salt. Mix oats in sour milk and let stand over night. In morning add beaten egg and other ingredients and stir well. Bake in gem pans in hot oven. If you use buttermilk omit the shortening.

Gems.—Two cups ground oatmeal, 1 cup corn meal, 1 egg, ¼ cup sugar, 1 tablespoon shortening, ½ cup white flour, 3 cups sour milk, 1½ teaspoons soda. Good as loaf also.—Mrs. Warren Roberts, San Diego.

Fig Newtons

I am sending you a good recipe for Fig Newtons. I hope they are what your Oakdale subscriber is looking for. As for the sour milk muffins, I hardly think your recipe can be improved upon. Of course if one doesn't wish to use the graham flour it is easy to substitute with white flour. We enjoy your paper so much.

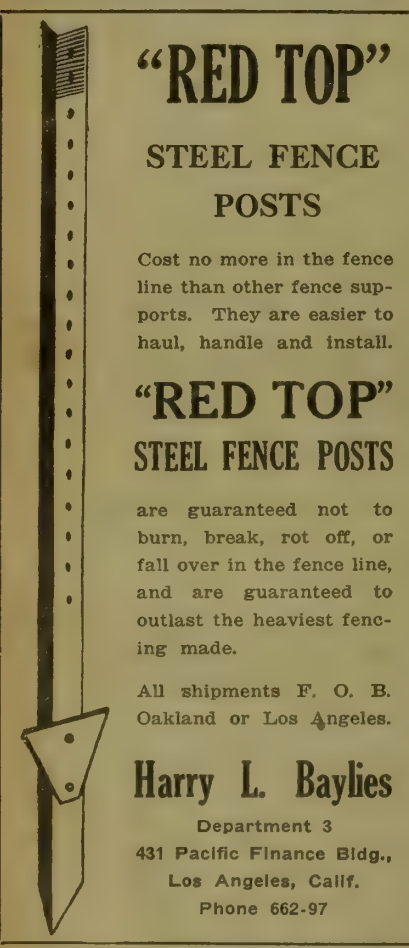
Fig Newtons.—Cream ½ cup butter or Crisco and 1 cup sugar. Add 1 egg well beaten, ½ teaspoon salt, ½ cup milk, 1 teaspoon vanilla and 3 cups of flour sifted with 3 teaspoons baking powder. Roll out like pie crust. Cut in strips 3 inches wide and spread with the following paste: Chop 1 cup dried figs, put in sauce pan with 1 cup boiling water and ½ cup sugar mixed with 2 tablespoons of cornstarch. Boil 5 minutes or until thick. Cool and use. Place another strip of dough on top, cut in oblongs, bake in quick oven. —Mrs. J. C. Smith, Riverside.

Many a woman is blamed for making a fool of a man when he is really self-made.

RECIPE FOR RICE DAY

Wash California rice thoroughly in several waters until water is clear. Put in kettle, add cold water, using 1 part of rice to 1¾ parts of water, cover closely and bring quickly to the boiling point. Let boil about 10 minutes, then add ½ to 1 teaspoon salt and let steam over low heat for 15 minutes, or until ready to serve. Do not stir nor add more water nor uncover. Rice should not be put into boiling water. Adding salt to the water during the first of cooking process impairs the flavor of the rice.

"BUY FIVE POUNDS"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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

June 15, H. A. De Wolf, Ripon.
June 29, Gotshall & Magruder, Ripon.

Burr Farm, Los Angeles, reports first attempts at seven day tests: Cometta Pauline 2d, 5 years, 28.28 pounds butter, 603.3 pounds milk; Amelia Bona De Kol 2d, 6 years, 26.15, 574.7; Clothilde Walker Sadie Vale, 4 years, 25.50, 378.5; Carnation Rag Apple De Kol, 3½ years, 20.00, 487.2; It Changeling Wildwood, 3 years, 27.49, 449.1; Snowball De Kol Pontiac Lass, 2½ years, 20.59, 418.2; La Reina Sadie Vale, 2 years, 18.90, 393.5; S. V. K. P. Miami of Sunnyside, 3 years, 24.27, 499.3; all being continued on semi-official test. Also completed the following yearly records but have not yet received the association's final figures: Johanna Princess Aaggie Korndyke 2d, 6 years, 976 pounds butter, 23,143 pounds milk; Princess Una Hengerveld, 6 years, 748, 17,281; Korndyke Mechthilde Keyes, 8 years, 911, 23,853; K. P. Tola, 8 years, 1,014, 22,966; Stratford Segis Blanche De Kol, 6 years, 669, 18,694; Gracia Pontiac Burke, 3 years, 713, 19,678; S. V. K. P. Fidessa of Sunnyside, 2½ years, 719, 21,440; S. V. K. P. Aaggie of Sunnyside, 2½ years, 665, 16,845; Helm Gelsche Arona Mead, 3 years, 305 days, 596, 16,374; Lieuwkje Murphy Pietertje, 2½ years, 305 days, 545, 13,574. "We are running about 40 head on yearly test. Of the several that have been in milk six months or more, one will finish with 1,000 pounds, one with 900 pounds and four three and four year olds will have over 800 pounds. Have recently sold a good young bull to W. A. Rowland of Puente. We have just shipped two young bulls, a cow and a calf to Canada."

James Mills, Jr., writes: "A short time ago we had the pleasure of picking out a small Berkshire herd for G. F. Lee of Oroville. Since that time he has made three additions to the herd. When new breeders come into the market and buy Berkshires for a herd it looks well for the breed. Many throughout the country are doing the same as Mr. Lee has done and are laying the foundation for a tidy little income which comes in throughout the year. The herd which Mr. Lee now has consists of animals descended from the four following outstanding boars—Laurel Champion, Ames Rival 70th, Penrith Champion, Improper B."

Bullard Bros., Woodland, report sale of 150 yearling Rambouillet rams to Jameson and Murry of Montana. Bullard Bros. owned one of the most noted flocks in the West and have produced many of the top rams of recent years. They expect to send a carload of rams, together with a shipment of ewes, to the Del Rio, Texas, ram sale next month.

J. D. Rowe and Sons of Davis, lessees of the Innisfail Milking Shorthorn herd, have recently completed a number of very creditable records made under average farm conditions. Princess Clay, an eight year old cow, produced 464.136 pounds of fat from 12,459.4 pounds of milk; Sentinel Pine Selma, five years old, 409.66 pounds fat from 11,090.5 pounds milk; Greenhill Caroline, five years old, 379.84 pounds fat from 10,983 pounds milk; Innisfail Daisy, two years old, 402.3 pounds fat from 10,023.2 pounds milk; Princess Fillpail, two years old, 327.31 pounds fat from 9,166.4 pounds milk; Buttercup, seven years old, 327.39 pounds fat from 8,856.3 pounds milk; Island Buttercup, three years old, 284.56 pounds fat from 8,489.3 pounds milk; and Buttercups Beauty, two years, 278.69 pounds fat from 7,333.5 pounds milk.

W. M. Carruthers, Live Oak, has sold a Shorthorn bull sired by the former state fair champion, Count Glory, to Ben Gundry of Brownsville and one sired by Hallwood Viallager to D. Armstrong, Honcut.

E. Wyndham writes that his Ayrshire cow, Aaggie of Darroch, was first in her class among Canadian Ayrshires last year with 513 pounds of fat from 13,728 pounds of milk. A second cow in the herd, Tanglewyld Princess, holds two Canadian silver cups. Mr. Wyndham is building up a herd that he expects to take high rank among Western Ayrshires, and he is of the opinion that the Ayrshire is a most satisfactory cow for Northern California.

Winsor Ranch, Bonita, has recently secured a number of Jersey heifers and a bull from the famous Ed Cary herd of Oregon. The Cary herd is the home of the celebrated St. Mawes family of Jerseys.

The entire Shorthorn herd owned by the Jack London Ranch, Glen Ellen, is reported sold to Thomas Caulfield of Petaluma. The herd was established a number of years ago by the late author and following his death was conducted by his estate.

William Briggs and Son, Dixon, expect to be represented at the fall shows this year with show herd of Herefords. This is one of the newer herds to be established in California but owing to the high class purchases made during the past year the collection takes very high rank. Included in the herd now being fitted is the junior yearling bull that was first in a class of 22 junior calves at the 1920 American Royal, Beau Prince 33d, a son of Prince Donald. This youngster was an outstanding calf last year and unless something goes wrong will probably be "bad medicine" this fall. Herdsman William Cox will soon be established in a greatly enlarged barn fitted to the purpose of handling both cattle and sheep.

Glista Ernestine, a Holstein cow owned by Cornell University, has completed her seventh official seven day record of over 30 pounds of butter. Her last record is reported as 30.95 pounds of butter.

The Pacific International Livestock Exposition, Portland, Oregon, has sent broadcast an announcement and space chart for industrial exhibitors that is very valuable and interesting to all prospective exhibitors. It is information that can be filed away and can be used for reference in years to come. A large spread chart is inserted, giving arrangement of exhibit space in the implement and machinery exhibit building.

Aaggie Tula Acme Burke, a Holstein heifer owned by Morris and Sons, Woodland, the first daughter of Sir Aaggie De Kol Acme to complete a year's test, finished her year with the splendid record of 836.86 pounds of butter from 21,859.7 pounds of milk. She started her test at the age of two years and two months. Ten months after calving she produced 20.06 pounds of butter in seven days. If her performance is any criterion, and it unquestionably is, we can look for a long series of similar announcements. The first 12 daughters of Sir Aaggie De Kol Acme to finish 305 day records average over 600 pounds of butter and more than 16,000 pounds of milk as first calf two year olds.

J. I. Thompson, formerly with the animal husbandry division of the college of agriculture and now manager of the Straloch Farm, Davis, believes that hogs, with grain at present prices, offer one of the most attractive livestock propositions to be found. Thompson stated that because the Straloch Poland China herd was comparatively small at present, it was his intention to buy feeders through which to market their barley crop. Thompson declared that there is more money in raising hogs at present than any time during the last several years.

TILLY COMPLETES EIGHTH RECORD

Tilly Alcartra, owned by A. W. Morris & Sons, Inc., of Woodland, has just added to her great production record by completing her eighth year in milk. At the close of her eighth year Tilly has produced 201,135.4 pounds of milk and 7,815.12 pounds of butter, enough to fill seven refrigerator cars.

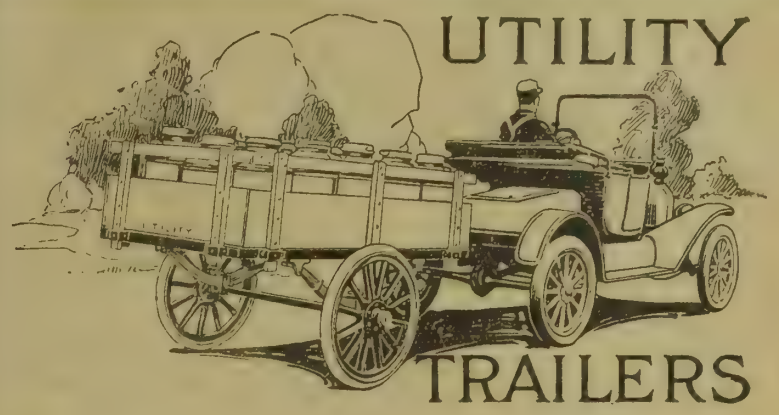
Tilly was not carried for a full year in the lactation period just ended, the production being for 305 days, in which she gave 20,675.2 pounds of milk and 738.61 pounds of butter.

RETAILERS TO BLAME

So far as the hog business is concerned we believe with President Harding that the trouble lies with the retailer. In Davis last week the wholesale butcher paid the producer 6½ cents for extra fine live hogs. We helped to load them and they were all tops.

The wholesaler sold the dressed pork—absolutely no waste—in Sacramento for 10 cents and the cheapest cut of pork offered in the shops was 30 cents a pound.

The retailers have a million reasons to offer as to the high prices they charge and none of them will hold water. It is about time something was done.



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DISPERSAL SALE

50---REGISTERED HOLSTEINS---50

40 FEMALES—10 BULLS

H. A. De Wolf Herd, Ripon, Cal.

Wednesday, June 15, at 10 A.M.

In the dispersal of this herd there is offered a group of young cattle, popularly bred, and including a number of females with substantial official records and daughters of high record cows. The offering includes:

A 27 POUND COW with 589.92 lbs. butter in one year as a junior 2 year old, her dam a 28 lb cow.

TWO DAUGHTERS OF ABOVE 27 POUND COW, one by a son of Aralia De Kol, the other by a grandson of Tilly Alcartra.

A 24 POUND granddaughter of Colantha Johanna Lad that milked 601.9 lbs. in 7 days as a junior 4 year old. and her daughter by a son of Sir Skylark Ormsby Hengerveld.

A 23 POUND COW sired by a grandson of Pontiac Korndyke, and her daughter by a son of Sir Skylark Ormsby Hengerveld.

A 21 POUND junior 3 year old daughter of King Mead of Riverside, and her two daughters by a son of Sir Skylark Ormsby Hengerveld.

A DAUGHTER OF KING MEAD OF RIVERSIDE out of a granddaughter of Aralia De Kol, second dam a 27 lb. daughter of a 28 lb. cow.

A DAUGHTER OF SIR VEEMAN KORNDYKE PONTIAC out of a 22 lb. junior 4 year old.

A DAUGHTER OF SIR VEEMAN KORNDYKE PONTIAC out of a dam sired by a half brother to the 32 lb. cow Winifred Hotaling 3d.

A DAUGHTER OF SEGIS PONTIAC DE KOL BURKE, out of a 25 lb. three-quarter sister to Prince Gelsche Walker, and her two daughters, one by King Mead of Riverside, the other by a son of Sir Skylark Ormsby Hengerveld.

14 DAUGHTERS OF SIR SKYLARK ORMSBY KORNDYKE, son of Sir Skylark Ormsby Hengerveld. Here is one of the rare opportunities to secure granddaughters of this great sire.

THREE GRANDDAUGHTERS OF JENNIE TERZOOL HICKS 4TH that made 32.70 lbs. butter from 600.3 lbs. milk in 7 days, and 959.05 lbs. butter from 21,550.6 lbs. milk in 305 days.

TWO DAUGHTERS OF KING GELSCHE WALKER KORNDYKE the good son of King Morco Alcartra and the 32 lb. Miss Gelsche Walker Korndyke, daughter of Prince Gelsche Walker.

TEN BULLS IN THE OFFERING

SIR SKYLARK ORMSBY KORNDYKE, born May 17, 1917. He is sired by the famous Sir Skylark Ormsby Hengerveld, one of the best sires the breed has yet developed in California. He is a high class individual, a sure, quick breeder, and is siring a most promising lot of calves, many of which are in this sale.

KING NETHERLAND SKYLARK MEAD, born May 25, 1919. By King Mead of Riverside and out of a 27 lb. daughter of a 28 lb. cow. One of the last opportunities to secure a young son of King Mead of Riverside.

8 YOUNG BULLS by the herd sires and out of some of the best dams in the herd. This is an opportunity for dairymen to buy young bulls of excellent blood lines.

Every animal positively guaranteed to be a breeder; every animal over six months old tuberculin tested and sold subject to retest by the buyer.

THIS IS A COMPLETE DISPERSAL, excepting only two heifer calves that are not catalogued, and every animal positively sells to the highest bidder.

TERMS OF SALE: One-third cash, balance in three, six, and nine months, with approved note. Terms are cash unless arrangements for credit are made with sale manager prior to the opening of sale.

PLACE OF SALE: H. A. De Wolf Farm, three-quarters of a mile west and three-quarters of a mile south of Ripon, California.

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California Breeders Sales and Pedigree Co.
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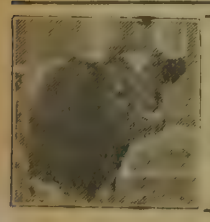

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State Dairy Cow Competition

By F. W. Woll

COWS producing 50 pounds of butterfat or over during April:

Adohr Stock Farms, Guernsey grades: C-269, 1521 pounds milk, 68.45 pounds butterfat; C-1095, 60.23; C-263, 1365, 57.33; C-210, 1239, 54.52; Leota of S. S., 939, 54.46; C-93, 825, 51.98; C-9, 1191, 51.21; C-392, 1044, 50.11.

Arden Dairy, grade Holsteins: No. 982, 2289 pounds milk, 98.43 pounds butterfat; No. 249, 1572, 75.46; No. 220, 1581, 69.56; No. 48, 1956, 68.46; No. 58, 1743, 66.23; No. 902, 1548, 63.47; No. 164, 1317, 61.90; No. 203, 951, 60.86; No. 976, 1302, 59.89; No. 222, 1338, 58.87; No. 89, 1290, 55.47; No. 236, 975, 53.63; No. 970, 1413, 52.28; No. 34, 1344, 51.07; No. 35, 1545, 50.99; No. 981, 1407, 50.65; No. 968, 1137, 50.03.

Anita Baldwin, Holstein: Anoakia 1401, 58.84; Cripple, 1296, 57.02; Creamcup, 1209, 56.82; Little Rose, 1647, 56; Goldie, 1320, 55.44; Black Ward, 1287, 54.05; Roany, 1683, 53.86; Norene, 1170, 51.48; Annie, 1185, 50.96.

M. J. & B. A. Edwards, Holsteins: Sarcastic Dora of M., 2029 pounds milk, 64.92 pounds butterfat; Squaw Queen DeK. 2d, 1548, 52.64.

El Mirador Dairy, grade Holsteins: 53, 1734 pounds milk, 79.76 pounds butterfat; 93, 1350, 51.30; Belle, 1551, 51.18; 32, 1549, 50.89; 112, 1152, 50.69.

J. A. Genzoli, grades: Blue Spot, 1896 pounds milk, 92.90 pounds butterfat; Maggie, 1383, 84.36; Jill, 1434, 81.74; Fannie, 1488, 80.35; Sarah, 1686, 75.87; Brownie, 1131, 68.99; Star, 1542, 66.31; Princess, 1365, 65.52; Pansy, 1350, 59.40; Lena, 1020, 57.12; Josie, 1212, 56.96; May, 1176, 55.27; Baby, 1461, 54.06.

Loleta, California, May 25, 1921.

California Cultivator,
Los Angeles, California.

Gentlemen:

I have received your check of twenty-five dollars, the California Cultivator prize for producing the largest amount of butter fat for the month of April for the best group of five grades entered in the state dairy cow competition. I must say I was surprised as it is the first money that ever came to me without working hard for it.

I fully realize the efforts the California Cultivator is making for the betterment of agriculture and dairying in particular.

You may be sure of having my fullest support, and whenever the occasion arises I won't fail to boost for your worthy paper.

Thanking you for your kindness and hoping before the season is over to be able to win at least one more of your prizes I am respectfully yours,

J. A. GENZOLI.

Gelsche P. W., 1922 pounds milk, 61.71 pounds butterfat.

Dean Beeman, Holsteins: Capunista, 2503 pounds milk, 76.09 pounds butterfat; Jacobina, 2805, 73.21; Daisy NaD. DeK., 1883, 62.69; Bernice NaD. DeK., 2299, 62.54; Jean NaD. DeK., 1649, 51.11.

Eug. Biondini, grade Jerseys: Twinnie, 1509 pounds milk, 73.94 pounds butterfat; Rosalie, 1209, 68.91; Brownie, 1326, 64.97; Hanna, 1335, 64.08; Shortie's Best, 1212, 60.60; Rachel, 1587, 60.31; 1910, 1389, 51.39.

Bonnikson Bros., Jersey: Financial C.'s Lor. D., 1118 pounds milk, 62.39 pounds butterfat.

J. C. Broady, grade Holsteins and Jerseys: Jumbo, 1755 pounds milk, 65.80 pounds butterfat; Dogie, 1575, 63; 16, 990, 51.48.

N. L. Browning, Holstein: Segis DeK. Bess, 2082 pounds milk, 74.75 pounds butterfat.

Burr Farm, Holsteins: Amelia Bona DeK. 2d: 2287 pounds milk, 80.24 pounds butterfat; Zampa Annie L. 2d, 1958, 70.88; Goshen Snowb. P., 2024, 69.83; Amelia Bona DeK., 1988, 66.60; Carnation Rag A. DeK., 1991, 62.90; Heilo Bess K. S., 1748, 58.04; Dorothy Kornd. B., 1758, 55.72; Anoakia Alc. S., 1529, 54.27; Queen of F. L., 1214, 53.77; Canary F. S. V., 1799, 52.54.

Leo Christen, grades: Buttercup, 1551 pounds milk, 77.55 pounds butterfat; Nig, 1521, 68.45; Mousie, 1347, 67.35; Daisy, 1413, 66.41; Roane, 1524, 64.01; Bridget, 1368, 57.46; Coaly, 1542, 57.05; Mama Jersey, 1104, 56.30; Helene, 1260, 52.92.

D. F. Conant, Jersey: Lady Kates Rosette, 1403 pounds milk, 58.51 pounds butterfat.

J. W. Coppini, Jerseys: Olga Fern's Olga, 1273 pounds milk, 74.22 pounds butterfat; Hazel Marig. of F., 1169, 60.76; Noble's Sayda P., 957, 59.76; Chiophena 2d, 1052, 58.60; St. Hellier's Mabel D., 1078, 56.78; Marigold of F., 991, 52.13.

L. A. Driver, Holsteins: Miss Gerben Col. F., 2117 pounds milk, 80.67 pounds butterfat; Anthelmo DeK. B., 2659, 79.23; Pauline Cornuc. W., 2272, 70.20; Queen Pont. W., 2344, 64.68; Sadie Creamc. DeK., 1726, 63.68; Lady Silot DeK. K., 1762, 61.48; Roseland G. W., 1757, 53.93; Lady Silot G. DeK., 1569, 50.52.

W. F. Early, grade Jerseys: Little Darling, 1470 pounds milk, 73.50 pounds butterfat; Lineback, 1290, 69.66; Jack Rabbit, 1212, 61.81; Brindle, 1299, 61.05; Rosy, 1593, 60.53; Butterfly,

Giacomini & Pedotti, grades: Georgie, 344 pounds milk, 72.58 pounds butterfat; Gladys, 1496, 61.34; Pearl, 1200, 58.80; Daisy, 1194, 58.51; Six Teats, 1041, 56.21; Pearl Smith, 1005, 54.27; Sassy, 1338, 52.18; Brindle, 1204, 51.77; Fanny, 1092, 50.23.

Earl Graham, Holsteins and grades: Princess Maida V., 2982 pounds milk, 92.43 pounds butterfat; Montana, 1875, 78.75; Cora Jarie, P., 1845, 78.42; Gamma Sarc. of L., 2270, 76.05; 21, 1848, 68.38; Pinkie, 1806, 65.02; Tomie, 1596, 63.84; May Walker C. K., 1911, 63.06; Black Emma, 1659, 63; Alice, 1656, 62.93; 5, 1758, 61.53; Smithy, 1851, 61.08; Valentine, 1389, 59.73; Rose, 1527, 59.55; Brownie, 1632, 58.75; Jersey, 1197, 53.87; Spot, 1632, 53.86; Miss Segis P. W., 1306, 52.51; Spencer, 1181, 52.32; Peg., 1446, 52.06.

S. H. Green, grade Holsteins: Ruth, 1593 pounds milk, 67.38 pounds butterfat; Lily, 1860, 57.66.

W. B. Gries, grade Jerseys: Brownie, 1362 pounds milk, 66.74 pounds butterfat; Bertha, 1419, 66.69; Bessie, 1197, 63.44; Whitie, 1461, 61.36; Brindle, 1347, 51.19; Beauty, 984, 50.18.

H. G. Gross, Jerseys: Lydia's Valentine, 1017 pounds milk, 65.18 pounds butterfat; Francesca of E., 1194, 57.31; Cynthia of B. V., 1043, 54.85; Raleigh's Ang. G., 1208, 52.43; Raleigh's Peggy M., 785, 50.85.

J. B. Harbers, grade Jerseys: Daisy, 1194 pounds milk, 68.06 pounds butterfat; Clara, 1125, 65.25; Edith, 1080, 58.32; Nellie, 1248, 57.41; Champion, 1101, 53.95; Fancy, 1174, 52.83; Coaly, 1178, 51.88; Princess, 864, 50.11.

Fred Hartsook, Holsteins: 2601 pounds milk, 83.75 pounds butterfat; Queen Canary S., 2865, 82.72; Athenia Rod. L., 3211, 82.53; Sarcastic Bl. C. DeK., 2461, 74.80; Fascination DeK., 2387, 73.04; Alexander DeK. P., 2799, 72.48; Beryl M. L. DeK., 2625, 69.83; Miss Aaggie DeK. M., 2264, 67.91; Annie L. DeK., 2292, 66.23; Juliana Eliza of R., 2293, 61.46; Ciruela Car. W. DeK., 2094, 60.10; Miss Aaggie O. S., 2346, 58.19.

Nate Hauck, grades: Bally, 2169 pounds milk, 78.08 pounds butterfat; Slow, 1599, 76.75; Brownie, 1731, 74.43; Nigger, 1824, 63.84; Sleepy, 1356, 55.60.

A. B. Humphrey, Guernsey: Calla Grove I. M., 1126 pounds milk, 52.26 pounds butterfat.

Peter Iversen, grades: Marcella, 1509 pounds milk, 81.49 pounds butterfat; Kicker, 1521, 63.88; Baby, 1161, 60.37; Old Jersey, 1098, 60.39; Yellow Jer-

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PARASITICIDE AND DISINFECTANT

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sey, 1200, 60; Red, 1239, 55.76; Black Jersey, 1230, 55.35.

L. A. County Farm, Holsteins and grades: Whittier Pont. N. 4th, 2057 pounds milk, 85.17 pounds butterfat; Trinity, 2299, 82.75; Amador, 1757, 72.02; Princess, 1491, 68.57; Sunland Peerless T. K., 1789, 57.10; Domino, 1283, 52.60.

J. Henry Meyer Est., Ayrshires: Finlayston's Annie L., 1630 pounds milk, 66.33 pounds butterfat; Bright Eyes of H., 1376, 56.28.

Guy H. Miller, Jerseys: Signora of Venad., 1173 pounds milk, 60.20 pounds butterfat; Lucile of Venad., 1359, 54.08; Gladys of Venad., 781, 50.56.

C. L. Mitchel, grade: Teola, 855 pounds milk, 58.14 pounds butterfat.

Napa State Hospital, grade Holsteins: No. 715, 2162 pounds milk, 84.31 pounds butterfat; No. 651, 1809, 72.90; No. 760, 1842, 65.76; No. 663, 1432, 56.01; No. 791, 1816, 55.39; No. 786, 1563, 54.23.

Palo Alto Stock Farm, Holsteins: Thelma Har. S. DeK., 2615 pounds milk, 92.83 pounds butterfat; Alta Pappoose, 2441, 73.71; Alta Joh. Princess, 2108, 69.97; Irene Segis P., 2263, 69.03.

F. F. Pellissier, Holsteins and grades: No. 2479, 2301 pounds milk, 80.54 pounds butterfat; No. 2416, 2013, 76.49; No. 2403, 1782, 69.50; No. 2423, 1902, 68.47; Mamie Pontiac, 1602, 62.48; Princess Tolia W., 1950, 62.40; No. 1917, 1671, 61.83; Brudorin, 1749, 57.72; No. 1899, 1524, 54.86; No. 1681, 1584, 50.69.

M. L. Pontoni, grade Jerseys: Beauty, 1593 pounds milk, 70.09 pounds butterfat; Klamath, 1590, 69.96; Belle, 1350, 59.40; White Tail, 1345, 59.18; Mouse, 1618, 56.63; Meschini, 1782, 53.46; Arcata Girl, 1443, 51.39; Mabel, 1323, 50.27.

John D. Rowe & Sons, Shorthorn: Greenhill Caroline, 1754.9 pounds milk, 58.44 pounds butterfat.

Olga Saxer, Holsteins: Moorland Col. Rose, 3077 pounds milk, 99.40 pounds butterfat.

W. Terkelsen, grade Jerseys: Christina, 1476 pounds milk, 70.85 pounds butterfat; Annie, 1368, 62.93; Amy, 1320, 62.04; Lucy, 1287, 56.63; Laura, 1473, 55.97; Edna, 1065, 54.32; Yellow, 993, 52.63.

University of California, Guernsey: Cal. Questa Queen, 1074 pounds milk, 51.89 pounds butterfat.

H. L. Wakeham, grades: Jim's Wonder, 2088 pounds milk, 104.40 pounds butterfat; Big A., 1299, 65; Tony's Perfection, 1140, 60.42; Brown Jersey, 1164, 54.71; Jap, 1128, 50.76.

R. H. Walrath, grades: Pansy, 1452 pounds milk, 59.53 pounds butterfat; Minnie, 1329, 57.15; Amy, 1350, 56.70; Rose, 1137, 50.03.

Warne & Sons, Holsteins: Fayette Segis, 2340 pounds milk, 66.92 pounds butterfat; Bertha Pont. J. 2d, 1975, 63.01; Miss Floa Jul., 2104, 58.07; Bessie Abbek Col. 2d, 2047, 56.71.

Winsor Ranch, grade Jerseys: Teresa, 982 pounds milk, 53.54 pounds butterfat.

The reports for April so far received show that 543 cows in milk during the full month produced an average of 1293 pounds of milk and 49.43 pounds of butterfat during the month (average number of days in milk at beginning of month, 92).

One cow produced over 100 pounds of butterfat during the month, viz., a grade Jersey owned by H. L. Wakeham of Santa Ana (2088 pounds milk, 104.40 pounds fat). This is the third month during the present lactation period that this grade, not inappropriately named "Jim's Wonder," has produced over 100 pounds of butterfat, and her total credit to date is 408.11 pounds butterfat during 120 days, or considerably more than twice the average yield for an entire year for dairy cows in this or other states. Five cows produced between 90 and 100 pounds butterfat during the past month; 13 between 80 and 90 pounds, and 29 between 70 and 80 pounds.

The California Cultivator prize for April was won by J. A. Genzoli of Loleta for an average production by five grades of 83.04 pounds fat (ranges 75.9 to 92.9 pounds). These cows are described by their owner as "common cows," but whatever their breeding may be their production is certainly very uncommon. They stand first among groups of five grades in the 27 different dairy herds that competed for the Cultivator prize for the past

An extra quart for every gallon of milk produced

If you are dairying without a silo you are cheating yourself out of a quart of milk for every gallon you sell.

Milk production usually increases from 10 to 25% when dairy cows are put on proper silage rations. Government experiment stations, state agricultural colleges, and experienced dairymen will verify this statement.

How long will you continue to forfeit this extra quart for every gallon you now produce?

With declining prices on farm products you can't afford to do without an Indiana Silo. Increased milk production means increased income. Figure it out yourself—an extra quart for every gallon and on top of it, less mill feed.

Our representative near your farm will be glad to talk things over. Write for his name.

Read These Letters

"In my opinion silage is the cheapest and best food for dairy cows and gives good results in the milk pail." E. Pillet, Aurora, Ore.

"My silo is sure giving good satisfaction. I intend to erect another Indiana this fall." Walter Hauck, Chowchilla, Cal.

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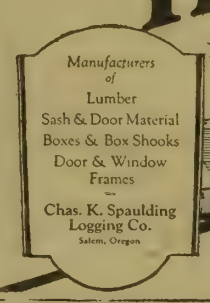

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month. The average production for all but five of these groups of grades came above 50 pounds, and only one fell below 40 pounds. The location of the contestants by counties was as follows: Humboldt 11, Los Angeles 7, with single herds in Colusa, Sonoma, Napa, Contra Costa, Alameda, Stanislaus, San Diego and Imperial Counties. The dairy herds competing for this prize were, therefore, located in widely separated sections of the state, showing that no one locality has a monopoly on good cows. This is the first time that the Cultivator prize has been won by a Humboldt County farmer, and also the first time in seven months that it has gone outside of Los Angeles County. Judging from the showing made by herds in Humboldt County during the past month, however, it is not likely to be the last time that the prize will go to this county.

Nobody has ever claimed that the man who wrote "Home, Sweet Home" composed the same during the house cleaning season.

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Wednesday and Thursday

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NEW AGRICULTURAL LEGISLATION

(Continued from Page 767.)

been included in the budget for the next biennium and will likely be continued in the future.

One of the six groups of farmers which met last fall to review the work and needs of the college of agriculture and the state department of agriculture was the deciduous fruit group and, following a careful study by 11 representatives of as many fruit organizations, a request was made for an extra $50,000 for deciduous fruit investigations and $20,000 for increased work with fruit products. The request for new work by all groups totalled $267,000, out of which the state budget board picked the one item of $50,000 for deciduous fruit investigations as the only one which they would recommend. Making this a budget item practically insures the governor's signature, and this extra step forward by the deciduous fruit interests must be partly credited to the persistent and ardent battle waged in former years.

The $20,000 for increased work with fruit products is also an important item and is included in the amount of $450,000 for the college of agriculture above budget board recommendations carried by Senate Bill No. 981, which has not been signed by the governor as this is written.

How Will the Money Be Spent?

There is naturally considerable interest among fruit men as to what problems will be undertaken with the extra $50,000. Some of the projects which have been suggested include:

Extension of field experiments in the irrigation of orchards.

Study of the relation of irrigation to diseases and abnormalities of deciduous fruits.

Pear blight studies, including extensive plantings of resistant stocks; laboratory studies of these as to causes of possible resistance; tests by artificial inoculation and careful field tests of different methods of surgery.

At least two extension specialists in pomology are needed to supply the increased demands from all parts of the state for pruning, spraying and other work of this type.

Citrus Versus Deciduous

There exists in certain sections of the state today the feeling that the citrus interests are much more amply served by the college of agriculture and experiment station than are the deciduous fruit interests, and it may be worth while to make a few comparisons along these lines.

It must be granted that the citrus growers were alive to their problems a number of years ago and through their persistence were able to secure a citrus experiment station which would be a credit to any industry. At this institution there are 11 or 12 men working on various phases of the problems of the citrus industry, including entomology, pathology and physiology. Several of these same men, however, are working on the alkali project as their principal problem, this being of statewide importance and not confined to the citrus or any other industry.

As compared with these there are at least 15 men devoting practically their entire time to pomological problems alone, besides a number who are devoting their attention to deciduous fruit problems of entomology, pathology, fruit products and irrigation. With the increased work which can be done with the extra $50,000 the problems of the deciduous fruit growers will be as well or better cared for than any other industry in California.

Fruit and Vegetable Standardization

Next to the college of agriculture appropriations the bill of most widespread interest to fruit growers is Senate Bill No. 201, amending the present fresh fruit standardization law. This bill as originally presented was an entirely new law containing many changes and in that form was presented to the fruit and vegetable trade and growers. In order that the bill might represent the views of the industry rather than those of a state agency F. W. Read, in charge of standardization of the state department of agriculture, arranged several conferences at which the whole bill was discussed section by section and was finally cast aside, merely leaving some amendments to the present law. Although in its final form the bill was something of a compromise it largely represented the views of the industries affected and therefore met with no opposition in the legislature.

The principal change in the law is with reference to grapes, providing that all grapes, whether for table or manufacturing purposes, shall meet a minimum sugar content of 16 or 17 per cent according to variety. Grapes for manufacturing purposes with a lower sugar content may be shipped if permit is granted by the director of agriculture.

A need for such an amendment arose from the market demoralization last year resulting from the shipment of immature grapes.

Parasite Appropriation Eliminated

One of the oddest happenings to agricultural bills occurred when the assembly committee on agriculture refused to eliminate the appropriation of $10,000 from Hume's bill, which permits the continuance of the wonderful parasite work done on black scale of citrus. The appropriation had been placed in the bill by its proponents but it was with this in mind the assembly committee on agriculture was asked to eliminate the appropriation, and much to the surprise of the friends of the measure the committee insisted that the appropriation be retained and that the bill be favorably recommended to the ways and means committee.

This measure is an important one because of the very promising progress toward parasitic control of black scale which now requires the expenditure of approximately $1,800,000 per year for control by fumigation. Considering the waves of economy which at times swept over the legislature the appropriation promised to retard the progress of the bill and perhaps prevent the governor from signing it. Fortunately the ways and means committee was willing to report the bill favorably with the appropriation eliminated and from then on the measure met with no difficulty.

The above mentioned bills are the most important affecting the fruit growers, although certain industries are considerably affected by Cleveland's bill reenacting the apple standards act, Harris' grape mealy bug bill, Parker's graduated nursery inspection fee bill and Arbuckle's bill containing the present law pertaining to the control of the walnut codling moth. Altogether the fruit men can feel well satisfied with the results of the legislature's activities as they affect their industries.

* * *

Livestock Legislation

Although the livestock interests of California are not so thoroughly organized into marketing associations as are the fruit industries their organizations are none the less effective in legislative matters. More than a dozen beneficial laws dealing with livestock were passed by the legislature, a greater number than affected any other phases of agriculture.

It would be well to say right here that a large debt of gratitude is due the men who spent much of their own time or money, or both, shaping and urging legislation for the good of their particular industry. Of course it is not the privilege of every man to so give his time and money, but each individual at one time or another during the last session of the legislature had an opportunity to help by letter or by wire. Ask yourself, Mr. Reader, if you were in a class which served, or the one which let the other fellow bear the burden?

Meat Inspection Bill

Probably the most important measure affecting the meat producing interests is the meat inspection bill providing for sanitary inspection of slaughter houses. Although the measure does not carry an appropriation funds are provided in the budget of the department of agriculture to make a very good beginning on this type of work. The large cities have been well cared for in the matter of meat inspection but the smaller cities and towns have been open to the worst sort of exposure through the sale of meat.

from diseased animals. The result has been that many consumers have become disgusted by the quality of the meat obtained and have curtailed their consumption materially to the detriment of the livestock industry.

It would require an enormous sum of money to inspect every carcass slaughtered, but with the funds available a state inspector can drop into slaughter houses unexpectedly at any time, and knowing this some butchers are going to be far more careful of the quality of the animals handled. As a matter of fact, there are probably only a few plants which make a regular business of slaughtering tubercular or other diseased animals, and as these are already quite well known a most careful watch can be placed over them.

Another measure through which the public will be protected and the market for good meats improved is the one providing that imported cold storage meat must be so labeled. This bill originated with the California Wool Growers Association but is of almost equal value to the cattlemen and received their united support. The necessity for such a measure arose through the heavy importations of frozen lamb, mutton and beef from New Zealand and other countries. It was found that these meats were being sold in many instances in competition with fresh meats and were not giving satisfaction. The price being the same, the consumer could not distinguish between the imported and domestic meat so the industry suffered through reduced consumption.

Sheep Dog Law

Probably no one was so pleased and relieved as Senator Ben Rush when the sheep dog law went through. Senator Rush, the veteran of the legislature who recently sat in his ninth consecutive session, can scarcely remember the time when the first sheep dog bill was handed to him.

As formerly drawn it contained some very strong provisions as to licensing, impounding and killing dogs, which certain women claimed made the bill obnoxious, and some crowded and tumultuous hearings were held. As a matter of compromise many of the teeth were taken from the bill, causing someone to remark that as changed the bill would "protect dogs from sheep," which, however, was not exactly the case. Even with amendments it was not possible to pass the bill until the last session, when the measure was carefully drawn and brought forth no antagonism except from a few cattlemen who maintained that the collars provided for dogs would cause trouble in the brush. The new law throws several important safeguards about the sheep industry which is becoming more important throughout the valleys of California where depredations from dogs are most likely to occur.

Another bill for the protection of livestock is Senate Bill 268, by Rigdon, which carries an appropriation of $50,000 to employ hunters, trappers and poisoners for the control of coyotes, lions and bobcats. The sheep men will receive the greatest benefit from the protection offered through this measure since hundreds of lambs are the victims of predatory animals each year, but the aggregate annual loss of this character in calves, turkeys and chickens also runs into large figures.

Of all of the agricultural bills that were passed at the recent session this seemed the least likely to be signed by the governor because of the large appropriation carried. Important arguments which helped win his signature were that the federal government will now cooperate by appropriating a large sum of money for the same purposes, and that rabies recently has been spread through certain districts by coyotes.

Pure Bred Bulls Required

It seems a sad commentary on human nature that we must legislate to compel individuals to improve the quality of their livestock, and thereby make more money, but this is the object of Senate Bill No. 606. For the year 1922, 25 per cent; for the year 1923, 50 per cent; and for the year 1924, 75 per cent of all the bulls running upon any open range must be pure breds of recognized beef breed. The definition of "pure bred bulls" is rather liberal, however, they being defined as "bulls bred in a herd of one of the recognized beef breeds, the ancestral sires of which must have been registered bulls of the same breed for at least four generations and the dams of which must have been cows of the same breed of good quality."

Among the most profitable outdoor sports in some sections of California has been the stealing of cattle. The hide and brand law has made this more hazardous, and a few amendments passed by the recent session will give the cattlemen increased protection. A bill providing that before estrays are sold notice must be given to the director of agriculture describing the brand of such animals will also aid in controlling this nefarious business.

Dairymen vs. Cattlemen

The only real clash between live-

(Continued on Page 791.)

ACME
Silo Filler
CHOPS HAY
FILLS THE SILO
MAKES ALFALFA MEAL
The cheapest and best milk producing cow feed known — chopped alfalfa and corn silage —is most economically made by the Acme Cutter. You need one. Built in five sizes.

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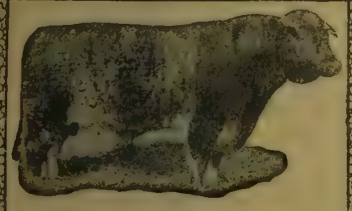

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Be certain to visit our herd. It is generally admitted that no herd in America has three better herd bulls than we own in Imp. Caledonia, Pine Grove King and Gainford Matchless. We can at all times supply foundation material at prices based on sound values.

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WEST SACRAMENTO, CALIF.
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Rosebud Shorthorns
A Choice Herd of Fifty Females Headed by Milmar Stamp a Cruickshank Secret
FOUR BULL BARGAINS:
We have for sale at real bargain prices four extra good yearling bulls that are well bred and of good color. These calves are just right for the range man who wants to improve his cattle. Visit our herd or write for prices. Satisfaction guaranteed.
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NOVEMBER 2
is the date of my
Fourth Public Sale of Shorthorns
30 Scotch Females
10 Scotch Bulls
All of My Own Breeding
W. M. CARRUTHERS
Live Oak Cal.

MOLASSES
"... the cows certainly never looked smoother or more thrifty"
says H. G. Gross, Eureka, Cal.
Every day we hear such comment about Camo Molasses from men who are feeding it. Every day Camo Molasses is demonstrating, right in the barns, that it does cheaply what no amount of high-priced feed will do.
Mr. Gross says further in his letter, "It is an economical and appetizing food." More than that cannot be asked of any food. Cheap and efficient—that's Camo Molasses.
Write to us today for a booklet telling more about Camo Pure Hawaiian Cane Molasses.
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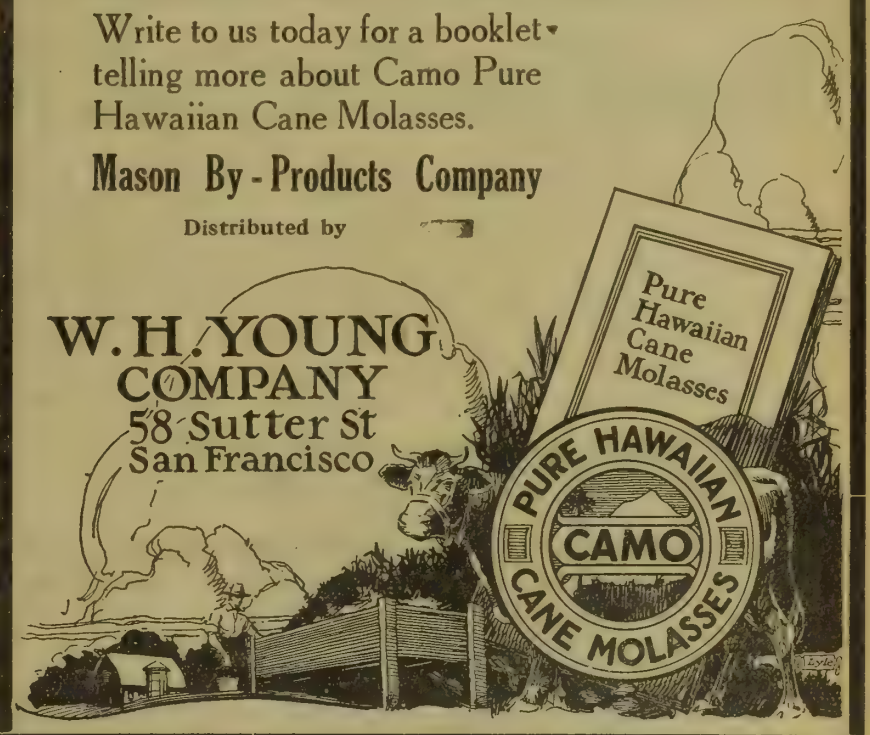

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Big Type Polands
We are offering a number of fine gilts by Lendorris Liberty Bond bred to Lendorris Liberator—a half-brother to the grand champion of this year's National Swine Show—for March litters.
W. L. Haag and Son, Hanford, Cal.

O.U.R. Hampshire Swine
Ortega-Underhill-Rancho
Thos. T. Dinsmore, Mgr., Santa Barbara, Cal.

INFECTIOUS ABORTION

E. T. Hallman, veterinary section Michigan agricultural college, states that recent researches on abortion disease indicate that the bull is not as important a factor in transmitting abortion as was formerly believed and that abortion may be very largely prevented by removing non-infected pregnant females from sources of infection.

In case there is no abnormal discharge from the reproductive organs of the bull and no cow with an abnormal discharge from the reproductive organs is bred, it is doubtful if much good is accomplished by douching the bull's sheath before and after service. If there is any reason to suspect the bull his blood should be tested for evidence of abortion infection.

There is considerable evidence that infection of females with abortion bacilli most frequently occurs after conception and all measures that will lessen the chances of post conception infection materially reduce the number of abortions in the herd. The isolation of all aborting and parturient cows in maternity stalls and individual paddocks until abnormal discharges from the reproductive organs have ceased, the avoidance of carrying these discharges on the feet of attendants to the feed and water of other cattle, scrupulous cleanliness in the care of the barn floor with the daily use of a good disinfectant in the gutters will greatly lessen the danger to pregnant cattle.

If all heifers of breeding age can be removed at the time of service to a barn used exclusively for pregnant heifers and kept isolated from the remainder of the herd until the termination of pregnancy, abortion in heifers may be very materially lessened. Where practicable separate barns and pastures should be provided for unbred and pregnant heifers.

Since abortion infection is most frequently introduced into clean herds through the purchase of infected female cattle it is suggested that owners of clean herds be particularly careful in purchasing stock.

From the standpoint of disease prevention it is safer to buy a young unused bull than one that has been used on infected cows although bulls that have been used on infected cows are not necessarily harmful.

As a means of preventing abortion infection vaginal douching prior to breeding is of questionable value although this practice may be helpful in overcoming certain causes of sterility. A solution made by adding one ounce each of baking soda and table salt to one gallon of clean warm water makes a satisfactory douche. One gallon should be used for each douche. This latter solution may be safely used the day the animal is to be bred.

SHIPPING HOGS IN HOT WEATHER

Due to hot weather the usual losses to livestock, especially hogs, are enormous. By following the suggestions given here as nearly as possible all or at least a part of the damage can be eliminated.

Haul or drive your hogs to the shipping station in ample time to allow them to become rested and cool before loading.

When ordering a car for loading hogs insist on a clean one bedded with sand, clay or earth.

Wet thoroughly the bedding and interior of car before loading.

Give only a small feed of grain before shipping. Heavy feed means more body heat generated.

Load not more than one hour before the train is to depart.

Load slowly and carefully. Avoid excitement and do not beat or bruise the animals.

Load not to exceed 14,000 pounds fat hogs and 16,000 stock hogs in a standard 36 foot car during warm weather.

Have water applied to the bedding in the car at available points immediately after the train stops.

Use ice on floor of car whenever possible, three blocks to a car.

Report inattention or neglect promptly to the superintendent of the division on which your shipment originates.

Never throw water directly on the hogs after they become heated. Run it on the floor or car under them instead.

OREGON'S DAIRY BULL REGISTRATION

At the last session of the Oregon legislature an act was passed establishing what is known as the dairy bull registration board which designates the dairy husbandry department of the state agricultural college as the board.

No person, firm or corporation shall offer for sale for dairy breeding use any dairy bull that is not of registered pure blooded breeding and licensed to be sold for such purpose within the state. Any person, firm or corporation offering for sale within the state for breeding purposes any dairy bull shall cause the name, description and registration papers of such bull to be enrolled with the dairy husbandry department of the Oregon agricultural college and shall procure a license from said dairy husbandry department as provided for. In order to secure a license certificate the owner of the bull must make application to the professor of dairy husbandry of the Oregon agricultural college for same and shall furnish certificate of registration with application. The dairy husbandry department is granted powers to refuse a license to any animal suffering from any dangerous disease, or that is known to transmit inferior and undesirable qualities to his offspring or to lack prepotency.

IMPORTING BETTER LIVESTOCK

A desire by Mexican officials to improve the quality of livestock is reported by the American consul in charge at Mexico City. According to information received through the state department, Mexico offers a market for a limited number of well bred swine. There is also interest in cattle.

The government agricultural school at San Jacinto (Mexico City) has a few pedigreed Duroc-Jerseys, as well as hogs of other breeds, imported about two years ago for demonstrating the qualities and characteristics of the different breeds to farmers who might be interested and for breeding purposes. Early this year two carloads of pure bred Duroc-Jersey hogs were imported by this agricultural school and it contemplates importing new stock of various breeds. The purpose is to introduce new blood and to furnish farmers with young pigs of good quality. The two breeds of swine for which there is particular demand are the Duroc-Jersey and the Poland China. There is less demand for hogs of the bacon type.

The American consul indicates that the interest in improved livestock is due largely to a desire to replace animals lost during the late period of political disturbances. By introducing good breeding stock Mexican farmers expect to improve the quality as well as to increase the numbers. Livestock breeders in the United States are advised that to obtain direct orders some advertising in Spanish is required. However, the department of agriculture is in a position to put American livestock breeders in touch with officials and others in Mexico who are interested in importing livestock.

CAUSE OF HIGH COUNT

M. E. Coulter, inspector for the state department of agriculture, reports that a pasteurizing plant in his district has been experiencing difficulty in lowering the counts on the milk they were pasteurizing. Apparently the milk had as high a count after the process as before it, and it became evident that some organism was present that resisted the pasteurizing temperature. Mr. Coulter undertook a thorough investigation by means of bacterial counts in order to locate the cause of the trouble. By this means he traced the trouble to a certain milking machine and there located the trouble principally around the glass cylinders in the milk tubes, in the check valve in the bucket lid and in the pulsator. Before the trouble was located and corrected the pasteurized milk had a count of about 500,000, afterwards it had a count of about 1,000.

EXPECT FEWER CALIFORNIA LAMBS TO REACH BIG MARKETS

The movement of California spring lambs to middle western and eastern market centers this year will probably be lighter than in 1920, according to information gathered by representatives of the United States bureau of markets. Increased marketing expenses and considerably lower prices than could be obtained a year ago are the chief causes for the expected decrease.

Freight rates from California points to Omaha have increased more than 20 per cent during the past year. Expenses in transit, such as unloading and feed at the various stations where stock is stopped en route are still high in the opinion of shippers. Selling commission fees have also advanced one-third compared with those charged in the spring of 1920.

In the spring of 1920 the freight rate on sheep from Mendota, California, to

Breed the Kind that Always Sell

The successful breeder, no matter how much glory he may win through the breeding and development of high class animals, must ever keep in mind the occasions when he is to reap some of the financial rewards of the breeding business.

Successful development of heavy producing families of registered Holsteins, that transmit production in a uniformly regular manner is by no means the general rule, but when such a family is developed it immediately attracts attention and acquires a value far beyond the average.

KING ARALIA MEAD

This young bull may well be regarded as one of the great sons of King Mead of Riverside, as his dam was not only one of the greatest producers we have developed but was also an individual of great excellence.

His Sire: KING MEAD OF RIVERSIDE, whose daughters comprise one of the notable yearly record groups of the breed, including Aaggie Acme of Riverside 2nd, the holder of the world's strictly official record of 1,331.77 lbs. butter, and Aralia De Kol Mead, 1,215.2 lbs. butter in one year, also a strictly official record.

His Dam: MARGARET ARALIA DE KOL, 1,161.48 lbs. butter from 22,922.7 lbs. milk in one year. She is by Aralia King, that wonderful individual son of Aralia De Kol, the first cow to make 28,000 lbs. milk in one year, and is out of a good yearly record daughter of Juliana King of Riverside, sire of Aaggie Acme of Riverside.

Margaret Aralia De Kol also holds the California record in the eight months after calving division, with 25.86 lbs. butter in 7 days, which won second money in the Holstein-Friesian Association of America prize list 1917-1918. KING ARALIA MEAD is now in active service in the choice herd of young females owned by

H. E. VOGEL
WESTLAWN FARM FRESNO, CAL.

Not every breeder within his lifetime will be rewarded by the development within his herd of such a family, nor is it actually necessary to develop such a family in order to achieve success.

But it is absolutely necessary, if such a family is not brought out, to link the herd up through the herd sire or a succession of herd sires, to some outstanding family of the breed, and when this is done after careful selection the herd shares in the general prosperity of the many herds that are connected up with the same family.

It has been our good fortune to develop several family groups that are quite generally recognized as being among the most substantial families of the breed, and the unusual situation of several such families within one herd has afforded us an opportunity for the blending of great producing families such as has been the privilege of few breeders.

Whether you are the owner of a small herd that must make your living as it develops into an asset that you will one day turn into a substantial cash sum, or whether you own a large herd with a corresponding investment of money, good business practice dictates that you must have not only good breeding but POPULAR BREEDING as well.

Perhaps a bull at the head of your herd from one of our great proven families would be just the added touch that your herd needs to round it out for successful development. Let us talk the matter over with you.

A. W. Morris & Sons Corporation
Woodland, California

Missouri River markets amounted to $241 per car, while this spring the freight charges amount to $321.50 per car. Commission charges at Omaha were $18.75 per car a year ago, compared with $25 per car now. In addition to these sharply increased expenses the producer is confronted with a decline in price of approximately $8 per 100 pounds. The first California spring lambs to arrive at Omaha in 1920 brought $19.75 per 100 pounds, whereas the opening price this year was $11.50 per 100 pounds. The movement of these lambs to market began about two weeks earlier this year than last, chiefly because of a mild winter and an abundance of feed in most districts.

The minimum time required to ship lambs from California to Missouri River points is from seven to eight days. The first shipment arrived on April 20 this year and on May 6 in 1920. These first lambs averaged around 65 pounds and sold at $11.50 per 100 pounds with a 25 per cent sort at $8. Since the first arrivals other shipments have been received, one of which consisted of 66 pound lambs that brought $12.

One gratifying feature from the standpoint of California shippers was a recent reduction in charges levied at feeding stations in the vicinity of Omaha. These charges now amount to three cents per head per day for the first ten days and two cents per head thereafter, compared with former rates of four cents and three cents, respectively.

COW TESTING PAID THIS MAN

"Cow testing associations are constantly proving their worth to their individual members from the standpoint of dollars and cents," says E. M. Harmon, dairy extension specialist for the Missouri College of Agriculture. "If a man will study his dairy herd and the results secured by the tester he can greatly increase his profits. A good illustration of this is the experience of John Bluhm, one of the enthusiastic members of the Pettis County Cow Testing Association. A review of his average production and profit during the last two years shows that his cows during the first year averaged 7,720 pounds of milk and 280.1 pounds of fat, while this annual production had increased in the second year to 11,004 pounds of milk and 374.8 pounds of fat per cow. By giving careful heed to the facts revealed by the tester Bluhm had increased the average annual production of his dairy herd 3,284 pounds of milk and 94.7 pounds of fat per cow. His annual profit per cow has grown from $107.25 to $179.23.

"While this is really an abnormal increase in profit yet we believe it can be said conservatively that any man can do as well if he will practice correct breeding and feeding methods and study his herd by means of records on each individual cow. The cheapest and most accurate method of securing these records is through the cow testing association."

ALFALFA WEEVIL MENACE

At the request of Governor Stephens, who is taking a keen interest in the protection of California's alfalfa industry from the alfalfa weevil, G. H. Hecke, director of agriculture, sent Harry S. Smith, in charge of pest control work of the department, to Reno to investigate the situation insofar as it menaces California.

The alfalfa weevil outbreak in the vicinity of Reno, Nevada, presents a very serious situation for the alfalfa industry of California. It was at first thought that the infestation there was limited to a single field and that for the protection of both Nevada and California an attempt to entirely exterminate it by poisoning and later burning the field would be advisable. Investigation by Mr. Smith and the Nevada authorities showed, however, that it has already spread over an area of approximately 1,000 acres and that it has become too thoroughly established to prevent any possibility of a successful extermination campaign.

The greatest menace to California lies in the extensive auto camping travel between the infested area at Reno and California points. Alfalfa is growing abundantly along the highways and large numbers of auto campers roll out their beds in these places. The weevils crawl into the bedding, are then rolled up and perhaps the next night's camp is made beside a California alfalfa field into which the weevils could easily make their way.

It is very likely that this is the means by which the weevil came to Nevada from Utah, several hundred miles away. It is probable that the state department of agriculture will place inspectors at the border in order to enforce strict quarantine regulations with reference to camp outfits.

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Venadera Herd
Offers some excellent young bulls ready for service. Sired by Japs Perfection Owl. Out of cows with Register of Merit records. Also a few heifer calves.
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Young Jersey Bulls
FOR SALE
One at the head of your herd will pay big dividends on his cost. Write to
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DON'T WAIT — Write us your needs in Registered Holsteins—young bulls from yearly tested dams in our Federally tested herd of 800, headed by world record sires. Satisfaction guaranteed. Prices $150 and up. *Write for Sales List No. 304* and special newspaper on Carnation Registered Holsteins.
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Advanced Registry Dams. Sire's dam a 34-lb. show cow. Guaranteed healthy and right in every way. Prices Reasonable.
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BREEDING DATE BOOK---FREE
We have issued a convenient little book for the keeping of breeding dates of cattle, hoping to aid the breeder and cattle owner in maintaining accurate records. We will gladly mail you a copy free if you request it. A postal will do.
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C. L. Hughes, Sales Manager
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USE SHIRE HORSES
Breed your mares to Shire Stallions, good Shire Geldings are in demand. Get some registered Shire Mares.
Shire owners, record colts young, fees are double after one year old. Prepare Shires for fall shows, premiums are very liberal this year. For information on Shires write
W. G. Lynch, Secretary, American Shire Horse Association, Tonica, Illinois.

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RAISE BERKSHIRES
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They Always Top the Market
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Grinds corn, shelled or on cob—snapped corn—or complete stalk, ear, leaves, and all. Grinds oats, hulls and all; grinds barley. rye; special attachment for alfalfa, clover, millet, Kaffir corn and other roughage crops. Grinds into finest flour.

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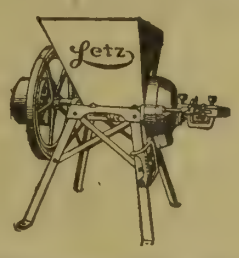

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125---REGISTERED HOLSTEINS---125

Gotshall & Magruder Herd, Ripon, Cal.

Wednesday, June 29, 1921

Excepting one cow only the entire herd owned by Gotshall & Magruder will sell in this offering.

The Gotshall-Magruder Company, a new corporation, will continue in the breeding business with a foundation herd which they now control.

THIS IS ONE OF THE MOST ATTRACTIVE OFFERINGS OF THE SEASON FROM EVERY STANDPOINT, TYPE, PEDIGREE, HIGH RECORDS, AND GOOD HEALTH.

The offering will include daughters of the 37 lb. cow Boweda, the 36 lb. cow K P Tola, the 35 lb cow K. P. Idyl Segis, a number of other daughters of 30 lb. cows, many with both short and long time records, and by such sires as Sir Aaggie De Kol Acme, King Mead of Riverside, It, King Segis De Kol Korndyke, Dutchland Colantha Sir Ormsby, Segis De Kol Pontiac Burke, Colantha Sir Pontiac Aaggie, Spring Farm Pontiac Cornucopia, Sir Fayne Corcordia, Prince Riverside Walker, and others of great merit.

EVERY ANIMAL POSITIVELY GUARANTEED TO BE A BREEDER; EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

TERMS OF SALE: One-third cash, balance in three equal payments in three, six, and nine months, with approved note bearing eight per cent interest. Applications for credit may now be made either in person or by letter to the owners. GOTSHALL & MAGRUDER, Ripon, Calif. In absence of such arrangements before opening of sale the terms are cash.

Write to management of sale for catalog.

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Baby Chicks—You are looking for the largest returns for your "Baby Chick Money." To get this you want chicks that will live, have vitality and will produce. Our Anconas are all from first class Hoganized stock. The White Leghorns are all mated to roosters from trapnested stock of 229 eggs or better. Now we also have especially good layers in the R. I. Reds, Fancy Dark Reds, Fancy Anconas and Barred Rocks. Our stock will produce the eggs. We have as well an equipped hatchery as there is, and know how to hatch strong sturdy chicks. May and June prices on White Leghorns are $16.00 hundred, $150.00 thousand. Anconas, R. I. Reds, Barred Rocks, $19.00 hundred, $180.00 thousand. Fancy Dark Reds and Fancy Anconas, $24.00 hundred. All chicks are sent Prepaid by Special Delivery Parcel Post. Can give immediate delivery, or will return your money at once. ORANGE COUNTY HATCHERY, Santa Ana, California.

Big "Profitable Poultry" Summer Sale—Feed lower, eggs higher this fall. Buy your heavy winter laying pullets, hens now—at reduced price. Chicks off every week of year. Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, Andalusians, Ducks (Turkeys). Bred 25 years to lay winters. 180-290 eggs yearly, often clear customers $1.00 monthly, winters. Farmers convert your cheap feed into dear eggs. Write Profitable Poultry, 19 North Fair Oaks, Pasadena.

JUNE HATCHES
QUALITY CHICKS, CHEAP PRICES
White Leghorns, 10c; Brown Leghorns, 12c; R. I. Reds, Black Minorcas, 15c; Barred and White Rocks, 16c—any quantity. Insured parcel post delivery 50 cents hundred extra. Orders filled promptly. Circulars free. Also booking orders for Fall Delivery. Service, Quality, Reasonable Prices are what you get from THE MISSION HATCHERY, Campbell, California.

Petaluma Hatchery. Established 1902. Capacity 30,000 chicks a week. White Leghorn chicks from heavy laying free range stock after May 15th, 15c each, $13.00 per 100, $120.00 per 1,000. Brown Leghorns one cent more than White Leghorns. We positively guarantee safe arrival and full count of good strong chicks and no questions asked. L. W. Clark, Proprietor, 615 Main Street, Petaluma, California.

S. C. White Leghorn Baby Chicks from heaviest laying (hoganized) stock. Safe delivery; live vigorous chicks guaranteed. No money in advance; pay on delivery. Price from May 15 to June 30 $3.50 per 25, $7.00 per 50, $12.50 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh St., Petaluma, California.

Ten Weeks Old Hudson White Leghorn Cockerels—Bred from our 200 egg hens. California winners in three Pullman, Washington, contests. We won "SPECIAL PRIZE" on pullet No. 3 for April in present Missouri National Egg Laying Contest. $1.50 each, $15.00 per dozen. CHAS. HUDSON, ESCONDIDO, CALIFORNIA.

Fine Young King Pigeons $3 a pair. Guineas $5 a pair. Wyandotte, Partridge Rock and Leghorn eggs $3 a setting. Are disposing of some of our breeding geese; offering them at a bargain price. Yearlings $15 a pair, 2 year old birds $20 a pair. All bred from imported stock. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

White Leghorn Baby Chix for May and June delivery from heavy laying, Hoganized stock. Safe arrival of full count, live, strong chix guaranteed. $12.50 per hundred; $120 per thousand. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

Baby Chicks—"Only the best," May and June delivery. White and Brown Leghorn, R. I. Reds, Barred Rocks. Safe arrival guaranteed. All vigorous chicks from good layers. Send for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67-D, Palo Alto, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. **Eggs** from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

Baby Chicks from my carefully selected, heavy laying strain of purebred S. C. White Leghorns, June and July delivery, $12.00 per 100; special reductions on lots of 300 or more. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

POULTRY

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

MISCELLANEOUS

Owner-Agents can make much money selling CONSERVO Steam Cooker and Canner to neighbors and friends. The most perfect conservation necessity ever made for the home. Saves Food, Time, Fuel and Work and makes better, tastier, more nutritious food than can be prepared in any other way. Works on any stove with any fuel. Cook all kinds of food in it at same time without mixture of flavors or odors. Also the greatest home fruit and vegetable canner. Cans 16 quarts of fruit or vegetables at a time by the improved Cold-Pack Process which cuts out the hardest work of canning. CONSERVO is endorsed by Home Demonstration Agents, Dept. of Agriculture and hundreds of Domestic Science Schools. Costs but $14.00, complete with Book of Recipes and valuable information about Steam Cookery and Cold-Pack Canning. Order your cooker and learn how you can make money selling them to others in your vicinity. Sold and guaranteed by BARKER BROS., 722D South Broadway, Los Angeles, California.

Ship Your Hay to Us and receive cash when car is unloaded. Pacific Growers Exchange, Central Bldg., 6th & Main Sts., Los Angeles. Pico 3384. Alex. Thornton—Gordon Davidson.

Tobacco — Kentucky Homespun Natural Leaf Chewing and Smoking, 10 lbs. $3, 20 lbs. $5. Andrus Tobacco Agency, Box 367, Mayfield, Ky.

MACHINERY

1 Victory Oil Engine, 12 H. P. New, with Friction Clutch Pulley; regular price $775.00; will sell for $656.00. 1 20 H. P. Victory Oil Engine, two-cylinder, used two years, in first class shape; cost new $1150.00; will sell for $500.00. 1 New Associated Engine, 12 H. P.; will burn coal oil or distillate; regular price $736.00; will sell for $455.00. Edwin A. O'Donnell, Livingston, California.

Tractor Scraper for Sale—Have finished leveling my land with my Compton One-Man Tractor scraper. Would not want a better scraper if I had any more leveling to do. Will sell scraper for $130.00 cash, f. o. b. Fresno; $100,00 less than I paid for it. Scraper as good as new. Dan Hartwig, 2446 Rose Ave., Fresno, California.

For Sale 40 rebuilt windmills, tanks, pumps, steel towers, cylinders, rods. Special new 1,000-gallon galv. tanks, $39.25; 2,000, $53.25; 3-in. irrigating pipe, $16.75; 4-in., $19.75; also used pipe. Why pay more? Demmitt, 120 N. Main, Los Angeles.

For Sale—Spalding Deep Tilling Plow, new. Will plow 16-18 inches deep. Just right for team or small tractor. San Francisco or Los Angeles delivery. California Plow Company, 140 Polhemus St., San Jose.

For Sale—Pomona pump, 28 head, nearly new. Clarence Wagner, Terra Bella, California.

WANTED

Wanted—Small California ranch that will feed few cows and chickens. Near school, not isolated nor desert. Must be good soil with cheap gravity or own water for irrigation. Also fuel. Give location, character of soil, improvements, crops and lowest cash price. No high priced land considered. W. A. Linkletter, Colton, California.

Party for Poultry Concession on range of 40 acres, alfalfa and orchard. Share basis or rent. 1000 capacity steam heated brooder, housing 600 to start. Part of furnished house with screen porch and shade trees. Address: O. Goldsworthy, R. No. 1, Glenn, California.

Wanted—A working manager for a deciduous orchard. Must be competent in every respect, with a small family; good house furnished; will pay satisfactory wages. Regular job for the right man. Box 4, Cultivator, Los Angeles.

Want To Hear from party having farm for sale. Give particulars and lowest price. John J. Black, 116th St., Chippewa Falls, Winconsin.

Farm Wanted—Wanted, to hear from owner of a farm or good land for sale for Fall delivery. L. Jones, Box 742, Olney, Illinois.

Wanted, to Care for Orchard; own team; experienced man. 1529 West Sixteenth Street, Los Angeles. West 6352.

Agents Wanted — Benedict Nursery Co., 185 E 87th St., N. Portland, Oregon.

SEEDS AND PLANTS

Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch—767 S. Central Avenue, Los Angeles, Cal.

R*O*S*E*S—$1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue KAVAN NURSERIES, San Bernardino, California.

10,000 Zante Currents, 2,000 Malaga rootings, some Tokays, Sultana; farm and garden seeds and plants. Box 501, Fowler, California.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination. 25c per lb. Aurora Seed Mill, Stockton, California.

ROOFING MATERIAL

Roofing Paper Firsts. Complete 1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35. Outside Bungalow Paint, $2.25 a gal. Roof Paint Special, 40c a gal. Prompt deliveries on Mail Orders. ANGELUS ROOFING & PAPER CO. 764-766-768 So. San Pedro Street. Phone Bdwy. 5401 Los Angeles, Calif.

FARM LAND FOR SALE

For Lease—9,000 acres, range very open, first class feed, well watered, good fences and improvements. Will carry 1,000 head. Long term lease at $1 per acre per annum.

For Sale — 1,280 acres near Gridley; 1,100 acres checked, canal through property. Good soil and improvement. $80 per acre.

David J. Stollery, formerly secretary, California Cattlemen's Association, 222 Sharon Building, San Francisco.

For Sale—Four year lease, 110 acres, Colorado River Indian Reservation, which is soon to be open for settlement, and will be the greatest reclamation project in the West. Unexcelled for dairying, stock raising and general farming. 55 acres Durango cotton, 40 alfalfa, balance to corn and maize. Eleven head young mules, harness, wagons and all necessary implements. Cheap water and plenty of it. Present crop should pay for place. For particulars address: C. E. Golding, Parker, Arizona.

For Sale—$7,500, one acre and half, all under cultivation and irrigation. Modern five room plastered house and good well. Including eleven head of Holsteins and Guernseys and one heifer. Cow barn, separator house, garage and family orchard. At Springdale, only two blocks to car and public school. Eleven miles from Los Angeles, California. Place can be made to accommodate thirty cows. Price $5,850 cash; balance on mortgage. Address owner, A. J. Reynolds, Compton, California, R. F. D. 2 Box 77.

CALIFORNIA IRRIGATED LANDS
Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

65 Acres Fine Apple, pear, prune, walnut and berry land. 15 cleared, balance pine and oak timber. All under irrigation system. On main road. Railroad siding on property. Electricity. Buildings. 3 acres young pears, family orchard, small berry patches. Elevation 2,000 feet. Delightful climate. Live community. $6,000. Terms. C. H. Eckles, Paradise, Butte County, California.

Miller & Lux Lands—Write or call for beautiful illustrated map and booklet, containing valuable information for home-seekers. Kramer, Lake & Co., 441 Monadnock Building, San Francisco, California.

For Sale—160 acres 8 miles N. E. of North Bend, Oregon, on county road; $2,500.00 cash, or will give terms. For further information address: William M. Brown, 544 Union Street, Salem, Oregon.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

CATTLE

Guernseys — Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

For Sale—35 dairy cows, 15 heifers, 10 calves; complete dairy equipment; 50 acres alfalfa, cross ditched. Lease 5 years. Five miles from Sacramento. Price $9000. G. Oswald, 1827 2nd Street, Sacramento.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome, information cheerfully given. T. T. Miller, Hollister, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Registered Jersey Bulls For Sale—Some excellent individuals of the St. Lambert strain with high testing dams. Ages, ready for service down to calves. The prices will suit you. E. M. Ward, Box 68, Lancaster, California.

Being Short of Pasturage, will sell few mature cows. Buyers' choice of herd. Tuberculin tested. Write Redwoods Ayrshire Farm, La Honda.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

HORTICULTURAL PRINTING

Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles

DUCKS

Caldwell's White Muscovy (quackless) ducks. Win, weigh, lay and pay. Eggs, ducklings. Free circular. Caldwell Duck Ranch, Box 274, Los Angeles.

HARNESS

Chain Harness — Save money buying of Davis Saddlery Company, 427 J Street, Sacramento. Good horse collars, $5.00 and up.

TRACTORS

For Sale—Holt 75 with implements. Or exchange part for good dairy cows. C. E. Newman, Chowchilla.

LIVESTOCK

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks. Butte City Ranch, Box C, Butte City, Glenn County, California.

PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

TREES

PLANT CAROB TREES
Big Returns.
Trees and Seed for Sale.
H. S. Burns, 820 Story Building,
Los Angeles, California.

Avocados—I have a limited number of fine trees nicely balled and well established from two to six feet in height which I am offering for from two to three and a half dollars each. Fuerte, Linda, Puebla, Sharpless, Ganter and No. 2. Yearling Valencia trees 75c balled and guaranteed. A. R. Rideout, Rideout Heights, Whittier, California.

For Sale—Placentia Perfection and Eureka walnut trees, also orange, lemons, avocado, loquats and the leading varieties of fruit trees, berries, rhubarb, grape vines, etc., ornamentals and a fine assortment of rose bushes. Ketscher's Nursery, 1101 E 4th Street, Santa Ana, California. Phone 572W.

For Sale—100,000 Sour Orange Seedbed Stock. 10,000 Avocado Seedlings eight inches and up in pots. Also Washington Navel, Valencia Late Orange, and Eureka Lemon Trees. T. J. Walker, First National Bank Building, San Fernando, California.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

5,000 Valencias; 2,000 Eureka lemons; 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

For Sale—A few extra choice field grown Sharpless and Dickinson avocado trees for summer and fall delivery. Barrett-Chenoweth Nursery, Box 1206, Puente.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Budded Avocado Trees. Write for special prices for orchard planting. S. & S. AVOCADO NURSERY CO., 15 North Raymond Ave., Room 6, Pasadena, Calif.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

GOATS

For Sale—Purebred, Hornless, Shortcoated chocolate Toggenburg buck kids, 6 quart strain. Perfect conformation for milk production. Prices interesting. Pedigrees on application. High grade milk does, yearlings and kids. Carneta Goatery, Vista Street, Route 1, Box 81, East San Gabriel, Mrs. Harry Carnes.

For Sale—Pure Swiss Toggenburgs, does and bucks, from finest milk strains. La Corona Goatery, R. 1-416, El Monte, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class. Owensmouth. See A. V. Austin, Van Nuys, California.

BERKSHIRES

Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calse Orchards, Martinez, California.

POLAND-CHINAS

Registered Poland Chinas. 40 tried brood sows; 40 gilts. Some choice young boars all at reduced prices to move at once. These Polands are as good as can be had anywhere at any price. W. D. Trewhitt, Route B Box 47, Hanford, Calif.

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California

Big Type Poland Chinas—Breeding stock of both sexes for sale at all times. Prices reasonable. J. N. Cook, Orland.

HAMPSHIRES

Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

TURKEYS

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St., Pomona, California.

Mammoth Bronze Turkey Eggs 20 cents. W. L. Duvall, Pomona, California.

RABBITS

Pedigreed Flemish Giants — No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

Guinea Pigs Wanted, highest price paid. Smith, Route 1 Box 139, Pasadena.

NEW AGRICULTURAL LEGISLATION

(Continued from Page 787.)

stock interests developed over Senate Bill No. 98 which provides for tuberculosis eradication areas. Although the measure was introduced early in the first portion of the session objection to it was not raised until after it had passed the senate.

When the measure was up for hearing in the livestock and dairies committee of the assembly it was urged that the bill be held until the sentiment of the dairymen could be obtained, but contrary to the request the bill was voted out favorably. Immediately following this action a meeting of the dairymen was held and it was understood that the bill would be returned to the committee since it was unsatisfactory to the dairymen in its existing form. This was not done, however, and following the insertion of a few amendments the bill was passed unexpectedly by the assembly.

The sentiment of the dairymen had by this time developed almost unanimously against it and the cattlemen were equally unanimous in favor of it. The whole matter was discussed in a preliminary meeting and then presented to the governor by both sides, and the governor finally decided to sign the bill. The provisions of the bill are so well known that they need not be mentioned, but the effectiveness of the law will be carefully watched and changes suggested at the next legislative session if these seem advisable.

A bill along somewhat similar lines by Assemblyman Cummings also received the governor's signature. This, however, provides voluntary testing by dairymen who may desire to have accredited herds. The measure, which is similar to laws in effect in many other states, had the united support of the dairymen. It originally carried an appropriation of $50,000 to assist in remunerating dairymen for loss of condemned animals, but the appropriation was eliminated by the ways and means committee.

Assembly Bill No. 443 will protect purchasers from animals which have been tuberculin tested by a state inspector by requiring that no such animals may be sold prior to notification of the director of agriculture. This will partially stop the sale of tubercular animals as family cows, a most pernicious practice which has been all too common. The same measure makes the Mallien test the official one for determining glanders in horses.

Another bill aiming at the control of tuberculosis is one by Cummings, providing that all skimmilk, whey or buttermilk sold at creameries for feeding to livestock must be pasteurized. This bill received very little attention considering its far reaching effects. The milk from tubercular animals is unquestionably an important source of tubercular infection and little has formerly been done to eliminate this source. Buyers of hogs from some sections of California where milk from creameries is fed refuse to purchase except upon the basis of the condition of the animals at slaughter since they have found that more than 50 per cent of these animals are tubercular.

Only one measure affecting the poultry industry was passed, this being a bill to regulate the sale of imported eggs, powdered eggs and egg products. These must now be sold subject to inspection by the state board of health. As originally introduced the measure resembled a law now on the books in Oregon, and in this form passed the assembly. In the opinion of the attorney general it would have been unconstitutional in California, and for this reason the bill was changed to meet the objections. Although some protection from foreign eggs is afforded it is well understood that the real protection in this direction must come from tariff.

Altogether the livestock men can feel that their interests were well cared for by the legislature and the governor.

Lowering the Cost of Irrigation

By R. W. Sparling

EVERYONE knows that our era of waste and extravagance is over. The high prices that were both a cause and effect of this wastefulness cannot be paid or obtained now and will probably not exist again for a long time to come. California growers are going to face heavy losses until we have adjusted ourselves to these new conditions and get on a lower cost and more efficient basis than we have been for the past few years. But if we wait for others to lower their prices to us to a point that will give us a profit without making a material change in our own methods the most of us are going to be left holding the bag. Efficiency, like charity, should begin at home.

Now, to get down to specific cases, the majority of us are either producing, buying, using or selling water for irrigation. The cost of this water is an important item, its loss or waste is a more serious matter than many of us think, and its distribution in correct amount and at proper times is an all important factor in the productive capacity of our groves. Yet it is a fact that of all the water produced by the irrigating companies more than one-third is never accounted for in sales to consumers and it is probable that of what is delivered under present methods barely half is, or can be, distributed over the land under conditions that produce best results. If you doubt these facts, do a little systematic investigating of your own and you will soon be a hot advocate for more efficient methods. So much, however, for destructive criticism. Let us see what can be done toward improvement.

The very first step and the rock bottom basis of efficiency in any business line is complete and exact information. How much water are we pumping or buying? How many cubic feet or acre feet were actually produced last month from each source and what did each unit on the average cost? That is production and balanced against it are total actual deliveries. Suppose we are selling to a number of users or distributing over several sections of land. Each one requires some certain amount. If A is given ten per cent more than he calls or is charged for, B a half more perhaps, and C twice as much as he should have, even though a third be lost through bad pipe or any other way, none of the three may have direct cause to complain, but the distribution is poor. The water lost is costing each one something and it should be corrected and not ignored. The idea among the stockholders of mutual companies that all are getting good measure and all the water goes to members of the company anyway is utterly misleading and tends to hide wastes and losses instead of detecting and remedying them.

It is a very simple matter, and cheap in proportion to the amount returned, to install adequate measuring and recording apparatus that will eliminate guesswork entirely in the handling of this water. A continuous ink record taken automatically of the flow over a standard weir will tell a tale that means much and can never be disputed. A meter may not record the circumstances but it will certainly state a fact as to how much water has gone through that pipeline. There are several makes of both types of equipment on the market that are reasonable in price and reliable. A few of them placed at strategic receiving and distributing points will provide a fund of exact information that will quickly open the eyes of any water superintendent.

But let's go even farther—toward lower costs. There is no phase of farming or fruit raising that will bring surer returns than precise methods of the application of water. Quite often, and with a third less water, one can increase the fertility of the soil fully 20 per cent by adopting definite scientific means for measuring the application to a given section. A common "horse sense" analysis will soon give definite data as to the exact amount of water required to give the best results with this or that condition of soil or season of the year. Water is by far the most important soil constituent, yet "enough is plenty." An excess is not only wasted from an economic standpoint but actually lessens productivity. Four meals today and two tomorrow may average up all right but digestion will surely suffer.

An accounting system in any line should disclose the losses and furnish the information essential to overcoming them. But no system can be installed or maintained to any advantage without intelligent oversight and continued application. It is a wonderfully efficient tool but must be effectively used to be of value. There must be a definite goal to be reached and a well defined plan for reaching it, then the efficiency lies in utilizing every available means to best possible advantage. In this case the goal is reduction of irrigating costs, the plan is to employ more businesslike methods of production and distribution, and the available means is a water accounting system that will give exact information on the cost and amount of this water from the time it leaves its gravel bed till it enters the roots of the trees.

Once this information is secured and utilized as we use any other cost data in business, and we can apply the precise methods to our irrigation water that we insist upon in all other cash or merchandise dealings, there will soon be some results apparent of real efficiency. A cut in irrigation costs that would be an appreciable help in making ends meet would be very welcome just now and indifference should not be permitted to be the obstacle.

It is obvious then that a scientific irrigation program, with lessened costs and increased production, comes only through the positive knowledge to be derived from exact measuring and recording equipment. Demand and apply this knowledge with the same direct thoroughness that have made our growing and marketing methods the wonder of the country and our irrigation costs will soon take the tumble that is due them.

CAPRIFY NOW

Instructions to fig growers for caprifying Calimyrna figs have been issued by Ira J. Condit, horticultural department director for the California Peach and Fig Growers, in which attention is called to the fact that June caprification has started in the southern sections of the San Joaquin Valley.

Last year caprification started June 10 in the Fresno district, and this year Condit predicts an earlier season in the Exeter district, with other sections delayed by cool weather.

In his instructions Condit states that Calimyrna figs should be caprified when about one-half inch in diameter. The caprifying season will last approximately three weeks, depending on the weather and the amount of new fruit.

While the capri crop was injured by the frost in some districts present indications point to a sufficient supply this year, and growers are urged to make immediate arrangements to take care of their needs.

Condit has issued a minimum schedule for the guidance of growers in placing capri figs on the trees to insure thorough fertilization. In full grown trees 20 feet or over in diameter 96 caprifigs in three baskets to be placed in lots of four to a basket every three days are recommended. The quotas for other trees are: Eighteen foot trees, 90 caprifigs, three baskets, three or four figs per basket every three days; 16 foot trees, 80 in two baskets, five per basket every three days; 14 foot trees, 72 in two baskets, four per basket every three days; 12 foot trees, 64 in two baskets, four every three days; ten foot trees, 56 in one basket, seven every three days; eight foot trees, 48 in one basket, eight every four days; six foot trees, 18 in one basket, four every six days.

QUESTIONS AND ANSWERS

(Continued from Page 779.)

means to keep plants dry while soil is kept constantly damp. They plant on ridges, far enough apart so that air tween plants. If this is not done the lower leaves rot and seriously detract from the market value. The seed or flower stalk of lettuce does not begin to grow until the heads attain full size and this is dependent on treatment. If lettuce is kept well watered to maturity of heads and then allowed to dry, the flower stalks will appear very quickly unless heads are too close together. Lettuce is not an astringent, but an aperient.

Dahlias and 'Mums

Where can I get information on cultivation of dahlias and chrysanthemums?—Subscriber, Lancaster.

The Cultivator has, from time to time, published full cultural directions for both these popular flowers. Chrysanthemum propagation was given in much detail in the issue of February 26, 1921. A chapter on "Chrysanthemum Culture" is to be found in the book "The Garden Beautiful," published by the Cultivator, of which a few copies are still on hand. The Dahlia Club of Los Angeles publishes a monthly bulletin that contains dahlia culture articles by its members, all expert growers. A good number was that of June, 1920. The secretary is E. C. Weber, 222 East Adams Street, Los Angeles.

Budding Walnuts

Can year old walnut trees be budded? If so, when is the best time to bud and what bud should be used, from old wood or new?—Subscriber, Escondido.

Yes, but it is better to graft and the time of the year for grafting is late January to early March according to season. Of course the wood should be well ripened wood and may be of preceding year's growth if well ripened.

Chamber Lye

Is the ammonia that forms in urine harmful to plants? I was told this is an "old time" remedy for the prevention of destruction by insects. If true, will you please tell me how to administer it properly to the plant?—Subscriber.

On the contrary, it is beneficial, that is, if diluted and applied to the plants. As an insecticide we have never heard of its use.

AMALIE Oils-Greases
100% Pure Pennsylvania
Most Mileage Least Expense
Tractor and Motor Oils
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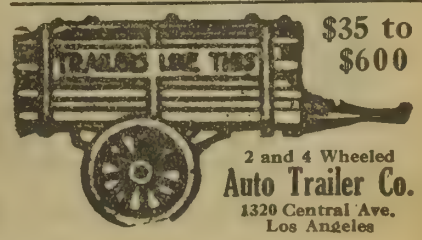
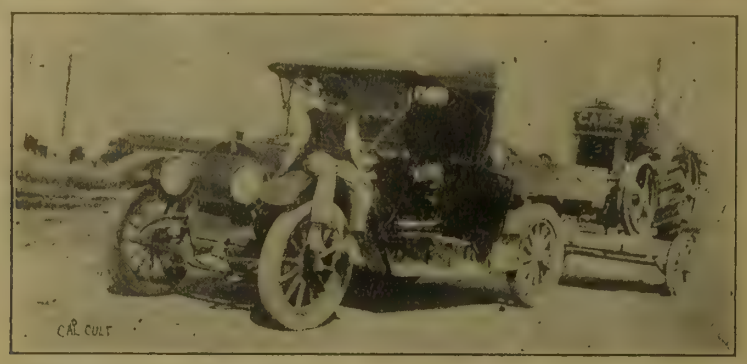


$35 to $600
2 and 4 Wheeled
Auto Trailer Co.
1320 Central Ave.
Los Angeles

WHERE THERE'S A WILL, THERE'S A WAY

Here's a picture that bears out the old adage, "Where there's a will, there's a way." The picture tells the story of one way of transporting a tractor without removing the grouters.



This outfit is owned by Dr. Singleton of San Jose. The Doctor is blessed with two ranches, one at San Jose and another at Fresno. Using, as he does, the same tractor on both tracts, the problem of transportation became quite a severe one, for a state law prohibits grouters being used on improved roads. The Doctor accordingly devised and had built this unique "chariot" trailer. The chariot is a comparatively simple arrangement, being merely a heavy platform mounted on a strong axle. The wheels are a heavy truck type wheel, rubber tired to comply with the state highway requirement.

By the use of this trailer arrangement the tractor can be used on one farm until the job is completed, run onto its private car and moved quickly over to the other farm without loss of time or labor, for by this method it is not necessary to remove grouters or front wheel flanges. The plow or other tillage tool is carried easily in the box on the truck.

The transporting of tractors via motor trucks is not an entirely new one, for during the past few years when the railroads were not running as smoothly as possible hundreds of tractors were delivered to customers via motor, but we believe that Dr. Singleton is the first farmer to solve his own transportation problem in this manner.

FARMERS START MARKETING CORPORATION

The California Farm Bureau Federation through its marketing department has recently launched the California Farm Bureau Exchange. This is a non-stock, non-profit association composed of an affiliation of county farm bureau exchanges. The state exchange will handle all common crops not at present cared for by agricultural co-operative associations. The county member of the state exchange will assemble the farmer's products and distribute through the parent organization which is the state exchange. Charges for the service will include only the operating cost, the remainder being returned to the grower.

The exchange will be operated by departments with a specialist at the head of each. The general manager is Fred N. Bigelow, who until recently has been the secretary of the state market commission. One of the largest departments will be the purchasing department. This department is in charge of Mr. Baker, who has resigned his position in the state purchasing commission to take on his new work with the state farm bureau.

The state exchange starts with seven county exchanges affiliated. Fourteen added farm bureau counties are perfecting their plans to join, and before the year is over likely most of the county farm bureaus will be identified with the state farm bureau marketing and purchasing association. The state and county exchanges will handle in due time an annual business running into millions of dollars. The undertaking is representative of the farm bureau movement in California as worked out by the state farm bureau federation. The marketing organization created is an outgrowth of the great economic problem with which the producer is confronted. Economy in distribution will give agriculture a fighting chance and will at the same time help fight the battle of the consumer.

LOADING STATIONS FOR GRAIN CROP

The California Farm Bureau Federation, which has made the bulk handling and marketing of grain one of the most important reforms of its program, is urging its members and grain growers to install inexpensive bulk loading equipment at railroad sidings which will serve until concrete elevators can be built.

The bureau has leased the 1,200,000 bushel elevator at Oakland and is in position to handle, clean, condition and store bulk grain. A number of grain elevators are being built in various parts of the state. However, it is impossible to erect elevators in all grain sections, and as time is short ranchers who hope to share in the benefits of bulk handling this year must rely upon the loading stations to facilitate the handling of their crops.

These loading stations (miniature elevators) are said to be easily and cheaply built. They are simple, yet have a loading capacity of from one to two thousand bushels per hour. They are operated by motor or gasoline engine power.

OUTPUT OF GYPSUM

Gypsum is used largely in making Portland cement, Keenes cement, plaster of Paris, wall plaster, plaster board, tile, and blocks, as well as in agriculture. The production last year, 3,130,305 tons, was the record annual production. For the first time in the history of the industry the quantity of gypsum mined in the United States in a year exceeded 3,000,000 tons. In 1919 the output was 2,420,163 tons. The total value of crude and calcined gypsum sold in 1920 was $24,542,512, an increase of nearly $9,000,000 over the sales in 1919. The figures indicate that the industry had a prosperous year. All the principal gypsum producing states increased their production, and the quantity of gypsum sold for each of the common uses was larger than the corresponding quantity sold during the previous year. Agricultural gypsum was in great demand, the sales rising from about 40,000 tons in 1919 to 107,443 tons in 1920. The other notable increase was in the sales of gypsum boards and blocks, of which 308,756 tons was sold, valued at $6,091,617, as compared with about 180,000 tons, valued at about $2,300,000, in 1919.

Gypsum was mined in 18 states and

time
to treat that roof
The rains are over, the hot sun is out. Now is the time to put your shingle roofs in condition to give longer service.
ORONITE SHINGLE OIL
Preserves Shingles
Use Oronite Shingle Oil—a high-quality preservative for all shingles, old or new—on roofs or on side walls. Oronite Shingle Oil penetrates the fibre of shingle wood and acts as a moisture-resisting preservative. It retards the evaporation of natural oils in the wood—the cause of cracking and warping—and counteracts the effect of age and exposure.
Last winter was one of the heaviest ever experienced on the Pacific Coast. Your roof took the brunt of all that heavy weather. Now is the time to examine that roof and put it in shape to withstand the rains of another winter. An application of Oronite Shingle Oil now may save the cost of repairs or an entire roof next season. Oronite Shingle Oil may be readily mixed with colors. Ask our nearest agent for formulas.
STANDARD OIL COMPANY
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OTHER QUALITY PRODUCTS
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Oronite Roof Paint
A high-quality protective coating for prepared roofing and metal roofs.
Mica Axle Grease
Gives a durable, smooth lubricating film under every pulling condition. Keeps the axle cool; no hot-boxes, no gumming. The MICA makes it better.
Eureka Harness Oil
Preserves the original strength and life of leather and keeps it soft and pliable. Keeps harness "new looking."
Standard Hand Separator Oil
Correct Lubrication for your Hand Separator, under the conditions of high speed and close fitting parts.
ORONITE means QUALITY

in Alaska. Four of these states, New York, Ohio, Michigan and Virginia, the only ones east of Mississippi River, mined more than half of the gypsum used in 1920.

The imports of gypsum increased but have not nearly attained the figure reached before the war. Imports of crude and calcined gypsum in 1920 amounted to 297,407 tons, as compared with 451,925 tons in 1913.

AIRPLANES AS FOREST PROTECTORS

The most picturesque fire fighting apparatus used anywhere will soon be in daily use over the forests of California when the great De Haviland airplanes begin their daily scouting trips in search of a tell-tale smoke.

Entering upon its third season as a forest fire detector the airplane is no longer an experiment as a fire spotter. The big planes have proven their efficiency. With rapidity that is equalled only by their accuracy, the observers flash by wireless their findings to U. S. forest service headquarters and the message is in turn sent to ground forces who rush to combat the flames. The messages received from the air are turned over to U. S. forest service rangers if the fire is within a national forest and to state fire rangers if the fire is outside of the forest boundary. In this manner millions of acres of both publicly and privately owned forest and pasture land is guarded over.

Not only have the airplanes proved efficient in detecting fires but also have aided greatly as a means of choosing best methods to combat fires, the ranger in charge directing his ground forces from the air.

With the airplane as a detector of fires and the automobile as a means of rushing men to the scene of the conflagration, the war against forest fires has moved forward a great pace during the last few years. Public sentiment is also keeping pace, with the result that there is greater cooperation in preventing as well as fighting fires.

SUCCESS WITH TURKEYS

The Cultivator is always glad to receive from its readers any account of their own successful experience. We all live and learn, and we all find out sooner or later that there is no one way of doing things that is better than any other. This is especially true of turkey raising. Nobody has yet found any method that is sure to raise 90 per cent of the birds hatched.

An Artois subscriber, I. H. Howard, who has had considerable success with turkeys, sends us this account of his methods:

"I know of nothing that will take the conceit out of one more thoroughly than to attempt turkey raising on a large scale without previously trying it out on a small number of birds. There seems no limit to the variety of ways in which a turkey's career can be ended before he reaches maturity.

"The writer has lost enough turkeys in their infancy to have provided a Thanksgiving dinner for every family in a small city if they had all lived. This does not sound like a good qualification for giving advice, but I have been pretty successful the last few years. Last year from 20 hens and two toms we raised 257 birds, worth $1,500, at very little expense.

"We hatch under both turkey and chicken hens, but try to have them hatch at the same time, and give the poults to the turkey hens. We put ten eggs under a chicken hen or 17 under a turkey.

"For the first week's feeding we find nothing better than hard boiled egg. The next few weeks the main feed is skim milk curd, scalded and drained dry through cheese cloth, fed morning and noon, with a little cracked wheat in the evening. Lately we have been feeding cracked rice instead of the curd, and it seems to be fully as good. We feed only as much as they will clean up quickly.

"The mother hens are kept confined in a large A coop, sometimes with a lath extension, but we allow the young ones to run in and out as they please. The coops are kept in a grass or alfalfa run and are never less than 50 feet apart. The mother is not turned out till the poults are six weeks old and is shut up again if a storm threatens.

"The second clutch of eggs is hatched in a nest on the ground under a tree or in some other cool place. In hot weather the ground around the nest is dampened. As there is no dew on the grass with us in summer these later broods are turned out when they are a week old.

"After the young birds are a couple of months old they are quite hardy and will eat almost anything, but we never feel sure of our turkey money till we have the check in our pocket. We figure that if we have a fairly good hatch and raise 50 per cent of the poults hatched we will make a good profit."

LOS ANGELES COUNTY POULTRY CLUB CONTEST

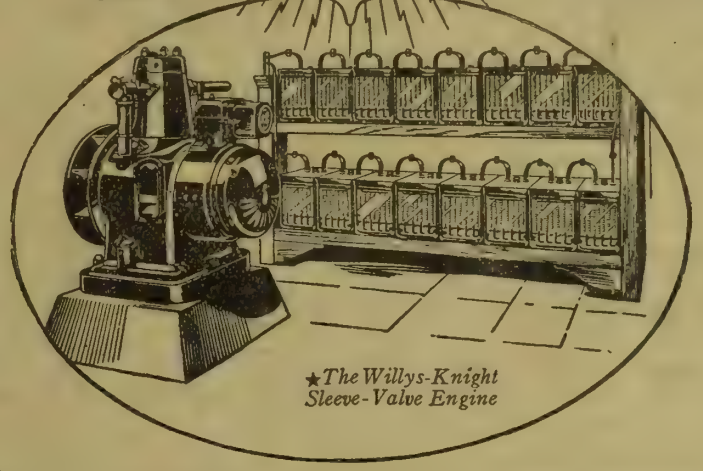
This contest is designed primarily for high school students and will include preferably not more than six members enrolled in any one local club for the first period. The total number of members in the county will be limited to 15. The work of this contest will be organized in three consecutive periods extending for 21 months. The first period or contest will take up the development of pullets and will extend six months; the second period, extending for a period of eight months, will be a laying contest; and the third, extending for a period of seven months, will be a breeding contest. The minimum number of pullets in this contest will be 100 birds hatched approximately April 1 and to be about three months old on July 1. Applicants for membership should be between the ages of 14 and 20. All applications must be in the hands of the poultry club committee, composed of L. G. Wiley, Van Nuys; J. D. Zimmerman, San Gabriel, and L. R. Y. Hoover, Pomona, by June 18, 1921, so send your name and address to any one of the committee or to County Club Leader, 361 Court House, Los Angeles.

The vast forests of the Pacific Coast states remain largely intact whereas the forests of the New England, Great Lakes and Southern states are already largely depleted through improper logging and failure to protect from fires.

California enjoys the enviable position of being able to examine the results in other states where forests have been depleted and to profit by the mistakes that have been made. Already the lumbermen of California have agreed to a method of slash disposal after logging that if carried out will leave logged-off lands in better condition for the growing of new forest crops. That this is necessary is realized from the fact that at the present rate of cutting and destruction from fire the forests of the United States can supply the needed timber for a period of from only 60 to 75 years.

Willys LIGHT

Power and Light with the Quiet Knight ★



★*The Willys-Knight Sleeve-Valve Engine*

THERE could be no better evidence of keeping faith with the public than this—to share our ability to produce quality products on a quantity basis with everyone in North America who needs electricity.

In the famous Willys Light we have swept aside precedent and given every home the benefit of bed rock quality at rock bottom prices.

At its present low price of $525 there can and will be no further reduction. Already we are meeting the farmer more than half way—giving him the great advantage of a practical, complete power and light plant, backed by national resources and service, at an unheard-of price.

This wonderful reduction in price is no more extraordinary than the wonderful service Willys Light is giving hundreds of homes.

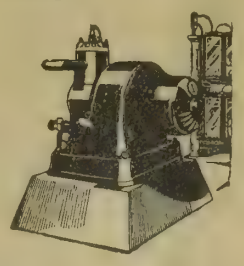
The famous Willys-Knight engine is only one exclusive superiority, in addition Willys Light has fifty distinct advantages. These combined with its new low price warrant your immediate action. See your nearest Willys Light dealer or write for booklet.

Willys LIGHT JUNIOR

$295

—And here is the Electric Plant that will revolutionize farm lighting—Willys Light Junior. Somewhat smaller but in every other respect measuring up to Willys Light quality, this plant is big enough for lights and small power uses. At this low price, you can now have the electricity you have been waiting for.

Willys Light Junior has the wonderful Auto-Lite engine generator, a battery of ample capacity and is of standard voltage.



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AND

English Walnut Cracker

Mr. Grower, I have a machine for your 5-10-40 acre almond orchard cheaper than a Ford.

CAN YOU BEAT IT?

It hulls the nuts by rubbing. Under complete control of levers set at the proper place to suit any size nuts or conditions. Can be changed instantly.

Do you see the Ford idea?

SIMPLICITY!

The two surfaces come just close enough to work on unhulled nuts. The hulled almonds glide along without being touched. The meats fall through the screens quickly. They are not broken or nicked. Off price on account of damaged meats practically eliminated.

FEEDS AUTOMATICALLY and does not require a man at the hopper to keep it clear. Does not get out of repair. Any man can run. Requires only 1½ to 2½ H. P.

Write for circulars giving full information.

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172 Elm St. Woodland, Cal.

Citrospray

REGISTERED

Citrospray will successfully control Black and Citricola Scales at half the cost of fumigation. Controlling at the same time Spider and Thrips and eradicating fungus at no additional cost nor injury to trees or fruit.

A full page ad. could say no more.

Citrospray Chemical Co., Ltd.

2203-5 Santa Fe Ave.

Los Angeles Phone 41645 Cal.

1 Day---16 Traps---

40 Gophers

We wish that it were possible for us to print in these pages all of the letters that the mails bring us from farmers. Since we cannot do this, let us give you the gist of one report:

On May 4, Dr. Morris Herzstein, owner of a beautifully-kept ranch in the Santa Clara Valley, sent in for two traps. One week later he sent for two more, and on May 17, he ordered 6. Four days later he sent in for 6 more traps, saying that on the day before, 20 gophers were caught with 10 traps. On Monday, May 23, the doctor ordered 12 more traps, reporting that on Sunday, May 22, a record had been made by catching 40 gophers with 16 **Double Catch Gopher Traps.**

Here is a gopher trap that actually catches gophers. Illustrated circulars free. If you cannot secure these traps from your local Seed Stores or Hardware dealers, send direct to us. **Price, postpaid, 75c.**

E. J. CHUBBUCK COMPANY

Manufacturers, Dept. A

731 Market Street, San Francisco, Calif.

HEALTHO

Positive Poultry Delouser; banishes at once and permanently all lice, mites and nits; ECONOMICAL, as it lasts indefinitely; NO LABOR: CHICKENS DUST THEMSELVES. Order today — Standard Package $3.00.

HEALTHO POULTRY CO.

717 West 16th St. Los Angeles, Cal.

KILLINGSWORTH APPOINTED IN AGRICULTURE

Director Hecke announces the appointment of W. S. Killingsworth of the Pacific Rural Press to fill the post of assistant to chief, formerly held by R. H. Taylor. Mr. Kilingsworth assumed his new duties June 1 and will establish his home in Sacramento.

WEATHER REPORT

San Francisco, Cal., June 4, 1921.

Stations	Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.01	47.43	45.20	62	46
Red Bluff	.38	27.85	21.65	90	46
Sacramento	.00	16.75	19.98	84	48
San Francisco	.12	23.16	22.14	65	49
San Jose	.11	14.99	16.74	74	44
Fresno	T	8.13	9.63	86	48
San Luis Obispo	.00	19.21	20.46	74	46
Los Angeles	.00	13.61	15.57	70	50
San Diego	T	7.01	10.01	66	52

Los Angeles Markets

Los Angeles, June 8, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price 36 cents.

June	1	2	3	4	6	7
'21 ...	33	35	35	..	..	36

CHEESE

Brokers' prices:
California flats, 16@18.

EGGS

Fresh extras (case included): Produce Exchange closing price 30 per dozen. Case count Produce Exchange closing price 29. Pullets, closing price 26 per doz. dozen.

June	1	2	3	4	6	7
'21 ...	30	31½	32	..	..	30

POULTRY

Price to producers: Hens, 21-27; colored, 30; broilers, 19-25; roasters, 40; old roosters, 12; fryers, 35; ducks, old, 28; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live 50; dr., 54; squabs, 44@45.

Belgian hares, live, 12@16; old 8.

LIVESTOCK

Los Angeles, June 7. — Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 9.00; 175 to 225 lbs., 9.50.

Cattle (on foot, gross weight): Steers, good, 8.00@8.50; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Calves, 125 to 150 lbs., 9.50; 175 to 225 lbs., 9.00.

Sheep: Ewes, 5.00@5.50; lambs, 8.50@9.00.

HIDES AND PELTS

Quotations furnished by California Hide Corporation for stock delivered.

Green salted hides—No. 1 steers, 7½ per lb.; No. 1 cows, 6½ per lb.; No. 1 bulls, 5½ per lb.; No. 2 and kosher hides, 1½ less per lb.; grubby hides, 1½ less per lb.; No. 1 horsehides, over 50 lbs., 2.00 each; No. 1 horse hides, 40 to 50 lbs., 1.50 each; No. 1 horse hides, 30 to 40 lbs., 1.00 each.

Green hides—No. 1 steers, 6½ per lb.; No. 1 cows, 5½ per lb.; No. 1 bulls, 4½ per lb.; No. 2 and kosher hides, 1½ less per lb.

Calf skins and kip skins—No. 1 calf skins, under 15 lbs., 13 per lb.; No. 2 calf skins, under 15 lbs., 10 per lb.; No. 1 kips, 15 to 25 lbs., 7 per lb.; No. 2 kips, 15 to 25 lbs., 5 per lb.; kosher skins, 1 less per lb.; slunks, 10@50 each.

Dry flint hides—No. 1 hides, 16 lbs. and up., 10 per lb.; No. 1 kips, 6 to 16 lbs., 11 per lb.; No. 1 calf skins, under 6 lbs., 12 per lb.; No. 2 hides and skins, 2 less per lb.; glue hides and skins, 2 per lb.

Pelts: Large, long wool, 40@70 each; medium, 20@40 each; short wool and shearlings, 10@20. Lambs, 10@30 each; badly damaged and very small lambs, worthless.

Goat skins: No. 1 common, 10@30 each; No. 2, 5@10 each; badly damaged and small kids, worthless.

Tallow: No. 1, white and hard, 4½ per lb.; No. 2, 3 per lb.; No. 3, dark and greasy, 1@3 per lb.

Wool: According to quality and condition, 5 per lb. and up.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock June 7, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies moderate, market firm. Idahos: Russets mostly 2.25@2.35, Rurals, 1.75@1.85. Oregons: Burbanks, 2.25@2.35. New potatoes: Supplies liberal, market weaker, best 85@1.00; few 1.15; small lug 75@85.

Onions: Supplies heavy, market dull. Coachella and Imperial Valleys standard crates Wax, 1.25@1.40, Yellow Bermudas 1.10@1.25, boilers 1.75. Jobbing: Bermudas 90@1.10, Wax 1.10@1.25.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock June 7, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Asparagus: Market steady; supplies moderate. Local: Mostly 16@17 per lb.; few 18; Northern 6@12 per lb.; mostly 7@11.

Beans: Supplies heavy. Green Kentucky Wonders, 6½@8 per lb.

Beets: Doz., 30@40.

Cabbage: Field crate best mostly 1.75@2.00; poorer, 1.00@1.50.

Carrots: Doz., 45.

Celery: Supplies moderate, market steady, mostly 5.50@6.00; few 6.50.

Corn: Supplies moderate, market weaker, best 40@50 per doz., 1.75 lug.

Cucumbers: Supplies liberal, market weaker. Hothouse mostly 1.25@1.50 per doz.; lugs, 2.15@2.35; Signal Hill flats, 1.10@1.35.

Lettuce: Local field crate quality poor. Poor, 50; best, 85@1.00; few 1.10.

Peppers: Supplies liberal, market steady. Imperial Valley: Bells best, 25@30; Chilis best 20@25 per lb.

Radishes: 15@20 doz.

Rhubarb: Local strawberry, 1.00@1.15. bx.; jobbing 1.00@1.15; Crimson Winter, 60@80.

Squash: Supplies moderate, market weaker. Summer squash: Local, 75@85 per lug; Italian, 1.40@1.50 per lug.

Tomatoes: Supplies liberal, market weak. Imperial Valley, per crate, best 2.00@2.25; poorer, 1.50@1.75; jobbing, 1.75@2.00.

Turnips: Doz., mostly 45.

FRESH FRUITS

Cantaloupes: Supplies heavy, market steady, pony crates 3.50@3.75, standards 3.75@4.00. Jobbing: ponies 3.00@3.25, standards 3.50@3.75, flats 1.25@1.40.

Cherries: Supplies heavy, market weaker. Whites, various varieties mostly 9@11 per lb.; Bings, best, 16@18, poorer 15 per lb.; Black Tartarians and Republicans mostly 12@14 per lb.

Apricots: Market steady, mostly 7@8 lb.; poor low as 6; few fancy, 9.

Blackberries: Supplies moderate, market weaker. Best 3.25@3.75; few 4.00.

Loganberries: Supplies moderate, market weaker; 30 pint crates 2.75@3.25.

Loquats: Supplies liberal, market steady, wide range in prices, mostly 5@7; poorer 4@4½ per lb.

Peaches: Suplies moderate, market steady, various varieties 9@10 per lb.; lugs 2.50@2.75, few fancy Redbirds 15@16 per lb.

Raspberries: Supplies moderate; best, 3.25@3.75 per 30 pint crate; few fancy 3.50.

Strawberries: Supplies moderate, market firm. Per crate, 30 pints best mostly 6.00@7.00, 12 pint crates 2.00@2.25.

Watermelons: Supplies moderate, market steady, mostly 4 per lb.

CITRUS FRUITS

Grapefruit: Supplies liberal, market firm on good stock. Local: per box, market pack 2.00@2.50, special packed brands 3.00@3.25.

Lemons: Supplies liberal, market firm, wide range in prices. Local: packed box 3.25@4.00; loose 1.25@1.75 per box, per lug mostly 50@75.

Oranges: Supplies liberal, market firm. Valencias, best brands, all sizes, 3.50@4.00; packing house culls 50@75, few best 1.00@1.75 per box.

HONEY

As reported by the Bureau of Markets: Southern California, Los Angeles: Supplies of White honey light, of Light Amber grades heavy. Movement slow, market dull. Carloads f. o. b. usual terms, per lb. White Orange Blossom 10@12; White Sage 10½@12½; White Alfalfa 7½@8½; Light Amber Sage, 8@9; Light Amber Alfalfa 6½@8. Hawaiian, White 7; Honey Dew honey 4½. Recent hot winds have badly hurt Orange and Sage honey prospects and with southern Sage already seriously damaged by cold and dry weather, a very light crop of the lighter colored honeys is forecasted. The Alfalfa crop is probably normal. High retail prices are still maintained throughout California, and hurt honey distribution locally. Some large shippers expect a firm market, account light crop this year; other factors are still pessimistic. New honey will move in light quantities this month and next, but shipments in large quantities are not expected before July. Beeswax: Sacked in l. c. l., Light 25@30; Dark, low as 23 per lb.

GRAIN AND FEEDS

Grain Exch. price bid June 7:
Corn: Bulk No. 2, Yellow 1.62½.
Kaffir: Eastern, No. 3, carloads, 1.50.
Milo: Local, 2.12½; No. 3 Eastern bulk, 1.68¾.
Barley: Carloads, 1.15.
Bran: Kansas, 28.50.

HAY

Alfalfa Growers of California report under date of June 8:

Rabbit Alfalfa	27.00
No. 1 Dairy	24.00
Standard	20.00
Stock	15.00
Fertilizer	15.00

There were 830 tons received on the Los Angeles tracks the week ending June 4 with 200 tons held over.

Quotations by Nichols - Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats	20.00@28.00
Barley	16.00@24.00
Alfalfa, No. 1 Dairy	22.00
Standard	16.00
Straw	10.00@13.00

San Francisco Markets

San Francisco, June 7, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:

Extras	36½

Dairy Exchange prices extras this week and year ago:

May	31	June 1	2	3	4	6
'21 ...	34	34½	34½	36	..	36½
'20 ...	..	..	54	54½	..	..

CHEESE

Dairy Exchange quotations:

Jack, full cream, street prices	14½@16
Oregon Trips	20
Cal. Y. A.	22
Cal. Flats	16½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:

Extras	31
Extra Firsts	30½
Dirties No. 1	29
Extra Pullets	27½
Undersized	24

May	31	June 1	2	3	4	6
'21 ...	29	30	31	31½	..	31
'20 ...	..	..	46½	46½	..	..

POULTRY

Wholesale prices are:

Young chickens, Leghorns, 1 to 1¼ lbs., 25@27; 1½ to 1¾ lbs., 30; 2 lbs. up, 35; heavy breeds, 1½ to 1¾ lbs., 35; 2 lbs. and up 55. Staggy roosters, 20@25; old roosters, Leghorns, 13; do, heavy breeds, 18. Hens, Leghorns, large, 23; do, small to medium, 17@20; heavy breeds, 30@32.

Ducks: Young, 35 per lb,, old 25.

Geese: 25 per lb.

Turkeys: Live, 35 per lb., do, dressed, 45@50 per lb.

Squabs: Fy. 45@48 lb., common, 3.50 per doz.

Belgian Hares: 15@16 per lb., do, dr., 20@25.

Pigeons: Old 3.00 per doz.

LIVESTOCK

Western Meat Company prices are:

Cattle: Steers, No. 1, 6@6½; do, second quality, 5½@6.

Cows and Heifers: No. 1, 4¾@5¼; do, second quality, 4@4¾.

Calves: Light weight, 6@6½; medium, 5½@6; heavy, 4@5.

Sheep: Wethers, 4@4½; ewes, 3@3½.

Lambs: Milk, 6@7.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 8½; do, 200 to 250 lbs., 7½; do, 250 to 350 lbs., 6½; light sows, 6½; heavy sows, 5½.

HIDES AND PELTS

Sawyer Tanning Co., quotes:

No. 1 heavy hides, 60 lbs. and up, 6; medium, 45 to 60 lbs., 5; No. 1 light hides, 30 to 45 lbs., 7; No. 1 native bulls, 3; No. 1 center branded hides, in all grades, 2 less than base price; No. 1 wet salt kip, 15 to 30 lbs., 7½; No. 2, 5½; No. 1 wet salt calf, trimmed, 13; No. 2 calf 2 per lb. less. The price of No. 2 hides will be 1 less than price of No. 1. Hides having any of the following defects will be classed as a No. 2: Any cut over six inches from the edge, over five bad scores, five grubs, one grain slip, one rubbed spot where grain is gone, one dragged spot where grain is gone, one sore spot where grain is gone.

Tallow: No. 1 white and hard (in barrels), 4@5; No. 1, in cans, 3½@4½; No. 2 dark, 3; grease, 1@2. We cannot quote prices on wool and mohair from small samples. If shipped to us and marked "On Approval," we will hold it for ten days subject to customer's approval of price. If we do not hear from customer within ten days we will consider the price approved.

Wet Salted Horse Hides: No. 1 large, skinned to hoof, $2; do, medium, 1.50; do, small, 50@1.00; No. 1 colt's, 25@50.

Dry Horse Hides: No. 1 large, skinned to hoof, 1.00; do, medium, 75; do, small, 50; No. 1 colt's, 25@50. All cut, scarred or badly cured hides are culls and worth proportionately less.

Pelts: Long wool, 9 to 12 months' growth, 65 up; medium wool, 6 to 8 months' growth, 50@60; short wool, 3 to 6 months' growth, 25@40; shearlings, good, 1 to 3 months' growth, 10@20; shearlings, shaved or damaged, 9@10. Lambs, large, long wool 25 up; lambs, small, 15@20; milk lambs, 5@10.

California Farm Bureau Marketing Association reports:

No. Hogs	Ave. Wt.	Dock	Price
Modesto, May 31			
99	158	...	$8.10
84	192	30	8.00
29	181	40	7.55
1	90	...	6.55
14	239	...	6.55
1	530	210	4.55
6	343	90	4.55

Three cars, 29 consignors, $3,296.38.

Hilmar, June 1			
77	192	...	7.50
5	242	...	7.00
1	270	...	6.50
5	394	100	5.00
1	410	...	5.00

One car, 19 consignors, $1,296.57.

Chowchilla, June 2			
85	184	40	7.75
85	157	...	7.60
23	179	...	7.25
18	155	...	6.60
2	110	...	6.25
3	370	190	4.75

Two cars, 30 consignors, $2,801.45.

Fresno, June 3			
77	185	...	9.35
83	183	...	9.15
15	140	...	8.85
17	194	...	6.60

Two cars, 11 consignors, $3,135.74.

Wasco, June 4			
66	177	...	9.00
26	151	...	8.50
5	220	...	8.50
3	243	...	8.00
5	120	...	8.00

One car, 13 consignors, $1,588.75.

Total for the week, nine cars, 102 consignors, $12,118.62.

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, nominal; do, Oregon Burbanks, 2.00@2.25; Nancy Hall, 5.00@6.00 per 100 pounds; Idaho Gems, 2.30@2.60.

New: Garnets 2.75@2.90 per 100 lbs.; do, White 3.00@3.50.

Onions: Australian brown, 35@50 per bag; green, 1.50@1.85.

Garlic: New, 6@8 lb.

VEGETABLES

Wholesale selling price:

Artichokes: Crate 5.00@12.00.

Asparagus: Culls, 3@4 per lb.; field run, 5@6; fancy graded, 10; green, 4@5.

Beets: 1.75@2.00 per sack.

Beans: String, 10@12.

Cucumbers: Hothouse, small, 2.50@3.00 box of 2½ dozen; English, 1.00 per dozen. Imperial Valley, 1.00@1.50.

Eggplant: Lb., 10@12½.

Okra: 15@20 lb.

Onions: Green, per lug, 1.50@1.75.

Peas: 6@10 lb., fy., 12.

Parsnips: Sk., 2.00@2.25.

Peppers: Bells, 5@20; Chili, 15@20.

Rhubarb: San Jose, 1.65@2.25.

Squash: Imperial Valley Summer, 80@1.25 cr., do, lug 1.25; Italian, do, 1.00@1.50.

Spinach: Lb., 2@4.

Tomatoes: Mexican, 2.50@3.00 for L. A. lug; Imperial, green 1.00@1.75; ripe 2.00@2.50.

Turnips: Sk., 50@1.00.

FRESH FRUITS

Apricots: 1.50@2.00 per four basket crate, 2.50@3.00 per lug.

Avocado: California, doz., 3.00@6.00.

Bananas: Lb., 8½@10.

Cantaloupes: Standard, 3.75@4.25; Ponies, 2.75@3.35; Flats, 1.50@1.75; Honey Dew, 2.75 cr.

Cherries: Tartarian, bulk, 6@9 per lb.; 1.00@1.25 per drawer; Bings, scarce; soft white, 3@5; Royal Anne, 5@7 per lb.; 75@1.00 per drawer.
Currants: Drawer, 75.
Pineapples: 4.50@6.00.
Figs: White, 1.75@2.00; black, 2.50@3.00.
Blackbefries: Cr., 2.00@2.50.
Gooseberries: 8@10.
Raspberries: Dr., .90@1.25; 2.00@2.50 crate.
Peaches: Cr., 1.50@2.25; basket, 3.00.
Strawberries: Peninsula and Watsonville, 50@65, some 70@75; Salinas, 1.50@1.75 per crate; Watsonville, 1.25@1.40 per crate, according to quality.
Loganberries: Red, 50@75.
Plums: Apex, 2.50@2.75 lug.
Loquats: Lb., 6@7.
Watermelons: Mex., 5@6 lb.

CITRUS

Navel oranges, 4.00@5.25; Valencias, 3.00@4.00. Lemons, 5.00@6.75 per box; lemonettes, 3:00@4.00. Grapefruit, 2.00@3.75.

DRIED FRUITS

Raisins: Vineyard run, layers, 100 lb. bxs., 16 lb.; Sunmaid, seeded, 36 oz. pkgs., 22 lb.; seedless Sultanas, 25 lb. bxs., 21 lb.; Thompson seedless, 25 lb. bxs., 22 lb.; do, 48 5-oz. bxs., 23½ lb.; 3 cr. L. M. 25 lb. bxs., 19 lb.; 2 cr. do, 17 lb.; 1 lb. clusters, 20 lb. bxs., 5.40 bx.
Figs: Fancy blacks, 25 lb. bxs., 12½ lb.; extra choice, do, 10 lb; choice, do, 9 lb.; fancy white, do, 12 lb.; extra choice white, do, 10 lb.; choice white, do, 8 lb.; 70 4 oz. white 3.25 box; 50 6 oz. white, 3.00 box; fancy, 4 layer 10 lb. bxs., 2.00 bx.
Prunes: 30-40s, 25-lb. bxs., 15 per lb.; 40-50s, do, 12 lb.; 50-60s, 9½ lb.; 60-70s, do, 8 lb.; 70-80s, do, 6½ lb.; 80-90s, do, 5½ lb.; 90-100s, do, 5 lb.; Persian dates, 14 lb.; Dromedary dates, 6.25 case; fancy silver prunes, 15 lb.
Apples: Fancy, 50-lb. bxs., 12 lb.; extra choice, do, 11 lb.; choice, do, 10 lb.
Peaches: Blue Ribbon brand, 48 11-oz. to cs., 7.00 cs.; do, 24 2-lb. to cs, 8.00 cs.; fancy peaches, 25-lb. bxs., 16 lb.; extra choice, do, 12 lb.; choice, do, 11 lb.
Apricots: Fancy, 25-lb. bxs. 29 lb.; extra choice, do, 23; choice, do, 21½ lb.; standard, do, 17 lb.
Pears: Fancy, 25-lb. bxs., 16 lb.; extra choice, do, 12½ lb.; choice, do, 10½.

BEANS

Below California Bean Growers Association shippers prices choice recleaned:

Large Whites	3.25
Small Whites	3.25
Pinks	5.80
Mexican Reds	8.00
Red Kidney	9.60
Henderson Bush	4.90
Cranberries	6.75
Bayos	10.60
Blackeyes	7.90

HAY AND FEED

Alfalfa Growers of California quote June 4:

No. 1 Dairy	17.00
Standard	15.00

Under date of June 4, A. W. Scott Co. says:
Receipts past week 780 tons, more than enough for local use.
Continued rains and cloudy days have brought baling and shipping to a standstill while alfalfa grinding has been practically impossible. Great quantities of hay of all grades have been damaged, some a little, some almost spoiled. When this damaged hay is forced on the market at sacrifice prices (as is always the case) it will undoubtedly be a serious drawback to maintaining a favorable level of prices for better grades. Alfalfa is doing poorest of all hay grades. Producers have been trying to hold prices up to $14.00-$15.00 country points, with no sales. As a result several hundred tons of Nevada alfalfa have been placed here at $14.00-$15.00 delivered San Francisco. Clover is preferred by many dairies and as it is being freely offered at $10-$12 at shipping points many feeders are holding off from alfalfa and will not buy the latter at the difference in price. New wheat and tame oat hay have not yet appeared on the market. Sales of volunteer and barley hay have been increasing at quotations. Mill feeds are stronger in sympathy with the Eastern coarse grain markets. Protein dairy feeds are dull, coconut and oilcake off a trifle in price, beet pulp unchanged and molasses a couple of dollars off.
We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	18.00@20.00
Wheat Hay, light 5-wire bales	15.00@18.00
Tame Oat Hay	15.00@17.00
Wild Oat Hay, old crop	15.00@17.00
Wild Oat Hay, new crop	10.00@12.00
Barley Hay	11.00@13.00
Alfalfa Hay	14.00@16.00
Alfalfa Hay, new first cutting	10.00@12.00
Stock Hay	10.00@12.00
Barley, Ground	31.00@34.00
Barley, Rolled	28.00@30.00
Oats, Rolled Feed	35.00@37.00
Bran, Red	34.00@36.00
Bran, White	36.00@38.00
Millrun	36.00@40.00
Middlings	47.00@50.00
Linseed Meal	37.50@40.00
Coco Meal	23.00@27.00
Alfalfa Meal, old crop	24.00@26.00
Alfalfa Meal, new first cutting	22.00@23.00
Cottonseed Meal	35.00@40.00
Sugar Beet Pulp	32.00
Molasses, Tanks	21.00
Molasses, Bbl.	25.00
Milo	39.00@40.00
Corn Meal	39.00@41.00

Citrus Markets

Los Angeles, June 8, 1921.

Notwithstanding heavy receipts of Eastern produced peaches and strawberries California oranges are meeting liberal demand. Valencias are practically the only variety being shipped and are reported by consumers to be sweet and ripe. All sizes sell well. The heavy rains of May have put the orchards in best of condition all districts showing a good setting of fruit.
Market on lemons still fine. Trade is taking supplies as rapidly as shippers can supply them. Prospects for more warm weather in the Middlewest and East are encouraging to the California lemon men. Prices remain as high as last week. There are 27,000 boxes of foreigns available for sale within the next 30 days.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 25,182 cars; lemons, 5,944; total, 31,126. To same date last season: Oranges, 20,741; lemons, 4,688; total, 25,429. From Central California to date this season: Oranges, 6,494; lemons, 146; total, 6,640. To same date last season: Oranges, 5,338; lemons, 288; total, 5,626. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

AT THE AUCTIONS

June 1

New York: 40 or., 3 mixed. Nav. 2.55-5.85, Val. 2.50-6.15, Sweets 4.25-4.35, Homasassas 3.85, Mediterranean Sweets 3.65-4.10, Mikes. 2.95-5.00, Seeds. 3.55-4.90, Bloods halves 1.85.
Boston: 24 or., 2 lem. Nav. 4.35-5.65, Val. 2.00-5.80, Sweets 4.00-4.40, Mikes 2.35-4.45, Crafton Lates 4.60, lem. 7.25-8.70.
Philadelphia: 11 or., 2 lem. Nav. 3.65-5.90, Val. 4.25-5.55, Bloods. 4.00, Jaffas 3.60, Mikes. 3.15-4.20, Seeds. 3.55-3.70, Budded Seeds. 3.60-4.10, Sweets 3.15-3.85, lem. 5.95-7.20.
St. Louis: 9 or., 4 lem. Val. 2.95-5.50, Sweets 4.65-4.85, lem. 7.30-8.50.
Baltimore: Val. 2.95-5.50, lem. 5.85-7.30.
Cincinnati: 5 or., 3 lem. Val. 2.95-4.75, lem. 8.15-8.75.
Cleveland: 14 or., 2 lem. Nav. 4.00-5.05, Val. 2.95-5.45, Sweets 3.55-4.75, Bloods 3.40-3.90, lem. 7.95-8.35.
Pittsburg: 7 or., 1 lem. Nav. 3.80, Val. 2.45-4.40, Seeds. 3.85, Med. Sweets 4.35-5.30, lem. 7.65.

June 2

New York: 36 or., 7 mixed. Nav. 3.85-5.70, Val. 2.80-6.20, Jaffas 3.70-3.90, Sweets 3.50-4.40, Med. Sweets 3.95-4.55, Homasassas 3.95, Mikes. 3.85-5.00, Tange. 4.50, Bloods 4.45, Sweets 4.60-4.80.
Boston: 17 or., Nav. 3.65-5.40, Val. 2.05-5.70, Bloods 3.35-4.75, Sweets 3.65-4.55, Med. Sweets 4.80-5.20, Homasassas 4.55-5.10, Mikes. halves 2.10.
Pittsburg: 7 or., 1 lem. Nav. 3.65-5.00, Val. 3.80-5.50, Sweets 3.60, Seeds. 3.85, Budded seeds 4.05-4.75, Bloods 4.65, lem. 7.80.
Philadelphia: 7 or., 1 lem. Nav. 4.35, Val. 5.55-6.00, Mikes. halves 2.00-2.35, Sweets 1.80-4.45, Med. Sweets 3.75-5.05, Craftons 3.95-4.95, lem. 6.80-7.35.

June 3

New York: 11 or., 5 mixed. Nav. 4.15-6.05, Val. 3.20-6.70, Sweets 4.40-5.10, Med. Sweets 4.10-4.35, Navelencias 4.65-5.15, Jaffas 4.05-4.40, Seeds. 4.70-4.90, Mikes. 5.10, grapefruit halves 2.15-2.50, lem. 7.40-9.45.
Boston: 13 or., 1 lem. Nav. 4.85-6.40, Val. 3.55-6.00, Seeds. 4.20-5.20, grapefruit 3.00, lem. 9.10-9.85.
Cleveland: 8 or., 4 lem. Nav. 4.60-4.75, Val. 3.15-5.40, Sweets 4.40-5.30, Med. Sweets 3.45-4.85, Seeds. 3.75-4.45, lem. 7.05-8.25.
St. Louis: 8 or., 6 lem. Val. 3.23-5.90, Sweets 4.77, lem. 6.25-7.25.

REPORT OF CATTLEMEN'S MARKETING COMMITTEE

May 30, 1921: Few sales of beef steers are reported this week at 7 cents on the ranch and of choice cows and heifers at 6 and 6¼. Sales of cattle at less figures are reported, but our information is that these cattle are of inferior quality. Certain interests are apparently trying to depress the market through the quotations in the daily papers, the method being to publish lower prices every few days f. o. b. yard San Francisco, the prices named being much less than actual sales at the same time in the country. For instance, Saturday, May 28, the top quotation on No. 1 cows and heifers was 5½ f. o. b. San Francisco. The same day cows and heifers were sold at 6¼ on the ranch.
Every information we have confirms our previous statement that there is more feed and less cattle in California than for several years. Cattlemen should stand firm. The last of available fed cattle are being used in Portland and Seattle markets, and they will have to come to California for a supply in a short time. Very few commission cattle coming in. Don't send cattle on commission. Under no circumstance offer cattle until they are well finished.
We have made no use of the guaranty fund because there is no surplus of cattle in sight for this summer and fall, and we believe when northern buyers draw on us for their supply then an actual shortage will develop. We stand ready to use the guaranty fund in case circumstances develop that render such action advisable.
Los Angeles buyers are now purchasing cattle in Central California.
Cattlemen of the state have the future of the market in their own hands. In our judgment those who stand firm will realize better prices than are now being offered.—Fred H. Bixby, chairman; C. N. Hawkins, Owen Duffy, James Barry, A. S. Goode.

Dates of hog auctions of the California Farm Bureau Marketing Association are: Turlock, June 14; Merced, 15; Madera, 16; Fresno, 17; Bakersfield, 18; Tulare, 21; Visalia, 22; Hanford, 23; McFarland, 24.

A SAN FRANCISCO SHOW ANYWAY

One of the most depressing disappointments encountered by the livestock interests of California was the failure of Governor Stephens to sign the bill introduced by Senator Benj. F. Rush appropriating $50,000 to be used for premiums by the California National Livestock Show during the next two years.
The California National Livestock Show is the name selected by the incorporators for the proposed livestock show to be held at San Francisco. The new corporation is the result of tireless efforts by a representative group of livestock men to organize and conduct a permanent show to be held each fall at San Francisco. The incorporators propose to raise $100,000 among the livestock interests, $200,000 from the business interests of San Francisco, which sums, together with $50,000 included in budget of the San Francisco supervisors, will establish the show on a permanent basis. The money from the state was asked to apply on premiums.
Until the very last minute it was expected that the governor would sign the bill in view of the fact that it had the support of every powerful interest in the state and it was not known that there was any opposition. It is understood that the failure of the bill to be signed was the result of a misunderstanding on the part of the governor, who was under the impression that the Slater bill providing $50,000 for fairs was the bill that was wanted.
At this writing no definite plans have been announced by the directors of the California National Livestock Show except that there will be a show.

MARKET FOR ORANGES IN CANADA

Consul General Gunsaulus of Halifax states that the maritime provinces of Canada constitute a splendid market for California oranges. It is stated that these oranges are very popular in that market, being shipped to the principal cities in carload lots. The sales during the present season are reported larger than in any year since 1914.

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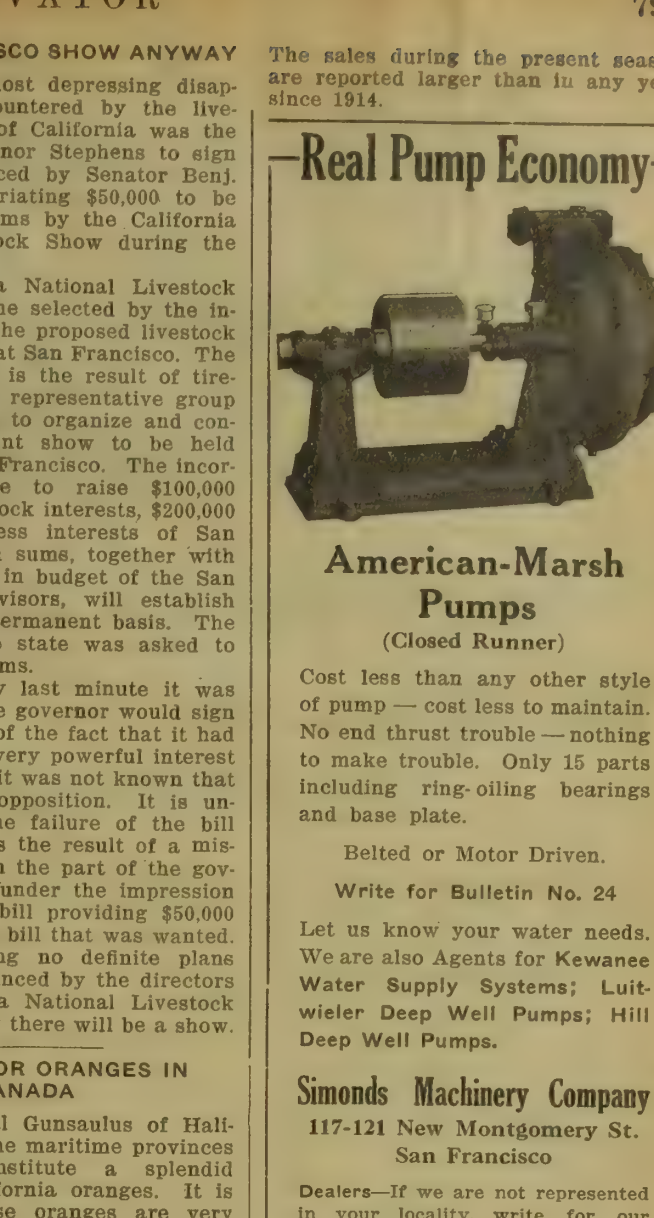

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From Charles Dickens' Preface to Pickwick Papers.

The Advance of Understanding

Even romance of sixty brief years ago could not imagine the great advance heralded by the passing of the stage coach. The railway and telegraph were coming into their own; but the telephone had not been so much as dreamed about.

Yet the wise men of that day saw the imperative need. They saw the value of every step which brought people into closer communication with each other. They knew this to be the one way to increase understanding; and to eliminate the "host of petty jealousies, blindnesses and prejudices, by which the Public alone have always been the sufferers."

Then came the telephone. And with its coming time and distance are swept away and a hundred million people are made neighbors.

Places far apart are brought together by 34,000,000 conversations a day over the Bell System.

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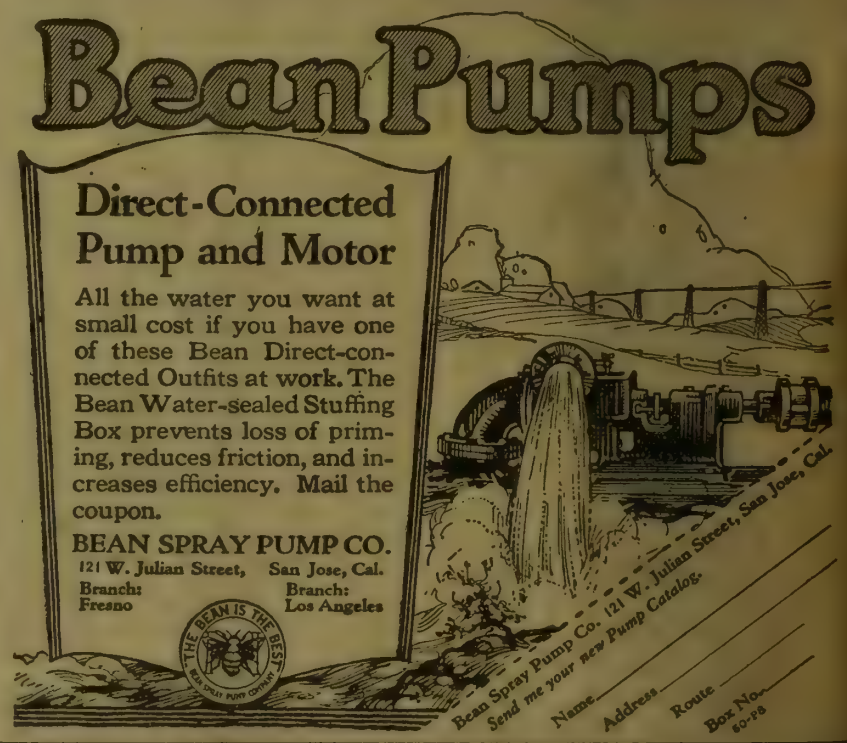

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CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

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California Farm Crops and Animals, 1920

FARMS AND FARM PROPERTY IN CALIFORNIA

ON this page of the California Cultivator of August 28, 1920 we gave the preliminary figures as to number of farms in each county of the state. These totalled (subject to correction) 117,993. The corrected figures are now issued by the bureau of the census:

The number of farms in California in 1920 was 117,670. These farms contained 29,365,667 acres, of which 11,878,339 acres were improved land. From 1910 to 1920 the number of farms increased 33.4 per cent; the total acreage, 5.1 per cent; and the improved acreage, 4.3 per cent. In 1920, 29.5 per cent of the land area of the state was in farms, and 40.4 per cent of the farm land was improved.

The number of white farmers in 1920 was 111,184, of whom 76,995 were native and 34,189 foreign born. Of the native white farmers, 60,264 were owners, 3,913 managers, and 12,818 tenants. Of the foreign born white farmers, 26,073 were owners, 887 managers, and 7,229 tenants. The 6,486 colored farmers comprised 1,243 owners, 149 managers, and 5,094 tenants. The number of female farmers was 5,774, including 5,406 owners, 52 managers, and 316 tenants.

The value of all farm property in 1920 was $3,431,021,861, as compared with $1,614,694,584 in 1910, an increase of 112.5 per cent. The value of land and buildings in 1920 was $3,073,811,109; of implements and machinery, $136,069,290; and of livestock, $221,141,462. As compared with 1910, the value of land and buildings in 1920 showed an increase of 111.9 per cent; of implements and machinery, 272.9 per cent; and of livestock, 73.3 per cent. The average value of land and buildings per farm was $26,122 in 1920, as compared with $16,447 in 1910; and that of land alone per acre was $94.77 in 1920, as against $47.16 in 1910.

The value of the 37,338 farms for which complete mortgage reports were secured in 1920 was $764,166,011, and the amount of the mortgage debt was $224,063,903, or 29.3 per cent of the value. The average rate of interest paid was 6.6 per cent. In 1920, 55.0 per cent of all farms operated by their owners were mortgaged, as compared with 40.5 per cent in 1910.

VALUE OF FIELD CROPS, ORCHARDS AND VINEYARD

Value of Crops	1919	1909
All crops	$587,600,591	$146,526,151
Cereals	108,570,469	28,039,826
Other grains and seeds	38,349,277	7,318,211
Hay and forage	96,121,846	42,206,252
Vegetables	47,377,921	12,121,958
Fruits and nuts	270,910,698	50,706,869
Other crops	26,270,380	6,133,035
Acreage and Production of Principal Crops	**1919**	**1909**
Wheat, acres	1,086,428	478,217
Bushels	16,866,882	6,203,206
Barley, acres	987,068	1,195,158
Bushels	21,897,283	26,441,954
Rice, acres	130,367	.....
Bushels	6,926,313	.....
Dry edible beans, acres	471,674	157.987
Bushels	6,552,951	3,328,218
Hay and forage, acres	2,202,853	2,534,235
Tons	4,494,940	4,331,885
Hay crops, acres	2,133,412	2,503,467
Tons	4,111,688	4,175,933
Corn cut for forage, acres	13,661	Not reported
Tons	24,967	Not reported
Other forage crops, including silage, acres	50,780	30,768
Tons	358,285	155,952
Potatoes, acres	63,305	67,688
Bushels	8,217,937	9,824,005
Cotton, acres	87,308	324
Bales	46,418	183
Sugar beets, acres	88,257	78,671
Tons	666,866	843,269
Peaches, trees	9,057,760	7,829,011
Bushels	15,969,073	9,267,118
Plums and prunes, trees	8,768,436	7,168,705
Bushels	13,200,805	9,317,979
Oranges, trees	10,297,593	6,615,805
Boxes	21,628,444	14,436,180
Grapes, vines	153,195,213	144,097,670
Pounds	2,055,644,612	1,673,686,525

DOMESTIC ANIMALS ON FARMS JANUARY 1, 1920

Horses	402,407
Colts under 1 year old	18,259
Colts 1 year old and under 2	20,342
Mares 2 years old and over	176,175
Geldings 2 years old and over	185,363
Stallions 2 years old and over	2,268
Mules	63,419
Colts under 1 year old	4,868
Colts 1 year old and under 2	6,090
Mules 2 years old and over	52,461
Asses and burros	2,265
Cattle	2,008,037
Beef cattle	1,229,086
Calves under 1 year old	242,315
Heifers 1 year old and under 2	134,220
Cows 2 years old and over	441,059
Steers 1 year old and under 2	158,310
Steers 2 years old and over	232,267
Bulls 1 year old and over	20,915
Dairy cattle	778,951
Calves under 1 year old	150,119
Heifers 1 year old and under 2	111,543
Cows 2 years old and over	502,415
Bulls 1 year old and over	14,874
Sheep	2,400,151
Lambs under 1 year old	616,551
Ewes 1 year old and over	1,616,709
Rams and wethers	166,891
Goats	115,759
Swine	909,272
Pigs under 6 months old	452,856
Sows and gilts for breeding	138,868
Boars for breeding	12,581
All other hogs	304,967

Comparative Figures, Livestock on Farms	Jan. 1, 1920	April 15, 1910
Horses	402,407	*445,849
Mules	63,419	*66,910
Cattle	2,008,037	*1,809,226
Sheep	2,400,151	*1,525,288
Chickens	10,426,648	5,665,964
Hives of bees	180,719	201,023

*Excluding spring colts, calves and lambs; the figures for swine, even excluding spring pigs, would not be comparable.

Livestock Products	1919	1909
Milk, gallons	276,424,216	229,460,012
Wool, pounds	15,216,957	14,064,703
Eggs dozen	64,123,885	41,022,395
Chickens raised	12,929,044	8,430,968

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CALIFORNIA CULTIVATOR

THE LIVESTOCK AND DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
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R. M. Teague, Pres. and Manager.
F. J. Ironmonger, Business Manager.

C. B. Messenger, Editor.
Ernest Braunton, Associate.
R. P. Royce, Livestock Editor.
C. L. Hughes, Associate.
Jean A. Koethen, Poultry Editor.
Ruth P. Dougherty, Household Editor.

Regular Contributors

Fred K. Howard	D. F. Reichard
J. W. Mills	J. B. Neff
Fred M. Reed	Louis B. Stanton
G. E. Gordon	M. E. Bemis
A. R. Gould	E. L. Koethen

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Saturday, June 18, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

COL. LOOKINGBILL

Col. W. C. Lookingbill, known to many of California's livestock men as a most successful auctioneer and manager of a salesyard maintained at Pomona, died at the Pomona hospital recently. Col. Lookingbill has been a breeder as well as an auctioneer of livestock. In breeding he made a phenomenal success in the East and was beginning to build up a reputation in California.

CHEAP

The railroads have held up reduction on citrus freight tariff and have now made a proposition to the fruit shippers that a cut of 22 cents a hundred will be made on oranges and 16½ cents on lemons, to begin November 1, "if citrus fruit shippers will abandon plans for further development of water transportation facilities."

This proposition has been indignantly rejected and the growers announce that no boycott whatever will be established against the Panama Canal. The acceptance of the proposal of the railroads would have a serious effect on the development of shipping facilities which have great possibilities for the Pacific Coast. Many of the growers feel that this is adding insult to the injury which has been forced upon them because of the long continuance of these excessive rates.

Notwithstanding some reductions have been promised along other lines the citrus industry is not the only one which is being injured. We note dispatch from the cantaloupe shipping section of the Imperial Valley "We all feel that the present high freight rate will be the cause of 4,000 to 5,000 carloads of Imperial Valley cantaloupes rotting in the field."

A GREAT RECORD

California agricultural interests have just cause to congratulate themselves over the splendid record made during the last session of the recent legislature, culminating when Governor Stephens completed signing practically every bill of any importance that was sponsored by organized agriculture. On several occasions The Cultivator has published brief digests of the more important bills, and without again publishing the complete list it can be said that with a few minor exceptions all the measures will now become laws.

Probably the most fundamental piece of new legislation consists in clearing up certain disputed rights of cooperative organizations. From now forward it is anticipated that these organized groups will be freed from the malicious attacks of paid and unpaid hecklers.

Of vital interest and importance to the forward development of the industry is the increased support given the college of agriculture. Not only did the college receive all that the budget board recommended but it was given $400,500 that the board had eliminated from the original request. The college should now be in a position to function most efficiently.

Credit for such definite results must be largely tendered the agricultural legislative committee and at once justifies the formation of that organization and demands the continuance of its activities.

California agriculture is out in front where it belongs and where it must be kept.

A FOOL LAW

In March the Cultivator referred to a bill introduced into the state legislature which provided that "it shall be unlawful for any bank, trust company, corporation or individual, other than one duly admitted to practice as an attorney at law under the laws of the state of California, to practice law or give any service or advice or information concerning any matter of law, etc."

Now then, that fool law was passed; it has been signed by the governor; it will become a law unless it is stopped by the referendum. Presumably that is what will happen. We may add that is dead sure to happen.

Subscribers of the Cultivator are concerned in this because one of its most valuable departments has been that giving answers to legal questions. If this law is construed as it seems it must be this helpful service, which the Cultivator has been glad to render, will be prevented. While Mr. Stanton who answers the questions for the Cultivator is a thoroughly qualified practicing attorney and would find it entirely legal "to give information concerning any matter of law," the Cultivator Publishing Co. is an impersonal thing, "a corporation," which presumably would be disqualified.

The referendum will suspend operation of the "law" until the next election at which time the electors will have opportunity to express themselves regarding it.

It will be 60 days, even without the referendum, before the measure becomes operative so Cultivator subscribers may continue to send in the questions for "Legal Answers."

Meantime let's pass a law which will prevent a lawyer from growing a hill of potatoes or head of lettuce in his back yard—or even from advising his neighbor as to which end up to plant a tree, or any other "agricultural advice."

Gosh!

A Competence With Livestock

By R. P. Royce

NOT long ago one of the most successful livestock breeders in this or any other state remarked to the writer that he was at a loss to understand why so few men seemed to appreciate the possibilities of building for themselves a satisfactory competence by using some one of the established breeds of livestock.

"I know from experience," he stated, "that it is entirely possible for any man of average ability who has a reasonable amount of cash or credit, who really likes to handle livestock and who is willing to work and wait, to accomplish as much with livestock as he can in other lines. I sometimes look back at the meager start our family made and think of the many trial and disappointments we have had and balance it all against our position today, and it all seems so simple that I wonder why more men do not follow the same path. But, I guess, in the first analysis, the average man is looking for a quicker, easier road to follow.

"The reward comes to the man who lends thought, work and enthusiasm to whatever he does. Of course, some of us would add other factors, but in the main the one mentioned will make for success.

"I am aware of the fact that this old world is in need of a set of new and higher ideals, but we cannot escape the fact that at present we are living in intensely practical times and that for general purpose our people can be divided into three classes, viz., those below the average, those making up the average and those above the average, and it is largely up to the individual as to which class he finishes in. It doesn't make so much difference where one starts, it is the finish that counts.

"That is about my philosophy of life and I don't mind saying that I learned much of it from handling livestock. When we first started in the business we had grade cows. Some were good but mostly we weren't satisfied. So we decided that, in view of the fact that we were not dairying for fun, it would be good business to find out which cows were profitable and which were boarders. There were no cow testing associations in those days so we organized one with our own herd and started to test. Well, it didn't take long to find out which were the profitable cows and which were costing us money, and once we knew no time was lost in getting rid of the tramps. Then from time to time we picked up cows that we knew would pay. At first we set an average production standard for our herd, not high as we think back but at a point where we felt it spelled profit. Every cow below that average was sold.

"About that time we began to figure why some cows were below the average and some above and we soon decided that breeding was the biggest factor, then came care and feeding. I don't mind saying that at first we didn't take a lot of stock in the importance of breeding, but we had the facts hammered in on us so plainly that we couldn't ignore them. Then we began to figure that if there was a difference made by breeding, the smart thing for us to do would be to get as well bred cattle as we could find. So having decided on the breed we wanted to handle we got as well posted as possible and finally an opportunity came along for us to secure some pure breds. We bought, and I'll say that was the real beginning of whatever success we have made.

"But it hasn't been an easy road all the way. We followed the same general plan with our registered cattle as we had worked out for our grades. We set a sort of average standard of production and aimed to have the herd make the mark. Then as we kept getting into the business deeper, we naturally had to keep raising the standard. It was about this time that we learned the possibility of pulling some of the 'below standard' cows up to or above the average by proper feeding. There's a big difference in cows the same as in men. Some cows never get very far because they don't have a chance to make the most of their capabilities and some men don't get very far for the same reason—but, generally speaking, I'll say this, I never knew a cow that didn't try—and I've known a lot of men you couldn't say the same about.

"It's been a good many years since we made our start with registered cattle and as I said it hasn't been easy sailing all the way. At times we were mighty discouraged. It didn't seem that we were getting anywhere in particular. For the most part we operated on borrowed money—had to in fact. Then it didn't appear that we could sell our produce. I believe that last fact had meant more to us than most any other. That might sound strange but I'll tell you what I mean—though it took several years to learn the meaning ourselves.

"When we started with registered cattle, and I have noticed the same applies to about 95 per cent of the men who start in the breeding business, we were pretty enthusiastic. The business looked mighty profitable, good registered cows selling for $200 to $400 apiece and bulls and heifers bringing about as much. The returns on the investment looked pretty big. Now we only had a few cows to start with—an even dozen—and not all of them dropped a calf—and some of the calves died. Our notes kept coming due and no sales. The future didn't look bright but the only thing we could do was to buckle in and work harder and try to make the cows produce more milk and the farm produce more feed. Somehow, we managed to get along and things ran on the same for several years. Occasionally we did a little official testing and the records while not large were not bad. We kept plugging along for several years with mighty little money coming in except from milk and cream and a few bull calves, but that went for living expenses. Our herd kept increasing but it kept us humping to raise the feed. Then one day we held a sort of family conference to decide whether to get out or go on. We decided to get out, so we began checking up the herd to find what we had and after putting a conservative value on the cattle we were amazed to find out what the herd totaled. Well, that was the first time we realized what we had been doing and that was really the first time we realized just what the possibilities were with livestock. It's a business that takes awhile to get under way. The profits are based on accumulation.

"If more young fellows and beginners could be made to understand that a lot of grief would be saved. If these young fellows would go into the business with the determination to stick with it for ten years they would find a good profit. But, as a matter of fact, too many put all their capital in as many cows as they can buy, often without regard to the quality of the cattle, and then impatiently wait until they can clean up in a year or two.

"The registered livestock business is not for the speculator — there isn't much spectacular about it. On the other hand, it is a slow but certain road along which any young fellow with a leaning to livestock handling can follow with assurance. Not every man can make a success breeding cattle or hogs any more than any man can succeed as a merchant or a lawyer.

"Now to get back to what I said awhile back. Men will fall in one or another of the three classes I mentioned, the average, those below and those above the average. If a man is content to stay below the average, there's no hope for him; if he is satisfied to rank as just an average man he will not get anywhere. We must be above the average and whether or not he gets there is up to himself. But he can be sure of this: Mighty few ever get above the average without a lot of hard work and hard knocks. I honestly believe that the production of pure bred livestock offers the young man as favorable opportunity as can reasonably be looked for. He probably

(Continued on Page 798.)

California Cultivator

Vol. LVI, No. 25 Los Angeles, June 18, 1921 One Dollar Yearly

Potatoes in Field and Forum

By Ernest Braunton

ABOUT 150 potato growers gathered at the W. V. Stahl ranch near Zelzah in the San Fernando Valley, June 7 to inspect the field demonstration plats where experiments are being carried on jointly by the agricultural extension service of Los Angeles County and Mr. Stahl. Assistant Farm Advisor Bert C. Bougher, the field crop specialist of the office, has had the plats under close observation since planting and gives us the following information on

The Field Experiments

Owing to the unfavorable growing conditions this spring the plots were not as well developed as could be expected, but there were a number of valuable and interesting demonstrations which were explained to the visiting growers. The invaluable results to be obtained from the use of leguminous cover crops were clearly brought home to all. There were four fields on which different cover crops had been planted: Melilotus indica, wild lupine, soy beans and whippoorwill cowpeas. The same variety of potatoes was planted on these four different fields on soil types which were similar, including check plots which were planted on fallow land. The best stand of vines and setting of tubers was secured on the plot planted to Melilotus indica. All these cover crops were planted in September of last year and plowed under in February. The Melilotus made the heaviest growth of green manure and was reflected in the stand of potato vines. The soy beans and whippoorwill cowpeas did not make nearly the growth of green and can be considered eliminated so far as using them for a winter cover crop for potatoes. It isn't a question of inducing the growers to plant a cover crop but of finding the most suitable one to plant. From all the trials that have been conducted the Melilotus indica still seems to be supreme. This fall the much talked of purple vetch will be given a trial in competition with Melilotus and many growers are anxiously awaiting the results as the purple vetch seems to have the ability to grow much faster in colder weather.

One of the outstanding features of the morning meeting was the difference between the Temecula potato seed and that grown in Los Angeles County year after year. It is quite evident from the demonstration on Mr. Stahl's ranch that the seed that came from Temecula showed the best stand of vines and also a better setting of tubers. It was also less affected by wilt, rhizoctonia, and second growth, which are causing so much damage to the potato crop this spring. Even the best selected home grown seed which has been replanted here for the last three years did not compare favorably with the seed brought in from Yucaipa and Temecula. This imported seed was also choice selected. Much of the potato acreage this year is affected by curly top and wilt whereas the imported seed shows nearly a hundred per cent stand. This should not be taken as conclusive evidence of the value of bringing in outside seed every year but it is a practice that should be carefully checked up. It was the opinion of a number of prominent growers present that they had the same experience which is corroborated by over 20 eastern and middle western experiment stations. E. D. McSweeney, potato grower of El Monte, who gave a talk on "Potato Growing in Southern California," stated that he thought it a good idea to send his seed over to Temecula for a year and bring it back. More interest was shown in this phase of the field meeting than in any other.

In the Stahl Potato Fields

Potato growers watching the digging of the crop and listening to Mr. Stahl's explanation of treatment given. Below, those participating in the afternoon program at Van Nuys High School: 1, F. T. Fogg; 2, F. W. Read; 3, H. H. Warner; 4, J. L. Oleson; 5. R. G. Risser; 6. Mark Grimes; 7, R. W. Hogdson; 8, H. E. Truax; 9, Geo. H. Peters; 10. W. V. Shear; 11. E. D. McSweeny; 12, B. C. Bougher; 13, T. H. Lambert; 14. F. J. Beaton; 15, D. J. O'Neil; 16, R. E. Neblung.

The effect of inoculated and uninoculated sulphur on potato scab was something new in this section of the country. Sulphur has been used for the last three years at the New Jersey experiment station for the control of scab. In some cases commercial sulphur gave very good results but in others the inoculated sulphur gave a greater percentage of clean tubers. This was found to be due to the fact that in some soils the sulpho-fying micro-organisms were not present, thereby causing a slow oxidation of the sulphur into a mild acid which is the agent holding the scab in check. The inoculation of sulphur is effected merely by adding one per cent of soil, from a compost heap known to contain the sulphur oxidizing organisms, to the commercial sulphur and thoroughly mixing. The cost of inoculating is negligible and the results are much more constant. The plots on Mr. Stahl's ranch did not show any difference between the two kinds of sulphur. This is due either to the presence of the organisms in the soil or to the fact that the sulphur was not applied correctly, the latter no doubt being the reason. The sulphur was applied at the time of planting in the furrow with the seed and did not have time to become thoroughly incorporated with the soil. Best results have been obtained by applying the sulphur immediately after harrowing and before planting at the rate of 250 pounds per acre with an ordinary grain drill.

Despite the extremely unfavorable climatic conditions attending this spring's potato crop these demonstration plots brought home to the growers first, the necessity for using a leguminous cover crop in a crop rotation; second, the striking difference in growth and suspectibility to disease between the home grown seed and Temecula seed under this year's growing conditions, and third, the value of using sulphur for checking scab.

In the Forum

After the crowds returned from the fields they assembled for an outdoor talk on "Raising Spuds in Southern California," by E. D. McSweeny of El Monte. Using the farmyard surrounded by machine sheds as a forum and a hay wagon for a rostrum, Mr. McSweeny dwelt briefly on some of the points of value gleaned from the severe school of experience.

"We find that a change of seed is desirable; that any seed grown in one locality continuously will deteriorate. Especially is this true of the San Gabriel Valley. Last year we divided a lot of seed potatoes, planting one-half at home and sending the other half to our Temecula place in Riverside County. The next year we brought some of this latter seed back and planted it in the same field and alongside of that grown on the home place. The Temecula seed yielded 170 sacks to the acre; the home seed but 40 sacks. Similar results were obtained from seed sent to Yucaipa, San Bernardino County, when grown beside the kept-at-home seed for a check. I believe seed will thus deteriorate everywhere. A change is desirable. Even the second year after return the seed is superior to that kept at home.

"Do not overtax your land with two crops of potatoes annually. We have given up this practice. Alternate with a cover crop if possible. Of these we have found Melilotus Indica the best. We sometimes use a cover crop of barley and supplement this with commercial fertilizers. We always dip seed as a precautionary measure and find the corrosive sublimate very satisfactory. In regard to spraying to check blight, we have found fall spraying profitable but not spring spraying. I believe it better to irrigate twice before fall planting, once 12 or 14 days before, very heavily, then plow and irrigate again. This gives you a thoroughly moist soil with moisture uniformly distributed. Let potatoes sprout; then cut and plant. Regarding frost damage: Our Temecula fields were visited by three frosts, ten days apart, which blackened the vines; April 5-15-25. And still we have a fair crop. In closing let me urge you to accept the United States bureau of markets grades so we may sell f. o. b., home station. Let us have fuller cooperation among growers, and by all means join the farm bureau, the hope and mainstay of American agriculture."

Afternoon Session

Delegates and visitors left the Stahl ranch shortly after noon and repaired to the Van Nuys high school where the "repairs" and repast consisted of sandwiches, baked beans, ice cream and cookies, with a finisher of coffee; prepared and served by the domestic science class of the school at "so much per."

At 1:30 T. H. Lambert, chairman of the potato growers department of the Los Angeles County farm bureau, called the meeting to order and introduced Farm Adviser Hodgson, who spoke on the accomplishments of the potato growers department, its plans and purposes. Of practical value to growers, he said that cover crops have been found the best means of fertilizing potato fields, but that experiments with potash fertilizers are to be desired as we yet know little of the value of this element for potatoes in local fields. But cover crops furnish the best and cheapest available nitrogen needed. We need closer seed selection, better seed treatment and curing for the fall crop. The new annual white clover, called "Hubam," is very promising and differs considerably from Melilotus alba.

Next came Fred W. Read, chief of the standardization branch of the California state department of agriculture. Mr. Read has just returned from a trip to Chicago, Washington and Eastern shipping centers and said the state department is now definitely tied up and associated with the workings of the federal marketing bureau. In advocating adoption of government grading he said "field run" was hopelessly indefinite while U. S. grades "A" and "B" are definite and fully understood

(Continued on Page 802.)

Agricultural News Notes of the Pacific Coast

Northern California

The first shipment of ripe apricots left Winters, Yolo County, May 28.

Willows, Glenn County, shipped over 20,000 lambs to Chicago during the month of May.

Several carloads of sheep have been shipped from Byron, Contra Costa County, recently.

Owing to frost damage many orchardists of El Dorado County have planted potatoes.

The Sutter County Peach Growers Association expects to get at least $70 a ton for canning peaches.

Happy Valley farmers have arranged to establish a commission warehouse at Redding, Shasta County.

The 1920 pack of olives in this state was about 137,000 cases of 24 standard quarts, about half the 1919 pack.

Supervisors of Shasta County have called for bids for construction of a road from Redding to Lassen Peak.

The strawberry crop of the Santa Clara Valley is said to be the largest in years, growers receiving $10 and $12 a chest.

Planting of sugar beets in the Santa Clara Valley is estimated at 3,500 acres; Sutter Basin, 2,500; West Sacramento, 1,300.

The California Grape Growers Exchange names opening price of $90 a ton for red, $70 for black and $60 for white wine grapes.

The prune acreage of the state is estimated by the California development board at 140,944½, of which the association has signed 115,318½.

W. H. Walker of Willows, president of the state farm bureau, has returned from six weeks' tour in eastern states in the interests of cooperative marketing.

The Sebastopol Apple Growers Union has taken a lease on the French-American Winery at Healdsburg and will convert it into a modern apple packing house.

At the last session of the home department of the farm center at Galt, Sacramento County, there was demonstration of home evaporation of fruits and vegetables.

The annual picnic of the Napa County farm bureau was held at the Napa state farm near Yountville, June 4. Athletic contest, a wild west show and a war dance by Digger Indians from Lake County were features.

The Sutter County farm bureau is compiling records of canning peach prices for the past 38 years to show just what the growers have made under average conditions. These will be used as a basis for price fixing.

President Ramsey of the California Cattlemen's Association warns wool growers to watch the independents who are now putting forth their best efforts to wreck the young cooperative association. He says that one San Francisco firm is advertising free storage in its warehouses.

According to the California development board: "Prohibition director estimates 1921 plantings of wine grapes as 6,000 for Napa County, 13,000 for Sonoma County, 30,000 for Mendocino, 50,000 between Modesto and Bakersfield, and between Modesto and Red Bluff like acreage."

Central California

Turlock's cantaloupe acreage is estimated at 3,500.

Visalia made its first shipment of peaches on May 13.

Tomato acreage throughout the state is much smaller than last year.

Heavy plantings have been made of Blackeye beans in Stanislaus County.

Hog auction sales will be held at Bakersfield, June 18; McFarland, June 24.

The Giant Forest Road was thrown open to tourist travel on Saturday, May 28.

The Oakdale district of Stanislaus County reports pea fields have suffered from aphis.

Much replanting of cantaloupes was made necessary in Merced County by frost damage.

Honey crop throughout the state is generally large; Salinas Valley reports small crop.

Tulare is planning to hold its fair early in September; Visalia will hold its fair in October.

Big combined harvesters are at work in the Tulare Lake district and hauling will soon begin.

The district about Madera reports 200 to 300 acres planted to casabas, mostly Santa Claus.

Work is progressing on the new packing plant of the Peach and Fig Association at Merced.

Kern County farm bureau meetings: Mountain View, 20; Pond, 22; Inyo-Kern, 23; Rosedale, 24; Shafter, 29; Arvin, July 1.

Fresno chamber of commerce reports sale of a 20 acre vineyard of Thompson Seedless near Kerman at $1,500 an acre.

The Lindsay district of Tulare County reports Navels and Valencias all shipped and the heavy cantaloupe movement beginning.

Farm home department meetings will be held in Kern County: Weed Patch, 21; Kern-Delta, 28; Wasco, 30; Edison-Fairfax, July 1.

The Sorghum Mill Company at Hughson, Stanislaus County, has removed to Modesto, where it will much enlarge capacity of mill.

Kern County cotton gin handled in its first season 3,700 bales of cotton raised in Kern, Tulare, Kings, Fresno, Madera and Merced Counties.

A conference of chamber of commerce secretaries of Fresno County will be held at Fresno soon to outline a plan of community advertising.

Not satisfied with the 1920 census which credited Tulare with 3,539 inhabitants the board of trustees called for a new count which shows 5,249.

Santa Cruz farmers are fighting a pest of sea pigeons which have made their appearance after an absence of four years. Some of them are reported to be paying from $3 to $5 a day and ammunition furnished for shooting the birds.

Formal organization of Porterville Cooperative Poultry Association has been completed. There is a membership of 150 covering the district from Ducor to Strathmore. The association expects to start active operation within 30 days.

Southern California

Santa Paula chamber of commerce is conducting a membership drive to enroll 500.

The governor has signed the bill exempting date palms under ten years old from taxation.

The railroad commission has approved increased water rate at Banning, Riverside County.

Twenty-one thousand acres of cantaloupes are under cultivation in Imperial Valley by Japanese.

Residents of Mirage Valley, San Bernardino County, have built a corral to round up stray range cattle.

Consensus of opinion of Santa Barbara ranchers is that the heavy rains have done more good than harm.

The tenth district of the California Alfalfa Growers Association has been organized in the Imperial Valley.

The summer meeting of the Riverside County chambers of commerce will be held at Idyllwild June 17-19.

Poultry Expert Easson is giving culling demonstrations at farm home department meetings in Imperial County.

Home center meetings in Imperial Valley at Meloland, June 20; Westmoreland, 24; Verde, 28; Lantana, 29.

Local farm bureau meetings in Imperial County: Alamo-Verde, June 22; Central-Highline, 23; Eastside-Sunset, 24.

The seven citrus packing houses at Anaheim have been speeding up the shipping of Valencias to about 200 carloads a week.

Maxwell Farms in the San Fernando Valley, Los Angeles County, has just received a carload of Holsteins from Wisconsin.

Death Valley and the surrounding desert has been sign posted by the auto club. All wells and water holes have been marked.

Much of the hay injured by storms is being baled and the best of it sold for feed; the lower grade for mulching orchards.

Lima bean growers are well pleased over the outlook for this season's crop. The acreage planted is not as large as in former years.

Twenty-five carloads of Coachella Valley onions were shipped from Los Angeles harbor to New York last week on the steamer Texan.

The summer session of the citrus institute will be held at Whittier June 24, followed by the annual fumigation and pest control school, June 25.

Hundreds of tons of rock are being dumped along the Ockerson levee by the Imperial irrigation district to hold back flood waters of the Colorado.

A field trip for potato growers of Orange County was held June 9. Inspector Shear of the state department explained methods of control of potato disease.

San Fernando Valley Fair and Market directors and boosters met around the banquet table last week and entered most heartily into plans for the fair to be held September 13-18.

June meetings of the Los Angeles County farm bureau : Pomona and Covina, 18; Monrovia, 21; Del Sur, 22; Owensmouth, 23; Roosevelt, 23; Tierra Bonita, 24; Burbank, 27; Little Rock, 28

The Coast and General

Linn County, Oregon, will hold its fair October 4-7.

June 13-18, farm week at the Oregon agricultural college.

The Dalles, Oregon, expects to begin marketing apricots July 1.

The Polk County, Oregon, farm bureau is starting a campaign for better sires.

Oregon canneries report no orders for future delivery and the outlook very uncertain.

The peach crop of Georgia is officially estimated by the Georgia Fruit Exchange at 7,840 cars.

Railway passenger rates advanced June 1 20 per cent between all points within the state of Arizona.

Next comes National Candy Week, October 3-8, when confectioners will tell us of the food value of candy.

There is to be a "Gypsy Tour" of Oregon motorcyclists on June 18 and 19. Some 800 cyclists are planning to participate.

The commercial strawberry acreage of the United States for 1921 is estimated at 57,219 as compared with 48,619 last year.

The United States bureau of biological survey is working now in Coconino County, Arizona, demonstrating gopher control methods.

Fire burned over several acres in the Prescott forest reserve in Arizona, doing some damage to young timber and to the forage.

The first Australian fruit for the season reached London the third week in April. The shipment included grapes, pears and apples.

Farmers of Yavapai County, Arizona, have initated a movement for a county agricultural agent. This county has not had a county agent for a year.

Some California canners report making contracts with Oregon strawberry growers at four cents a pound. Berry growers associations in California are holding at about eight cents.

Eighteen states have fomulated plans for pooling the 1921 wool clip, according to C. J. Fawcett, director of the wool marketing department of the American Farm Bureau Federation.

Olive culture is being promoted in South Australia by government support; Italy has removed all restrictions on exportation of olive oil; Spain has authorized exportation of 20,000 tons.

Fruit growers of The Dalles, Oregon, who have had a local association for years, have joined the Oregon Growers Cooperative Association. The association expects to do a quarter of a million dollars business there this season.

The Oregon agricultural college is trying an innovation this year as regards Farmers' Week. Instead of holding a week in December or January, it was held this week when the farms, orchards, barns, etc., could be visited under the best of conditions.

Light rainfalls are reported in the north central section of Arizona, but not sufficient to increase the amount of stock water. Ranges in the Flagstaff and Pinedale districts are said to be fairly good. In most other parts of the state the range is poor and water supply low.

Lime and Liming

By R. R. Snowden

BY liming in agriculture is meant the application of quick lime (caustic), hydrated lime (caustic), or carbonate of lime to the soil. Carbonate of lime or calcium carbonate is chemically the same whether in the form of limestone, shells, marl, sugar house lime, gas house lime or chalk.

Pure quick lime (burned lime or actual lime) contains: calcium 71.43 per cent, or 1,428.60 pounds to the ton. Pure hydrated lime (or slaked lime) contains: lime (calcium oxide) 75.68 per cent, or 1,513.60 pounds in a ton; water 24.32 per cent, or 486.40 pounds in a ton; or calcium 54.05 per cent, or 1,081 pounds in a ton. Pure carbonate of lime (calcium carbonate) contains: calcium 40 per cent, or 800 pounds in a ton; calcium oxide 56 per cent, or 1,120 pounds in a ton, and carbonate dioxide 44 per cent, or 880 pounds in a ton.

To calculate the number of pounds pure lime in a ton of lower grade materials multiply the per cent of actual lime in the sample by 20.

All these forms will neutralize soil acidity, rendering sour soils sweet and fitting them for the growth of most agricultural crops; and there are many acid soils in California and Florida and elsewhere in the United States. This is not surprising since the streams are transferring the lime rapidly from the land to the sea. For instance, Silver Spring in Florida transports 600 tons, and the Colorado River more than 12,000 tons of lime salts daily to the ocean. Is it any wonder that soils are constantly becoming more and more acid where no provision is made to prevent it!

The phosphatic marls may contain sufficient phosphoric acid to materially enhance their value for agricultural use and the latter is in a form readily assimilated by plants.

Calcium is supplied to plants in still other forms, to wit: Acid-or superphosphate, basic (or Thomas) slag, bones, rock phosphate, "soft" phosphate, gypsum and wood ashes. Superphosphate is made by treating rock phosphate or bones with sulphuric acid, but a properly made article contains little or no free acid.

The fertilizing power of lime is so well known that there is an old saying that "a lime country is a rich country."

Hilgard suggested that the persistence of western Europe as a center of civilization is probably due to its being a limestone country and that the presence of ancient civilizations in arid regions is likewise due to the same cause. This condition, so fundamental to the prosperity of agriculture, may be maintained artificially by generous applications of lime in one form or another to the soil.

Many plants are benefited by a liberal lime content in the soil, while others are injured by it, and still others are more or less indifferent to its presence. These last will under some conditions be benefited, while under others, injured by applications of lime.

Calciphile, or Lime-loving, Plants

Vegetables: Asparagus, beans (golden wax, valentine, horticultural pole, bush lime, soybeans), beets, cabbage, cauliflower, Canada pea, cucumbers, eggplant, Kohl-rabi, lentil, lettuce, okra, onion, parsnip, peanut, pepper, pea (common), potatoes (sweet), pumpkin, rhubarb, salsify, spinach, squash (summer and Hubbard), turnip (flat), turnip (Swedish).

Fruits: Cherry, currant (white Dutch), gooseberry, orange, quince, muskmelon, plum (Burbank Japan), raspberry (Cuthbert).

Flowers: Mignonette, nasturtium, pansy, poppy, sweetpea.

Grains: Barley, emmer, oats, wheat.

Grasses: Kentucky bluegrass, meadow oats, meadow soft, timothy, sheeps fescue, awnless brome, Rhode Island bent.

Legumes: Alfalfa, alsike clover, crimson clover, red clover, white clover.

Trees: American elm, American linden, balsam.

Miscellaneous: Sweet alyssum, hemp, dandelion, martynia, peppergrass, saltbush, tobacco.

Indifferent

Buckwheat, carrot, corn, potato (Irish), chicory, redtop grass, rye, serradella, spurry, watermelon.

Calcifuge, or Lime-avoiding, Plants

Apple, American white birch, azalea, blackberry, button weed, chestnut, castor bean, cotton, cranberry, cowpea, flax, gladiolus, gallberries, grapes (Concord), grass (redtop), lupine, peach, pear, phlox (Drummondi), radish, raspberry (black-cap), rhododendron, spruce (Norway), sorrel (common), tomato, velvet bean, zinnia.

Calcium is as positively a plant food element as potassium, phosphorus and nitrogen, and much confusion and loss have been caused by its neglect as such. It is just as necessary to plant development as any other element, and perhaps more so, since the use of the others by plants is decidedly influenced by its presence in the soil. Nor can it be questioned that calcium, or lime, affects the well-being of agricultural plants in more ways than any other of the plant foods. Without lime nitrogen, though abundant and available, cannot be used, and no new plant cells can be produced; therefore as soon as the lime is exhausted plant development ceases.

It is used by most plants in greater quantity than any other element and stores of it are thus soonest depleted and hence it is oftenest deficient in soils.

Soils of granitic or serpentine origin are of necessity poor in lime, the latter having the further defect of being rich in magnesia.

Uses and Action

Lime is used as a base in certain insecticides and fungicides. In Bordeaux mixture it prevents injury to plants by the active element copper. As calcium sulphide it carries the sulphur in a soluble form. This is made by boiling 7 pounds quick lime with 4 pounds sulphur and settling out the calcium sulphate formed at the expense of one-fourth of each of the materials used.

Calcium in all the forms mentioned maintains and stimulates bacterial activities, thus encouraging the beneficial changes wrought by these organisms in the soil. The importance of this function can scarcely be overestimated.

Although lime renders the soil potassium more available to plants, yet in moderate abundance of lime at least some plants take up less potash than they do where lime is deficient, e. g., peach and lemon. Lime then promotes economy of the more costly potash.

Lime increases the efficiency of all the other plant foods, which action is probably due to the fact that it produces a wealth of root hairs on the feeding roots of plants, thus greatly extending the area of their absorbing surfaces and capacity for using these nutrients.

Applied to heavy clay soils lime in any of its forms will loosen them by flocculating the colloidal substances and infinitesimally fine clay particles, forming these into small crumbs, increasing capillarity within the soil mass, and admitting both air and water where neither could function before. But where soils are puddled by alkali and closed to the movements of water and air the only form to use is gypsum, or calcium sulphate, for this at the same time destroys the alkaline character of the alkali and renders more easy the removal of the injurious salts.

Paradoxical as it may seem, while lime opens up a heavy soil it also renders an open sandy soil more closed so that it increases its moisture holding capacity. This action should always be aided by additions of organic matter. A beautiful demonstration of the results of flocculation is seen in the case of the enormous crystal springs of Florida and other limestone regions. The clay substances flocculated by the lime salts in solution are so completely removed from the water by filtration through the soil that a grain of corn is plainly seen through 60 feet of this water.

Magnesium in excess or sometimes even in relative excess of calcium is poisonous to plant life. This condition is found in many southern California soils, as a consequence of which ten years ago great alarm was felt for the citrus orchards here on account of the pronounced deterioration of the older ones. Since then enormous quantities of lime in its several forms have been applied to these soils with the happy result of having arrested the decline and restored the threatened groves to their original thrift. Lime is the recognized antidote to the toxic action of excess of magnesia. A proper chemical analysis is an adequate guide to the need for lime for this purpose in the soil; but the analysis must be made on the carbonated water extract of the soil instead of the strong acid extract erroneously used since a soil may show an abundance of lime in the latter instance, while the carbonate water extract may contain a highly toxic excess of magnesia, and this most nearly represents the soil nutrient solution. This statement has been abundantly confirmed in actual practice by the writer.

Besides increasing the quantity lime improves the quality of fruits in several ways, by increasing their sugar content, enriching the aroma, making more juice and less pulp and rind or skin, and deepening color. It also hastens maturity.

Other things being equal lime to a limited extent increases the endurance of trees against cold. A case is on record where old wall plaster was applied to a part of a young lemon orchard near Santa Barbara, in July preceding the freeze of several years ago. The trees receiving no lime were killed to the ground; those receiving it simply dropped their leaves, while one tree that had a much larger amount of lime entirely escaped injury. As a matter of fact a tree well supplied with lime is more resistant to all adverse conditions, climatic or otherwise.

Lime is known to promote oxidation in the soil, and this is found to be closely related to fertility. By this action toxic bodies of organic origin are destroyed and sometimes even converted into beneficial agents of production, thus rendering the soil a more congenial home for all kinds of agricultural plants.

Lime is a specific for "pops" in peanuts, since these are due to its deficiency in the soil. It also prevents "club root" of cabbage and turnips, and reduces soil rot of sweet potatoes.

What Forms to Use

When vigorous and quick action is desired quicklime, or the hydrated, should be used, remembering that either will destroy the humus and may injure the growing vegetation.

For turning under with green manure use the carbonate or both this and the sulphate.

For correcting acidity use one of the alkaline forms, namely, carbonate, quick, or hydrated lime.

To supply calcium for its physiological action any of its compounds mentioned will do, remembering the restrictions on the use of the caustic forms.

To overcome excess of magnesia use the sulphate preferably, or the carbonate.

For liberating plant foods they are most active in the order following, the sulphate, caustic lime, and the carbonate.

For opening up heavy clay soils the caustic forms, sulphate, and carbonate. For improving sandy soils use the hydrated which later becomes the carbonate.

The best way to apply lime to the soil is to spread it on the land and turn it under about six inches deep, then harrow to mix it with the soil. It should be near the surface but all below the dry mulch, for the plant foods remaining in the latter cannot be used by the growing crop.

Caustic lime (quick and hydrated) has the advantage of greater solubility, and its solution will pass into the soil more quickly than other forms, covering the soil grains and presenting thereafter greater lime surface within the soil.

Lime from shell deposits and beet sugar lime possess a fineness of structure unattainable by mechanical means, which manifestly gives it an added value for agricultural uses.

The carbonate, from whatever source derived, is more efficient in the presence of decaying vegetable matter since by mutual reaction the lime is made more soluble by the acids produced and the formation of black humus is promoted. The presence of black humus is generally a good indidation of a well limed soil though this is not always positive evidence. The writer observed a soil in the state of Washington that was black with humus but was barren because practically all the lime had been lost from it after the formation of the humus, proving the statement that "No chain is stronger than its weakest link."

The secretary of the San Bernardino County farm loan association has been advised by the federal farm loan bank at Berkeley that applications will now be received for loans on Yucaipa Valley farms. The board has heretofore refused application pending investigation of water resources and transportation facilities.

Dusting Vines Truck Crops or Orchards

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Dry dust insecticides for the control of insect pests on vines, truck crops or in the orchard must be applied with such force that the dust penetrates to every part of the infested plant. The underside of leaves and the center of blossom clusters are good breeding places for pests but are seldom treated with the average sprayer.

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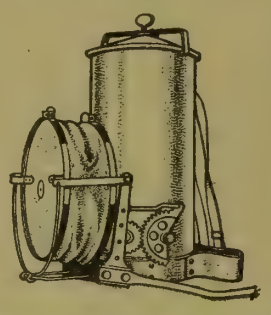

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Condition of California Fruit and Nut Crops, June 1

By E. E. Kaufman of the California Cooperative Crop Reporting Service

THE condition of the various fruit crops has changed but little during the past month. Some fruits, like apples and pears, were slow to show the effects of the freeze late in April and now indicate shorter crops than expected. All fruits except citrus suffered damage and are very spotted, making estimates of condition and forecasts of production a very difficult problem.

Apples

The condition of apples is estimated at only 58 per cent of normal as compared to 73 last year and a ten year average of 82. Sonoma reports a light crop of Gravensteins but that late apples will be normal. Watsonville will have no better than half a crop. Yucaipa escaped the frost and, with older and more bearing trees, may double last year's crop. Oak Glen, a small district near Yucaipa, was practically wiped out. A forecast based on present conditions indicates about 4,900,000 boxes for this year's crop.

Apricots

No change is indicated in the condition of apricots the past month, being 45 per cent of normal on June 1 as compared with 55 last year and a ten year average of 70.

Cherries

The promised bumper crop of cherries suffered from both frost and rain, and is estimated at only 63 per cent of a normal as compared with 80 one year ago.

Peaches

The condition of peaches improved two points during May, being now 73 per cent of a normal compared to 87 last year and a ten year average of 81. The improvement was confined to the San Joaquin Valley. The indicated production is for a crop of about 325,000 tons as compared with 345,000 tons last year.

Pears

The condition of pears declined during May; 20 points in Sacramento County and 25 points in Placer County, the two largest producing sections of the state. The state condition is 61 per cent of a normal. Last year it was 70 at this time, with an average condition of 80 for ten years.

Plums

The plum crop is particularly spotted as the frost hit some varieties harder than others. Conditions are about the same as last year, or 70 per cent of a normal.

Prunes

The prune crop was not damaged quite as much as early reports indicated and it is now estimated to be 69 per cent of a normal. Last year the condition was 76 on June 1, and the ten year average is 78.

Olives

June 1 is just about blossom time for the olive crop, and further than to state that there was a good blossom and the setting of fruit depends on weather conditions, but little can be said of this crop.

Oranges

Oranges maintained their promise of one month ago, and the condition is about 92 per cent of a normal as compared with 94 last year and a ten year average of 92. The June drop is still to be reckoned with, so a forecast of production is impossible at this time.

Lemons

A few lemon groves were neglected during the past winter, and correspondents were almost a unit in reporting a condition a little lower than for oranges.

Almonds

The almond crop improved slightly the past month, but is still only 60 per cent of a normal, as compared with 60 last year and a ten year average of 71. Riverside and Stanislaus Counties report a normal crop, with total production probably larger than last year. The crop is spotted and hard to estimate.

Walnuts

Walnuts this year are 77 per cent of normal. Last year the condition on June 1 was 80 and the ten year average is about 87.

Grapes

Detailed reports on grapes are usually not made until July, but owing to the widespread interest in the results of the April frosts, a special inquiry was made of the condition as of June 1. Figures are not available for comparison with the same date for previous years.

Wine grapes apparently suffered the most damage and only 65 per cent of a normal crop is reported for the state, although conditions in the different counties vary from 15 to 100 per cent.

The raisin crop is particularly spotted and hard to estimate. Fresno County, producing 70 per cent of the whole crop, reports a condition of 65. Conditions vary in different parts of the county from ten per cent to almost a full crop. Tulare, the next largest producing county, reports a condition of 90 per cent of a full crop.

The frost was more severe on some varieties of table grapes than others, Malagas apparently being hit hardest. This again brings about a spotted condition that is hard to estimate. Tulare escaped with but slight damage, while Fresno, among the leading table grape counties, suffered most. The condition for the state is placed at 70 per cent of a full crop.

POTATOES: IN FIELD AND FORUM

(Continued from Page 799.)

by the shipping world. "There is no other difference." He also spoke of the universal legal recognition of state inspection and the all-sufficient protection it gives the grower.

D. J. O'Neil of the California Vegetable Growers Association, though not announced on the program, was called upon, as he has just returned from Washington and Chicago, where he has been fighting for lower freight rates. The telegram appearing on our last week's editorial page was drafted by a committee of which Mr. O'Neil was chairman. He said the 1921 celery crop in California had been sold at a loss, also the 1921 cabbage crop and the Coachella Valley onion crop. A few years ago a crate of onions was carried to eastern points for 50 cents; it now costs 90 cents. So now we cannot afford to send them so far east. Therefore sales are restricted in proportion as territory is restricted.

Then followed three speakers on "What the Market Wants—The Necessity of Grading," by F. Reynard, California Vegetable Union; F. J. Beaton, Platt Produce Co.; and F. T. Fogg, American Fruit Growers, Inc. The question with potato buyers is: "what's in the sack?" The label tells, if contents have been officially inspected. The buyer wants to know what to expect. It will not suffice to say: "good grade," or "as good as any going," but what grade is it? Mr. Reynard made a most lucid and forceful illustration of his argument by reading from the guarantees on labels on cans of beans and soup and on a bottle of catsup. "The buyer knows what he is getting."

H. E. Truax of the United States bureau of markets explained the government grades and standards, after which, on motion of E. D. McSweeny, the growers assembled unanimously agreed to adopt said grades and standards. An explanation of the state shipping point inspection service was given by H. H. Warner of the state department of agriculture and the session closed with a ringing speech: "Looking to the Future," by Mark Grimes of Van Nuys.

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Each tire has our trade-marked name—"Riverside." And the name "Riverside" stamped on a tire is as good as the name "Montgomery Ward & Co." written on a check.

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So, no thinking person can have any doubt, any hesitancy ordering a Ward's Riverside Tire—with the full knowledge that our forty-nine-year-old reputation will be lived up to absolutely.

We guarantee Ward's Riverside Fabric Tires for 6,000 miles. We mean exactly that.

We guarantee Ward's Riverside Cord Tires for 10,000 miles. We mean exactly that.

There can be no risk whatsoever in your ordering a tire from Montgomery Ward & Co. We know that the prices we quote are very low. But the saving we offer is a real saving on the finest grade of clean factory firsts.

Save One-Third on YOUR Tires, TOO!

Read what we say here about prices: "The Plain Truth about these Low Prices"—and then send your order now.

With an absolute guarantee, backed by a house of unquestioned reliability—Why not at least try Ward's Riverside Tires? Why not save one-third on YOUR tires, too!

The Plain Truth about these Low Prices

First let us say that we believe you will ***never again buy tires at such low prices***—unless there is some great discovery of a new way of making tires.

Just consider that before the war, rubber was 60 cents per pound and formerly it was $1.10 per pound. During the war, rubber actually went down to 50 cents per pound.

Last spring the tire business was demoralized. Rubber went to 18 cents per pound. Cotton broke from 40 cents per pound to 12 cents. It is said that 40,000 people moved away from Akron—the great tire making city.

And there, with everything at the low mark, was the opportunity we are always looking for, with cash in hand, to secure a saving for our customers.

With some great change in making tires—some discovery—you may some time in the years to come buy tires cheaper. But otherwise, Ward's prices in this Summer Sale will be the lowest prices at which you ever bought standard, high grade guaranteed factory firsts.

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We quote here our great Mid-Summer Sale Price on a 30x3½ tire for Overlands, Fords, Maxwells, Dorts, Chevrolets, etc.

But you who own Buicks, Packards and other cars, write for the book below, our July-August Sale Book. It offers you a saving of one-third on all sizes of Fabric Tires—and on Ward's Riverside Cord Tires—guaranteed for 10,000 Miles.

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NOW is the time to Buy
Mid-Summer
SALE!
Carefully study these low prices, order now everything you need, and there will be a big cash saving for you
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MONTGOMERY WARD & CO. G38
Portland, Ore.

I enclose { check / money order } for $..... Please send me

NUMBER OF TIRES	SIZE		PRICE	POSTAGE	TOTAL
	30 x 3½	Riverside Fabric Tires	$10.45		
NUMBER OF TIRES	SIZE		PRICE	POSTAGE	TOTAL
	30 x 3½	Riverside Cord Tires	$17.95		

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Address.....

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Portland, Oregon

Please send me free my copy of Ward's Great Mid-Summer Sale Booklet, G 38.

Name .....

Address .....

IMPORTANT:
If you live in the following states send your order direct to our new Main House at Portland, Oregon: Oregon, Washington, Idaho, Western Montana, California and Nevada.

IMPORTANT: Send this coupon to Portland, Ore.

Western Plant Quarantine Board

THE members of the Western Plant Quarantine Board met in Victoria, B. C., last week and congratulated each other on the accomplishments of the board in encouragement of federal, state and other officials to greater endeavor in detecting and preventing entrance and spread of more insect and fungous pests of farm crops. There was also a look forward to still more efficient work, as is indicated in the opening address of Director Hecke of the California department of agriculture and chairman of the Western Board since its organization. We quote extracts from Mr. Hecke's address:

"Among problems concerning the provisions of plant quarantines maintained within the domain of our common jurisdiction there yet remain several factors that demand our closest attention and most careful study. These should be pursued with persistence until the equation is found for our individual duties to the producer and our united duties toward the general policy of protection. I have faith in the wisdom of the members of this board and a firm belief that continued concentration upon the problem of ways and means of preparing the finished product of the crop as offered for export will eventually meet with success and fill all the requirements demanded by conditions of safety and economy.

"At our last annual conference the subject of vacuum fumigation as practiced by the federal horticultural board at the maritime ports of entry was discussed and much interest manifested in its possibilities. Since that date the California deparment of agriculture has been actively engaged in experimental work with vacuum fumigation, both upon the finished plant products as offered for shipment and with nursery stock.

"The consideration of special problems that have come before the board, such as the further protection of the cotton and lumber industries of the West from the introduction and establishment of especially dangerous pests and the unity of purpose and decision accompanied by prompt action in such matters on the part of the plant quarantine officers, has produced results that may serve as an example of what continuous cooperative effort will accomplish along a given line of work and should be a warrant for further efforts in the same general direction. This same unity of action has also greatly improved the situation in our dealings with the transportation companies and their local agents, and a definite system of procedure enforced at all shipping and delivery points has aroused a widespread interest in the requirements and created a wholesome respect for plant quarantine regulations that is permeating the most intricate of trade channels.

"As a body we have acquired a recognized position in agricultural, commercial and political circles, and in summing the situation up to date I feel that the developments that have accrued, largely as a result of organization, have proven eminently successful and justify in full the conception of the original plan.

"Looking forward and endeavoring to correctly diagnose the requirements of the immediate future from the basis of past experience, several points of interest appear upon our official horizon with distinct prominence. In my opinion the most important at the present time is provision for the making and recording of a thorough and complete survey of the existence and location of crop pests. Accurate information upon this point, even if existent, has not been readily available, and the absence of definite and positive information of this nature from our local and general councils has beyond question caused grave misapprehension and serious consequences in some instances. Such information carefully collected, compiled and recorded in a manner adapted to correction and in a form readily interchangeable with all states concerned, will prove of the greatest value and influence in our future deliberations and conclusions. The necessity of making such a survey appeals to me so urgently that I recommend for your consideration the appointment of a committee to work out the details of a practical plan of procedure during the present conference.

"A second point of interest which in my opinion deserves our immediate attention is the matter of tourist automobiles and automobile camps, several recent occurrences having focused attention upon this question and upon the possibilities of introducing crop pests by means of this mode of traffic. If we are to successfully cope with this menace we must lose no time in devising and executing measures for complete and continuous control of the situation. I am fully aware of the dimensions and complex nature of the problem I am bringing to your attention, as in California there are, in addition to the large number of private automobile camps for the use of which a fee is charged, 157 maintained free of charge by municipalities. In connection with these municipal camps the state board of health has set us an example by promptly taking sanitary measures for the protection of health and has provided means for enforcement of such regulations. Here is a precedent that this board should and must follow in the interest of farm sanitation; otherwise the most thorough and complete system of interception and inspection at the docks and depots will be inadequate.

"Still another point which I consider of vital importance in furthering our general purpose of crop protection through quarantine measures is the need of proper preparation to meet the contingencies arising at legislative sessions. At such sessions we invariably need new or broader statutory authority to keep pace with the new conditions that are constantly arising and, what is just as much to the point, adequate appropriations to enable us to put in execution all the provisions of these same statutes. To secure legislative sanction to such measures and means is often a difficult undertaking unless the plain statements and estimates of the department are supported by representatives of the industry to be protected. In California we have met with remarkable success in the development of this idea through the organization of an agricultural legislative committee.

"This looking toward our future actions has brought me to a subject very dear to the hearts of California's plant quarantine officers, close cooperation with the Federal Horticultural Board. In our work at the maritime ports the greater authority, the broader scope of duty and added prestige that has followed without exception, and the appointment of our plant quarantine officers as collaborators is recognized and appreciated as having strengthened the protective powers of the service more than any other single feature that preceded it.

"Reviewing the work of the board during the past two years a prime accomplishment will be found in our mutual acquaintance, through association, with the immensity of the territory under our collective jurisdiction and a clearer comprehension of the complex nature of the problems sub-

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The last word in Quality
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32×3½	$32.90	$2.90
32×4	$41.85	$3.55
33×4	$43.10	$3.70
32×4½	$47.30	$4.50
33×4½	$48.40	$4.65
34×4½	$49.65	$4.75
33×5	$58.90	$5.55
35×5	$61.90	$5.80

Fabric Tires

Smooth	30×3	$12.00	Safety	32×4	$26.90
Safety	30×3	$13.45	Safety	33×4	$28.30
Safety	30×3½	$16.00	Safety	33×4½	$37.15

Anti-Skid Safety Tread
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THE B.F. GOODRICH RUBBER COMPANY
Akron, Ohio

mitted to us for practical control and final solution. In continental North America we find a land surface approximating 1,500,000 square miles, over which we are given jurisdiction in protection to crops, a territory ranging through 33 degrees of north latitude, with all the environmental features that such a situation indicates, with all the meteorological conditions that accompany a change of altitude from sea level to alpine regions, and with a diversity of plant life adapted to all the wide changes of soil and climate from that of desert to subarctic zone; our coast line studded with entries for world commerce and our border lines traversed by continental railway systems embodying all the ramifications of established trade practices. With such a mental picture before us we can but realize that under such conditions the confidence reposed in our ability to maintain a plant quarantine is great, and to successfully do so our belief in the real purpose of the work entrusted to us must be greater. It indeed requires a vision to fully grasp the extent and importance of the work committed to the care and guidance of the plant quarantine officers of the West. To keep this great fertile area clean and sanitary so that the multitudes who are destined to intensively cultivate it in the days to come may produce crops in such abundance as will enable the world to economically feed and clothe itself is indeed a world's work, and in doing our part toward such service we must adhere firmly to the principle of farm sanitation, the only platform upon which plant quarantine may permanently endure."

COUNTY AND STATE FARM BUREAU

The annual traveling conference which has for the past several years been held directly under the auspices of the agricultural extension service of the college of agriculture has had in it a lively interest of the farm bureau membership in the various counties of the state. The California farm bureau federation represents an affiliation of 36 county farm bureaus and represents one of the state units of the American farm bureau federation. The national farm bureau is composed of 41 affiliated states, and represents a total membership in the United States of about two million farmers. The American federation is the most representative farm organization in existence. It might be stated also that the California federation is the most highly organized and largest organization of farmers in California. In this year's program of work a unified project relating to the development of a horticultural department in the various counties is being carried on. There has been created also in the 1921 program of work a poultry department or project which advances the development of poultry husbandry in the state. The sugar beet department has also been started for the purpose of aiding the beet industry in the maintaining of uniform contracts and conserving the interests of the growers.

Perhaps the most important work of the California farm bureau federation at present relates to the development of a state marketing organization and the carrying forward of a campaign for the use of bulk grain and elevator practices in the state. In developing the bulk method of handling grain it has been instrumental in creating the California Farm Bureau Elevator Corporation. This corporation has been capitalized at a million dollars and has as its main purpose the construction of storage and bulk elevator plants all over the state. This corporation has taken over a terminal elevator on the Oakland estuary with a working capacity of 1,200,000 bushels. This terminal plant will be operated as a public utility and will receive grain from farming districts over the state. The corporation also has constructed two field plants for handling of grain in bulk. One of these plants is located at Montpelier and the other at Patterson. The third plant is in process of construction in the upper end of Salinas Valley in Monterey County. The handling of grain in bulk will introduce many economies in the grain business of the state and millions of dollars will be saved to the cereal industry through the elevator processes which we can now say have been successfully established.

Another important development of the California farm bureau federation is the state exchange, or marketing organization which has recently been fully incorporated and started on the way. The exchange will be the great selling organization of the farm bureau. It will be built up by affiliation of the various county farm bureau exchanges and will sell for the farmer vast amounts of the crops not now under cooperative organization.

The utilities department of the farm bureau is giving to the membership an excellent economic service. The legal adviser and manager of this department is Judge Frank S. Brittain. This department is concerning itself with issues arising out of electric power rates and charges and will early be identified with problems connected with public service corporation duties in general.

OREGON GROWERS COOPERATIVE ASSOCIATION NOTES

The Oregon Growers Cooperative Association has advanced its prices on prunes, according to an announcement made by R. C. Paulus, general manager. The association is now getting nine cents a pound for prunes, 40-50 size, packed in 25 pound boxes, f. o. b. the coast, and in some instances a better price. Efforts are now being made by the association to strengthen the price on smaller sizes about one cent a pound. California is pretty well cleaned up on small sized prunes and the association holds most of the 40-50s now in the Northwest.

Although it is a little early to form a definite estimate of the prune crop, reports coming from all prune districts indicate considerable loss, especially in the hill orchards. These blossomed a little later than the lower lands and were caught in the rain and cold weather during blossoming period.

The association will handle a broccoli crop next season from 500 acres or more. Already in the Willamette Valley, in addition to the Salem section, seed has been furnished members of the association who will plant 294 acres. The Roseburg district, whose crop is mostly handled by the association, will probably put in 250 acres of broccoli this season. Seed has been furnished members in the Willamette Valley as follows: Independence, 115 acres; Amity, 36 acres; Newberg, 26 acres; Rickreal, 35 acres; Sheridan, 42 acres, and Chemawa, 20 acres. During the past season the association sold 27,514 crates of broccoli, developing 38 markets through its selling organization.

The English people are still eating Oregon prunes and seem to like them pretty well. During the past week the association shipped more than 100,000 pounds to London. In addition to these last shipments, London had bought 411,250 pounds of Oregon prunes this past winter, and Liverpool 419,050 pounds.

Apple growers of western Oregon are at least looking a prosperous year in the face. According to private advices to the association and also the government's figures, at least 50 per cent of the apple crop east of the Rocky Mountains has been ruined by cold weather. This includes the big apple growing states of Michigan and New York.

CITRUS INSTITUTE PROGRAM

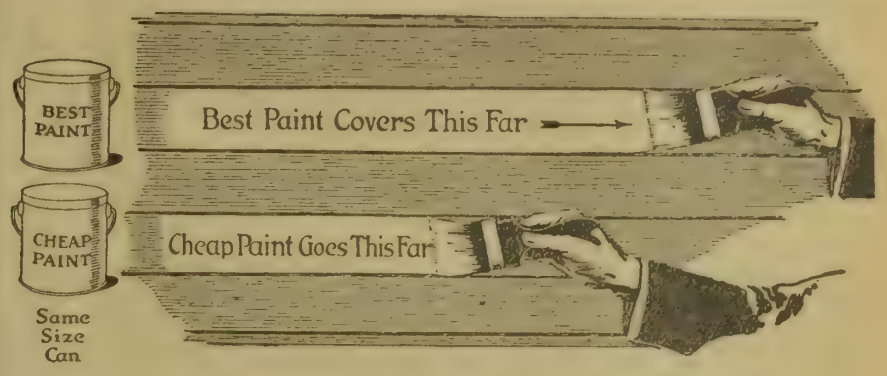
June 24, 1921, High School Auditorium, Whittier.

Morning: Reducing Labor Costs, Geo. B. Hodgkin, California Fruit Growers Exchange; Cost per Acre and per Box, I. G. McBeth, manager Bastanchury Rancho; Possible Economies in Management of Citrus Orchards, Harry Damerel, J. M. Riley Fruit Company, Covina.

Afternoon: Changes in Cost of Production Since 1910, F. O. Wallschlaeger, statistician, California Fruit Growers Exchange; Freight Rates and Their Relation to Fruit Production, C. C. Teague, Limoneira Company, Santa Paula.

6:30: Banquet, Women's Club.

Evening: Agricultural Cooperation, G. Harold Powell, California Fruit Growers Exchange.



Paint Economy

Isn't "Cost Per Gallon"

THERE'S one way only to save on paint. That way is to use the best of paint.

Some think of paint economy as "cost per gallon." That is wrong.

Cheap paint doesn't cover as much surface—you need *more gallons.*

Cheap paint is more difficult to spread, requires more labor, so the best paint costs you no more when you've put it on the house or barn than cheap paint does.

More than that, it lasts five or more years, if properly applied, while cheap paint, on the average, begins cracking in twelve months. Good paint is an *investment* that saves money by preventing deterioration.

"Cheap" paint is the only paint that really *costs.* Don't allow surfaces to rot. It costs less to paint them.

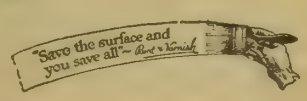
We've made paints for western use for 72 years. We use the best materials—pure *PIONEER WHITE LEAD,* pure linseed oil, zinc and color, but we mix them in scientifically exact proportions with long-time skill.

Our white-lead base must be fine enough to pass through a silk screen with 40,000 meshes to the square inch. That means covering capacity and ease of spread. We superpurify the lead to make it "whiter" which means clearer-toned colors.

Fuller's since 49

The finished product on the house or barn is an elastic, tough protective coating.

We call these paints "Fuller's Specification Farm Paints" because they are the very best made for the purpose.



HOUSE PAINT: Fuller's Pure Prepared Paint, Phoenix Pure Paint, for Painting Houses. The purest, best protective and most durable paint made. Made in 32 colors.

BARN AND ROOF: A protective coating for barns, roofs, fences. Dries with a good gloss and wears. Economical in cost and dependable in quality. Six colors to select from.

FLOOR PAINT: Fuller's Rubber Cement Floor Paint—sanitary, waterproof and durable paint for floors of kitchens, closets, etc. Attractive in color and gloss. Dries hard overnight. Made in 12 colors.

IMPLEMENT PAINT: Fuller's Pacific Wagon Paint adapted for repainting agricultural implements, farm wagons, wind mills. A glossy, durable finish offered in 7 colors.

Fuller's SPECIFICATION Farm Paints

House Paint - Barn & Roof Paint
Wagon Paint - Rubber Cement Floor Paint

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Send coupon for free book, "Save the Surface," which tells of the vital importance of good paint. Also get our small booklet of Fuller's Specification Farm Paints.

Both books will help you in selecting the right paint for your needs. Mail coupon now.

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Please send me, without charge, a copy of "Save the Surface" and your small booklet of farm paints and varnishes.

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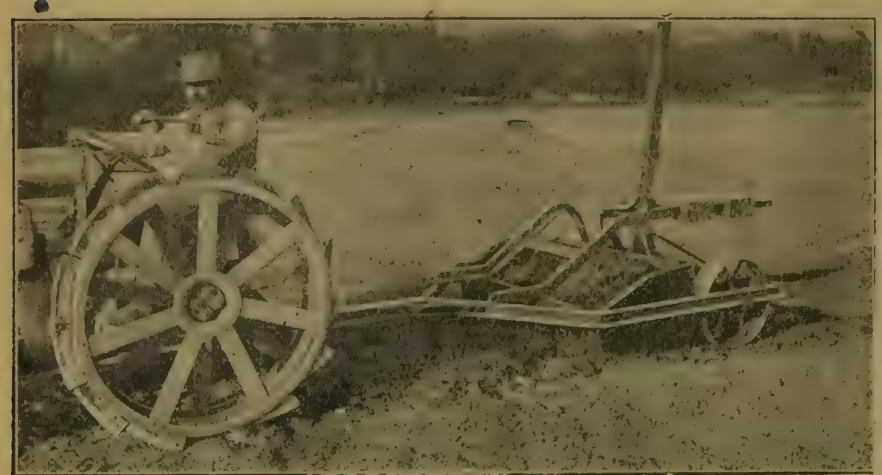

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Gunn Scraper

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Floor Finish

I have a floor 20 by 40 feet that was oiled some five or six years ago. Now it's worn and I would like to oil it again and want to know if I should give it a coat of something to fill the pores of the wood before oiling. If so, what quantity of oil would it require to cover such a space? — Subscriber, Los Angeles.

Instead of oil a hard varnish is much to be preferred, and before applying the varnish use any good wood filler which may be had ready for application at any paint store. After the filler is used two coats of hard floor varnish will aid very materially in preserving the floor. There should be an interval of three or four days between applications. Wax may also be applied and, especially if the floor is varnished, the life of the finish may be extended by the use of this floor wax every few weeks. We have asked those qualified to give us some hints on floor preservation, which will be used in a later Cultivator.

Tanning of Rattlesnake Skin

I have a rattlesnake skin that I would like to have made into a belt. Can you tell me how to prepare the skin or where I could get the belt made?—Subscriber, Norwalk.

We will pass this question on to our subscribers. Have any had experience in the matter of tanning or fitting the skins for this purpose?

Pruning of Grapes

Is it best to prune grapes (Thompson Seedless and Muscat) now or wait and prune in the winter?—Subscriber, Terra Bella.

Presuming that your question is whether or not to summer prune Thompson Seedless and Muscat vines with the idea that such summer pruning may take the place of the usual winter pruning, the answer to the question is that summer pruning can never take the place of winter pruning. Summer pruning or topping is sometimes practiced in an effort to promote lateral growth and prevent excessive length growth of the canes which might interfere with cultivation and irrigation or which might be injured by such operations. Judgment must be used in doing this work, since the removal of a large number of leaves has a serious weakening effect on the vines. Generally speaking summer pruning or training should be confined to the pinching of the terminal fans before blooming time. This has practically the same effect as later topping and, in the Muscat variety, tends to promote earlier ripening and a better set of the second crop.—F. K. H.

Blight

A number of inquiries are coming from Sanger and Kerman in Fresno County, and many other sections, describing tomato vines, the leaves of which begin to dry, curl, later yellow slightly and plant dies. Presumably all these cases are of summer blight. There is no treatment possible other than to prevent spread of the dread disease by burning all of the plant as soon as the curling begins. The disease has prevented the roots from gathering moisture from the soil and the plant simply starves to death regardless of the water which may be at the roots. Greatest care should be used in securing seed and in planting in disease free soil. Soil where diseased plants have been should be planted to other crops for several years.

Barren Lemon Tree

We have a 15 year old lemon tree which seems perfectly healthy but never blooms. What can be done to make it produce fruit? — Subscriber, Mountain View.

Apparently this is the fault of the tree in that it seems to be entirely barren. Presumably the only correction would be to rebud, setting in the branches buds from a tree of known bearing ability. Unfortunately this calls for some little knowledge of the science of budding. It is now rather late for the spring budding but if someone could be secured to set the buds, say in October, they might remain dormant during the cooler portion of the season and start early in the spring. Again, it is barely possible the barrenness comes from severe frosts preventing buds from setting. But as the lemon is usually rather persistent in blooming and setting fruit, if of prolific variety, we presume the weather has nothing to do with this, so that in all probability the only salvage for the tree as a fruit bearing tree is in budding.

Bean Rhizoctonia—Aphis

Am sending leaves of hollyhock and small bean plants. The hollyhock leaf if infested with some insect and the beans turn brown on the stem and soon die. What is trouble and cure?—Subscriber, Lancaster.

The hollyhock leaves are infested with aphis which may be handled by a spray of nicotine sulphate purchased at any seed store and diluted according to directions on the container. The trouble with the beans is more serious for, so far as possible with the specimens sent, Prof. H. S. Fawcett of the citrus experiment station at Riverside has identified the trouble as that caused by rhizoctonia, for which there is no satisfactory treatment. However, thorough sanitation, good drainage of the soil and distribution of sand, charcoal, cinders or anything which will prevent spread of fungus is helpful as is also cultivation or aerating of the soil. The only spray which is helpful is Bordeaux mixture and the beneficial results hardly justify its use.

Eucalyptus Stumps

Can you tell me a sure way to kill eucalyptus stumps? — Subscriber, Wasco.

The best, the cheapest and the

The Standard Oil
ZEROLENE
For Motor Cars
Recommended for your engine
Zerolene is Correct Lubrication, scientifically correct.
Our Board of Lubrication Engineers recommends Zerolene in grades to meet the exacting requirements of each type of engine.
You should follow these recommendations as embodied in the Zerolene Correct Lubrication Chart. There's a Chart for your use — ask for one.
A grade for each type of engine
STANDARD OIL COMPANY
(California)

Making the Dynamometer Test

Nebraska has a law that requires a dynamometer test to be made both as to the power delivered at the drawbar and at the belt before machines can be sold in that state. If the machine does not measure up to its advertised horsepower the dealer then is required to reduce the advertised horsepower to a basis safely under what the test show.

Recently on the ranch of C. C. Chapman, Fullerton, a dynamometer test was made of the Tioga tractor to ascertain the exact power required in the handling of various implements and at the same time to ascertain the steadiness of power. The dynamometer test was made by F. D. Fouch of the Tractometer Company, using a three section spring tooth harrow and a Tioga tractor. California soil conditions being so varied, it is a good plan for a tractor owner to have his machine equipped with a dynamometer so that he may know at all times just what his load is so that he will not overload the tractor, which is one of the greatest difficulties that the tractor manufacturers have to contend with today.

simplest way of eradicating these stumps is simply by making regular visits every few weeks and removing all of the growth. No eucalyptus stump on earth can live long unless it is allowed to keep its new leaves. Of course it is some time before it will die and dry sufficiently to burn. The quickest way, of course, is to grub out. Other methods we have often referred to are: Cleaning dirt away down to larger roots, piling dry brush around and burning. One subscriber has written in that it may be accomplished by pouring boiling water around the trunk. Boring holes in top of stump, filling with saltpeter, kerosene, or other inflammable material is claimed to be helpful but not always dependable.

Walnut Wood in Organ

I have a solid black walnut organ which I would like to sell and would like to know what the wood only is worth. I know that as a musical instrument it has no value but think the wood must be worth something as black walnut is in great demand. The organ is in good shape, is not scratched or marred in any way, back is six feet high, has some carving on it and has been in the family over 25 years. —Subscriber, Big Pine.

We fear that the walnut lumber in the organ would be in such small pieces that it would have little value for use in cabinet making. We feel sure that it would not justify shipment to the city.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Foreclosure

After a mortgage is due how much time is given the mortgagor to make payment before foreclosure? — Subscriber, Kerman.

Immediately on the day following the date of the maturity of the mortgage the mortgagee is entitled to commence foreclosure proceedings if the mortgage is not paid. The mortgagor is presumed to have his money ready and pay it over on the date of the maturity of the note.

Homestead—Joint Tenancy

In purchasing property I desire to have the deeds so made that in case of the death of myself or wife, the entire title to the property would immediately go to the survivor. There are no children. How can this be done?—Subscriber, Vacaville.

The title can be arranged in two ways to accomplish the desired result. Either deed can be made to the husband and wife as joint tenants with the right of survivorship, or it may be made in the name of either one and a joint declaration of homestead recorded.

Wandering Goats

A neighbor turns his goats loose and they come on my grounds. I have no fence. What can be done? — Subscriber, Inglewood.

The general state estray act provides for the taking up of any estray domestic animal and delivery to constable for sale after advertisement and notice to the owner, as has been frequently detailed heretofore. Under the general law it would probably be the only remedy in cases where there are no fences surrounding property. It is, however, probable that in individual cities and towns there are ordinances governing the wandering of goats.

The Tulare County farm bureau has now operating nine boys' clubs.

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Double Lock Seam Surface Pipe
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Write for Price Lists of Our Well Casing
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Has the "Drouth" Crippled Your Water Supply?

The lack of rainfall in the valleys and snow in the mountains is causing the water plane in all localities to lower. In some instances the water has dropped to a point where it is impossible to reach it without lowering the present pumping equipment. If you are using a LAYNE & BOWLER PUMP we can furnish you with an extension to go on your present pump column, thereby lowering the bowls of the pump to a point where your water supply will be increased.

If you are using the open pit type of pump and the water is below suction limit of your pump — install a LAYNE & BOWLER PUMP directly into the well casing—increase the flow of water—get a bigger crop—and the extra profit thus obtained will more than pay for the new pump.

Our Engineering Department Is at Your Command —Use It
REQUEST FOLDER NO. 30

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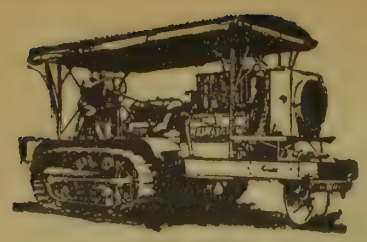

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Adaptability **and** ***dependability*** **are two outstanding features of the "Caterpillar" Tractor.**

It is adaptable to any soil—any weather conditions—any farm power work—made in four sizes "75," "45," Western 10-ton and 5-ton. It is dependable to the highest degree. Holt standards of accuracy and construction guarantee it so.

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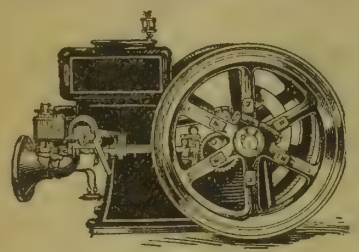

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Household Department

THE PEDDLER'S CARAVAN

I wish I lived in a caravan,
With a horse to drive, like a peddler-man!
Where he comes from nobody knows,
Or where he goes to, but on he goes!

His caravan has windows two,
And a chimney of tin that the smoke comes through;
He has a wife with a baby brown,
And they go a-riding from town to town.

Chairs to mend, and delf to sell,
He clashes the basins like a bell;
Tea-trays, baskets ranged in order,
Plates, with alphabets round the border.

The roads are brown, and the sea is green,
But his house is like a bathing machine;
The world is round, and he can ride,
Rumble and splash, to the other side.

With the peddler-man I should like to roam,
And write a book when I come home;
All the people would read my book,
Just like the travels of Captain Cook!
—William Brightly Rands.

HINTS FROM HOUSEKEEPERS

Muffins—Cookies

Mystery Muffins.—Stir together 1½ cups sour milk and 2 cups rolled oats. Let stand over night. Add 1/3 cup sugar, ¼ cup melted butter, 1 beaten egg; mix well then add 1 cup flour, 1 teaspoon each of salt and soda sifted together. Pour into hot greased muffin pans and bake in hot oven.

Cornmeal Muffins.—Cream together 3 tablespoons sugar, 2 of Crisco or other shortening, add 2 beaten eggs, 1 cup sour milk, sift together 1 cup cornmeal, 1 cup flour, 1 teaspoon each of salt and baking powder and ½ teaspoon soda, add to mixture, pour into hot greased muffin pans and bake in hot oven.

Fig Cookies.—Boil together 1 cup chopped figs, ¼ cup sugar, ½ cup water, a small piece of butter, 1 teaspoon flour, a little lemon juice; let it cool; cream together 1 cup sugar, ½ cup shortening, add 1 egg, ½ cup milk, 1 teaspoon vanilla, sift together about 3 1/3 cups flour, ½ teaspoon salt, 1 teaspoon each of soda and baking powder; add to creamed mixture; divide in two, roll thin, spread fig mixture on one, cover with the other, press gently, cut in shapes desired and bake on greased tins in moderate oven.—Mrs. R. E. Issolt, San Jose.

For "Subscriber," Oakdale

I find ¼ teaspoon soda will neutralize the acidity in one cup of sour milk, therefore in any recipe of which sweet milk forms a part, sour milk may be used if one simply remembers to allow ¼ of a teaspoon of soda for each cup of sour milk and one teaspoon of baking powder to one or two cups of flour for additional lightness. Always, however, sift both baking powder and soda with the flour and then proceed as though the recipe had been left unchanged.

Bacon muffins make a tempting breakfast dish. The bacon is cut in dice and fried, then added to the batter in which may be substituted the bacon fat for the usual amount of butter.

Popcorn Muffins.—Sift 4 teaspoons baking powder, 1 teaspoon salt and a tablespoon sugar with 1½ cups white flour; add ¾ cup fine ground popcorn, 2 tablespoons butter and 1 cup milk with 1 egg. Bake in well greased gem pans about 25 minutes.

Fig Cookies.—Two and one-half cups flour, 2½ cups rolled oats, 1 cup each butter and brown sugar, ½ cup sour milk and 1 teaspoon soda. Flour the board generously, roll thin and cut with a narrow oblong cutter. Mix ½ pound figs chopped fine, 1 cup sugar and 1 cup water and boil till smooth and thick, then add a teaspoon of vanilla, or chop fine ½ pound figs, add ¼ cup of grape juice and 2 tablespoons sugar and let boil to a paste. (I either boil the figs in water till tender or soak in water before adding the sugar.) Put a layer of fig paste between every two of the cookie dough, sandwich fashion, and bake in hot oven. When cold pack edgewise in a jar and hide the jar.

Simple Dessert—Salad

I find a little dessert of evaporated apricots the nicest thing one can make when other supplies are exhausted. Take ten cents worth of apricots, wash very thoroughly, soak all night. In the morning simmer about one hour in very little water. Add small cup sugar, spread out in your cobbler pan, dust with cinnamon and add a lump of butter. Cover with a good pie crust and bake brown. I think the evaporated fruit better than the fresh for this, and it takes so little sugar.

An Appetizing Salad.—For a warm day a salad of crisp white lettuce leaves, sliced bananas and English walnuts, cut in small pieces, served with an olive oil mayonnaise dressing, will be found delightful. I always roll out my scraps of piecrust, cover with a layer of grated cheese (the dry bit), then roll again, cut in little strips and bake brown. These go well with salad. I like a very slight sprinkling of cayenne pepper over them when rolling out.—"Aida," Prescott, Arizona.

Filled Cookies—Sugar Cookies

Here is my recipe for filled cookies that we think are as good as those you buy.

Filled Cookies.—One cup sugar, ½ cup shortening, 1 egg, ½ cup milk, 3½ cups flour, 2 teaspoons cream tartar, 1 teaspoon soda, 1 teaspoon vanilla. Mix, roll thin and shape. Put cookies in buttered pans, place a teaspoon of filling on each, not allowing it to spread to edge; place another cookie on top and bake in the usual way.

Filling. — One cup chopped figs, raisins, dates or prunes, 2/3 cup sugar, 2 teaspoons flour, ½ cup water. Cook until thick, stirring carefully as it burns easily.

My very best recipe for sugar cookies that I always keep on hand for the children: Two eggs, 1½ cups sugar, 1 cup thick sour cream, 1 teaspoon soda dissolved in cream, 1 teaspoon baking powder. Mix stiff with flour, roll quite thick, cut and sprinkle with sugar. — Mrs. L. D. Webster, Julian.

Breakfast Muffins

Three cups flour, 4 eggs, 1 tablespoon shortening, 2 tablespoons sugar, 1 teaspoon salt, 1 pint sour milk, 1 even teaspoon soda. Sift flour and salt into a bowl, beat together yolks of eggs with the sugar and melted shortening, dissolve soda in a little lukewarm water, add to sour milk and pour into bowl with other ingredients. Beat all together and then add the well beaten whites of the eggs. Have muffin tins well greased and heated; fill half full with the batter and bake in a quick oven.—Mrs. Lilly M. Robertson, Kerman.

Sour Milk Muffins

I noticed in issue of May 21 that someone asked for sour milk muffin recipe. Following is one which has been used in our family for three generations and to our mind has not yet been improved upon. It comes from the heart of the corn belt of Dixieland and must be followed to the letter to be a success. Every cook knows she must use judgment in the quantity of soda for each cup of sour milk, the quantity depending upon the acidity of the milk, but the usual amount is one-half teaspoon to each cup:

Two cups sour milk, 2½ cups yellow corn meal, scant teaspoon soda, scant teaspoon salt, one egg; (I use two eggs at present prices). Beat egg, add milk, dissolve soda in tablespoon of water, add to milk and mix thoroughly, then add meal to which has been added the salt, beat hard for a few seconds; have muffin tins well greased and smoking hot, pour two-thirds full of the batter and bake in very hot oven till a golden brown, usually 12 to 18 minutes. It takes practice to make these muffins owing to the fact that milk varies in thickness and corn meal varies in absorbent qualities. The batter should be somewhat thicker than the usual pancake batter, but should be thin enough to pour. The main feature upon which success depends is to have the tins and oven very hot.

The Cultivator Patterns

3625. Misses' One Piece Dress.—Cut in 3 sizes: 16, 18 and 20 years. An 18 year size will require 3⅞ yards of 44 inch material. The width of the skirt with plaits drawn out is about 2⅝ yards. Price 10 cents.

3626. Junior's Dress.—Cut in 3 sizes: 12, 14 and 16 years. A 14 year size will require 4⅛ yards of 27 inch material. Price 10 cents.

3634. Ladies' Night Dress — Cut in 4 sizes: small, 34-36; medium, 38-40; large, 42-44; extra large, 46-48 inches bust measure. A medium size will require 4½ yards of 36 inch material. Price 10 cents.

3600. Ladies' Apron and Oven Cloth.—Cut in one size, medium. The apron requires 1⅜ yards and the oven cloth ⅝ yards of 36 inch material Price 10 cents.

3624.—Ladies' Dress.—Cut in 7 sizes: 34, 36, 38, 40, 42 and 46 inches bust measure. A 38 inch size resuires 5⅝ yards of 44 inch material. The width of the skirt at the foot is 2 yards. Price 10 cents.

3627. Girl's One Piece Dress.—Cut in 4 sizes: 8, 10, 12 and 14 years. A 12 year size requires 3¼ yards of 36 inch material. Price 10 cents.

3622. House or Porch Dress.—Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 7 yards of 27 inch material. The width of the skirt at the foot is 2½ yards. Price 10 cents.

3285. A Simple Set of Hat and Apron.—Cut in 5 sizes: 1, 2, 3, 4 and 5 years. A 4 year size will require 2¾ yards of 27 inch material for the apron and 1 yard for the hat. Price 10 cents.

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PATTERN DEPARTMENT
California Cultivator
Los Angeles

If muffins come out too dry and flaky it means the batter was too stiff or the oven not hot enough; if soggy the batter was too thin. I have gone to great length in explaining this recipe because I find so few women who realize the necessity of having everything just right. Their corn bread is a failure and then they blame the corn meal. I believe the lack of popularity of corn meal is largely due to the improper way it is cooked and the failure of mothers to realize the important part it plays in our diet and especially that of a growing child. It is the most "staying" and strengthening of all our cereals and easily digested when properly cooked.

Following is another general favorite with us: Dissolve teaspoon soda in tablespoon lukewarm water and stir it into two cups of sour milk, mix thoroughly and add two cups rolled oats, beat hard for a few seconds and let stand; now take 1½ cups flour, teaspoon salt, 2½ teaspoons baking powder, two heaping teaspoons sugar, sift all together three times, add dry ingredients to milk and oat mixture, mix thoroughly, break into this two eggs and a tablespoon of melted shortening and beat hard for a minute, drop into well greased muffin tins, either hot or cold, bake till a nut brown in either hot or moderate oven. The batter should be a medium drop batter. After you get it all mixed, if too thin, add a sufficient quantity of oats to make it right; if too heavy, a little water or sweet milk. Never add sour milk after you have mixed in the baking powder. We make our favorite pancakes from this recipe by thinning the batter down to the proper consistency. If you should fry the pancakes on a greased griddle leave out the shortening, but if they are baked on a griddle treated with potato or salt the shortening should be put in the batter. I certainly enjoy the household department of our Cultivator and hope my contribution will be of aid to someone. With every good wish for your continued success, I remain.—Subscriber, San Jose.

Oatmeal Gems—Removing Stains

I am sending a recipe for muffins in answer to the request of Subscriber, Oakdale. The oatmeal gems are very nice for breakfast. The instructions for removing stains I use repeatedly in laundering and find very satisfactory. I appreciate the Cultivator much more since you are making the household department so much more interesting. I have used some of your patterns and find them very satisfactory.

Oatmeal Gems.—Two cups rolled oats, 1½ cups sour milk, 3 tablespoons melted buter or other shortening, 1 teaspoon salt, 1 teaspoon soda (level), 1 cup white or graham flour. Soak oatmeal in sour milk over night; add melted butter and other ingredients. Bake in muffin pans.

Some Methods for Removing Stains.—To remove fruit stains, befort wetting in water soak the article in sweet milk for an hour or more. Peach stain which is so hard to remove may be taken out of the most delicate fabric without injuring the coloring any more than water would. To remove rust apply lemon juice and salt and put in the sunshine. After several applications, if the rust does not disappear, lay the article away for a week or more when the rust will all be gone. If grease from the automobile or other machinery gets on clothing rub the spot thoroughly with lard or Crisco before washing and the spot will come out nicely in the regular wash.—An Interested Subscriber, San Fernando.

Muffins—Pressure Cookers

The Cultivator recipe for muffins is very good, but I would like to add a few ideas that I find helpful. When mixing your batter plan to have a cup or more left over as a starter for next morning. Leave it in your pan and thin with a cup or more of milk either sour or sweet. Set in moderately cool place and the next day use this starter in the same recipe, adding enough more milk to make the necessary amount of moisture. Always add a tablespoon or more sugar as it makes the muffins more tempting and makes a kind of yeast of your starter. If scraps of pudding, fruit juice, or cream are left from dinner, just beat it into your muffin starter and have a pleasant variation in the flavor next morning. Keep on hand a package of bran, cornmeal and other wholesome flours your family like and use in the recipes in place of part of the graham. One teaspoon of soda is plenty for one and one-half cups of starter or milk and I did not find baking powder necessary, although it does no harm, I guess. I prefer the old fashioned iron muffin pans and have them quite warm when the dough is put in. The muffins do not stick as they do in pans made of light material.

Also I am very much interested in pressure cookers. I have used one over a year and think they are a truly wonderful help, also labor and time saver. But speaking to neighbors and friends, I find that very few even know what they are, to say nothing of the advantages. Our home department agent of the farm bureau is taking up the use of the pressure cooker for cold pack canning, but it is the use every day, every meal, that I thought perhaps you could help people to find out and learn about. I would be glad to help if I could in any way, but do not feel qualified to write at length on the subject.—Mrs. Robt. Burr, Hanford.

Muffins—Fig Cookies—Hermits

Sour milk 1 teacup, salt 1 teaspoon, shortening 3 tablespoons, flour 2 cups, sugar 1 teaspoon, 1 egg. Mix all together, then dissolve ½ teaspoon soda in 3 tablespoons hot water and put into other ingredients. Stir well and just before putting into hot muffin pans stir into batter 1 teaspoon baking powder.

Fig Cookies.—One cup sugar, 1 cup butter, ½ cup milk, 2 eggs, 2 teaspoons baking powder, flour to roll stiff. Bake in one sheet, or you may cut into four inch squares. Roll out very thin and bake in hot oven.

Fig Filling.—One cup sugar, ¼ cup water boiled to crack stage. Run ½ pound figs through meat chopper and put into syrup while hot and beat till cool. Spread on cookies, put another on top and sprinkle with pulverized sugar.

Hermits.—Three cups sugar, 2 cups butter, 2 cups seedless raisins, 2 cups currants, 1 cup candied citron, 1 cup nut meats, 1 teaspoon soda, 2 teaspoons cinnamon, 2 teaspoons allspice, 1 teaspoon cloves, 1 cup coconut, 6 eggs. Roll thin, bake in moderate oven.—Housekeeper, Riverside.

HOUSEHOLD QUERIES

Covering for Porch Floor

Please tell me of some good floor oil or something to preserve the floor of my back porch and steps. This is a farm house and the men wear off paint too soon.—Subscriber, Burbank.

Here is a problem for our practical housewives. Who has solved it satisfactorily?

As suggestions: Apply two coats of paint, then coat of one of the waterproof, mar-proof varnishes. For a small space good lineoleum, also treated with coat of same durable varnish or shellac. Entire replacement of floor with cement, making necessary, of course, building up solid foundation of earth. This is the most practical floor for porch having heavy wear and would cost no more than linoleum and, of course, be permanent. easily cleaned and in every way satisfactory. If the work is done by home talent the largest expense—for labor—is cut out.

OLIVE RECIPE BOOK

The California Olive Association has just issued a California Ripe Olive recipe book in an edition of a hundred thousand. The recipes have been prepared and tested in the laboratories of the university by Misses Orabel Chilton and Maud D. Evans of the southern branch and articles are included by Professors Jaffa and Bioletti on the food value and history of the ripe olive. Calorific values are worked out for each recipe and a supplementary list of balanced menus add value to the work.

Here are a few of the recipes from the booklet:

Sardine and Olive Canapes

Rub sardines to a paste with a small amount of melted butter. Add a few

(Continued on Page 815.)

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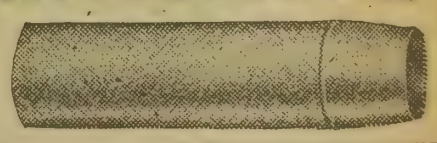

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JERSEY JUBILEE

The Oregon Jersey Jubilee which just closed its third annual tour was not only well attended but introduced to the members of the party from abroad one of the most unique dairy sections of the world. Using the farm of Frank E. Lynn of Perrydale as point of assemblage, the train of autos with close to 300 Jersey boosters wound its way up over the Coast range of mountains and down into the famous Tillamook Valley.

Judging from the character of its Jersey cattle additional fame is yet to come to this little dairyman's paradise nestled down amongst the high hills clad with green forests and tempered with the moisture laden breezes from the sea. With a limited acreage of bottom lands cleared from heavy spruce timber, this little section with its thousand dollar an acre land that supports a cow per acre the year around, last year produced over six and a half million pounds of cheese that sold for $2,000,000 and yielded the producers an average of nearly 72 cents per pound for their butterfat. Is it any wonder that prosperity is apparent on every hand? Why should these Jersey enthusiasts worry about the future with herds yielding up to an average around 400 pounds of fat per year with grass 12 months of the year?

It is an inspiration to gaze on these pastures filled with beautiful cows in the very pink of condition and to realize that the progressive spirit evidenced throughout the tour means still greater improvement in breeding and production and in net returns. From three herds with pure bred Jersey females in 1914, the breed has increased in popularity until now there are over 80 pure bred herds and 207 pure bred Jersey bulls in service.

Two days were spent by the visitors inspecting cheese factories and the various pure bred herds. Speech-making, feasting and a general good time made the stay both a pleasant and profitable one which closed with a clam bake on the beach at Netarts on the bay.

The Jubilee has come to stay. It is surely a factor in breed promotion in Oregon and might well be tried by some of the breed associations in California.—Chas. N. Talmadge.

A COMPETENCE WITH LIVESTOCK

(Continued from Page 798.)

won't make a million, but if he starts right, works hard and sticks with it and uses his head for purposes other than to keep his collar from slipping off, he will be rewarded with a good living, fine friends, the knowledge that he has contributed something to the betterment of the world, and a competence for his late years.

"Going back over my past experience, I can't recall one single man who has stayed with good cattle for ten years who has lost his business. I can recall a considerable number who have lost out because they expected too much too quick.

"The chances are that if we had kept sold down pretty close when we first started. we might never have learned that the profits in livestock must come from accumulation of produce and that it takes time to get that accumulation.

"After we learned that fact we managed to go ahead. We learned to feed and to breed. The more interested we became the more we studied the business. During the past ten or twelve years we have sold a good many thousand dollars worth of cattle. We have passed from renters to land owners and our cattle have paid the bills. We have never had our cattle fail us if we gave them the care and management due them, and the longer we stay in the business the greater the possibilities seem—but it takes work, don't forget that."

The above advice and observations can be commended to the serious attention of any man considering engaging in the production of any class of livestock. The man quoted is really one of the most successful breeders of the West, and the writer happens to know that only modesty kept him from telling more of his success. There are other men, many men, in this state who could tell almost the same story. Nearly every community lays claim to one or more successful livestock men, but in each case, so far as the writer knows, these men have succeeded because they stayed with the business. Very, very few men have made quick turnovers and quit ahead of their start.

Last fall there was a complete dispersal sale of one of the large pure bred dairy herds in Southern California. One hundred and thirty-seven head sold for a total of $73,000. But the sale report failed to tell the whole story. Six or seven years before that herd was started on a modest foundation. Gradually more cattle were added until the total investment in cattle was about $23,000. During the life of the herd, and prior to its dispersal, around $46,000 worth of cattle were sold. In short, nearly $120,000 worth of cattle were sold from a $23,000 investment. Rather good returns, the reader will agree, but only possible through the accumulation of produce and the fact that the owner stayed with the business.

I know another breeder who maintained a small herd of pure breds. Gradually a small farm was paid for out of the milk checks. The family was returned a good living and the children educated, but they worked hard and the owner always declared that he was losing money. Finally he sold his herd and the sale totaled $30,000. That man was better off than the average. How many men do you know who own a farm and have $30,000 in cash?

Nearly every successful breeder has started modestly and stayed with the game. I know of a breeder in an Eastern state who engaged in the cattle business something over ten years ago. His start was most conservative, but in ten years he has sold more than $100,000 worth of catle and has a herd of 90 on his farm. Not all the $100,000 came from the offspring of the original purchase, but the major portion is credited to it.

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year, was made by a man who started 15 years ago with an 80 acre farm. And so it goes. Many similar stories can be called to mind—but the point for all is this: The livestock business abounds with opportunities for the man who is willing to work hard, think clear and wait for the herd or flock to increase. And, as the breeder quoted above said, "It doesn't make so much difference where one starts—it's the finish that counts." Where will you finish, young man or young breeder, with the group below the average, among the average, or above the average? It is largely up to you.

Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins

June 29, Gotshall & Magruder, Ripon.

The Innisfail herd of milking Shorthorns at Davis is going ahead in great shape. Under the direction of Johnny Rowe a number of fine production records have been made and the herd now holds all of the coast records excepting in the junior two year old and aged cow classes. The records for the two three year old classes are also the highest in the country. Along with its high production the Innisfail herd excels in individuality, and in the shows at Sacramento and Portland last year it carried off the lion's share. Two fine bulls have been sold out of the herd in the past week. Imp. Kelmscott Viscount 19th, a bull who has been in service in the herd for some time, went to E. H. Day of Gazelle and Innisfail Trickster, a yearling sired by Imp. Kelmscott Viscount 19th and out of Greenhill Caroline, the junior three year old champion of the U. S., with 429 pounds of fat, went to Dr. Tevis of Alma. The Rowes will have a strong herd in the shows again this year.

Guy H. Miller of Modesto is celebrating his twenty-fifth year as a breeder of Jerseys. He began his work on his little farm at Riverside and soon transferred to larger fields at Modesto, Stanislaus County. Mr. Miller appreciated the great beauty of the Jersey, more its utility and efficiency, and bred to an ideal which has made "Venadera" type known the state and nation over.

William Ward of Easton & Ward, owners of the Blackhawk Ranch, Diablo, is now in the East in company with Manager E. Lovell for the purpose of attending a number of prominent Shorthorn sales to select a few choice females to add to the Blackhawk collection.

After what was declared to have been one of the most bitter factional fights in the history of the Holstein-Friesian Association of America, ex-Governor Frank O. Lowden of Illinois was elected president of that association to succeed D. D. Aitken of Flint, Michigan, who has held the office of president for several years. The election occurred at the annual meeting of the association which just closed at Syracuse, New York.

A. B. Humphrey of Escalon is going to sell a choice lot of bred Berkshire gilts and young sows at his Grapewild Farm on June 30. These young things are strong in the blood of Grand Leader 2nd, the grand champion of the P. P. I. E. in 1915, who was developed and shown by this farm. Many of them are also by Wilsonia King Laurel, son of Laurel Champion and littermate to Real Type, the great Barker herd boar. A large number are bred to Escalon Big Joe, who was grand champion in all the big California shows last year. The pigs from these matings will carry a large per cent of the blood of Grand Leader 2nd and Laurel Champion. L. E. Frost of Chicago will be in charge of the sale and Col. John A. Davis of Manteca will be the auctioneer.

Geo. E. Platt of the Los Angeles Creamery Company has just purchased six Ayrshire bulls from the Elkhorn Ranch at Watsonville. The calves were sired by Imp. Holehouse Secretary and Penshurst Statesman, the young bull which is getting excellent calves for the place. All of these calves are out of Advanced Register cows, one being from Rena Ross III who has record of 16,683 pounds milk and 684 pounds fat in 365 days.

The American Hereford Cattle Breeders' Association is the first cattle association to have recorded 1,000,000 animals. That number was reached in May. There was such a wide demand among the breeders for the privilege of recording under that number that the association sold the right at auction as well as the right for the number 999,999 and 1,000,001.

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We are offering some dandy young bulls—some ready for service—for sale
They Are Moderately Priced
Sired by Nobleman of Richneck, senior champion at Los Angeles and Riverside last fall—and by Bullion of Edgemoor and out of high record cows.
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Write and see how cheaply you can own a good one
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Some dandy young boars for herd headers. The choicest breeding and ready for service.
Every one tuberculin tested and cholera immune.
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DISPERSAL SALE

100---REGISTERED HOLSTEINS---100

Gotshall & Magruder Herd, Ripon, Cal.

Wednesday, June 29, 1921

The offering will include the dispersal of the Gotshall & Magruder herd of 91 head, and 9 females from the select small herd of W. A. Walker, Ripon.

The sale will include some of the most highly bred females offered this season, and the list is altogether one of excellent cattle. Among the females are

A BEAUTIFUL 25 POUND 4 YEAR OLD with 753.1 lbs. butter in one year as a 3 year old, and her daughter by a 32 lb. son of King Mead of Riverside.

A 21 POUND 3 YEAR OLD DAUGHTER of King Segis De Kol Korndyke, with 646 lbs. butter in one year as a 2 year old, her dam a 28 lb. daughter of King Walker Segis.

A 17 POUND JUNIOR 2 YEAR OLD daughter of Sir Aaggie De Kol Acme, out of a 26 lb. 3 year old whose dam is by a 33 lb. grandson of Hengerveld De Kol.

A DAUGHTER OF KING MEAD OF RIVERSIDE due to drop her first calf on June 27th.

A DAUGHTER OF THE 37 POUND COW BOWEDA, sired by a 1,000 lb. son of Segis Pontiac De Kol Burke.

AN 18 POUND JUNIOR 2 YEAR OLD daughter of the 35 lb. 4 year old K P Idyl Segis, now well along on yearly test.

A DAUGHTER OF THE 36 POUND COW K P TOLA, sired by It, and now milking with first calf.

A SPLENDID FAMILY consisting of a 25 lb. granddaughter of Colantha Johanna Lad, her three daughters, and two granddaughters. Be sure and look this group over before sale.

SPRING FARM CORNUCOPIA ORMSBY, the dam of Karlray Ormsby Alcartra, the great junior 2 year old that made 916.5 lbs. butter in one year and sold in the last Guaranty sale for $1,850. Two of her daughters are also in this sale.

A 28 POUND COW, out of a 26 lb. dam that milked 610 lbs. in 7 days and made 723 lbs. butter in one year.

A DAUGHTER OF SIR AAGGIE MEAD, the $9,250 son of Sir Aaggie De Kol Acme.

A 26 POUND COW and her daughter by a 32 lb. son of King Mead of Riverside.

A LARGE NUMBER OF OTHERS with official records up to over 25 lbs. butter in 7 days, some with yearly records, others now on yearly test.

EVERY ANIMAL GUARANTEED TO BE A BREEDER; EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER.

TERMS OF SALE: One-third cash, balance in three equal payments in three, six, and nine months, with approved note bearing eight per cent interest.

PLACE OF SALE: The ranch formerly owned zy C. A. Miller, on the French Camp Road, 6½ miles northwest of Ripon, 13 miles southeast of Stockton.

Catalog of sale free on request.

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I have more females in my herd who are either sisters or daughters of the following bulls than any herd in the United States:

KING SEGIS PONTIAC

King Segis Pontiac Alcartra—His $50,000 son.
King Segis Pontiac Chicago—His $20,000 son.
King Segis Pontiac Count—"The Marvel Sire."

Could you go wrong on some of these? I can spare a few. Fresh cows, springers or yearlings. Priced right; tuberculin tested and guaranteed right in every way. Come and see them. One hundred twenty-five head to select from. Six miles east of Perris.

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We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

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Some Exceptional BULLS for Breeders and Dairymen

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WORKMAN AND AZUSA AVE.

King Segis Pontiac Jannek

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The Wool Situation

Wyoming is the first state to pass a Truth in Fabrics law. The measure is now in effect, and while it is too early to announce any results it is expected to accomplish its object in compelling clothing dealers to sell their wares for what they are. That is, shoddy must be sold as such and the wool content of garments must be shown to the satisfaction of the buyer. The clothing retailers of Wyoming are said to be favorable to the law. In fact, one of the state's biggest retail clothiers was a member of the legislature and raised no objection to the measure.

Strong efforts are being made to secure the enactment of the French-Capper Truth in Fabric bill now pending in congress. The need for this was brought out recently in a statement by J. B. Wilson of McKinley, Wyoming, secretary of the Wyoming Wool Growers Association, who declared that a tariff on wool was not the only thing necessary in order to afford adequate protection to the wool producers. He said: "Why, I have sold wool for 10½ cents a pound when the tariff was 11 cents a pound, and I have heard of other wool growers who sold for even less. No tariff will protect the wool grower from the secret competition of shoddy—reworked rags. Shoddy must be identified by labeling it so that people will know what they are buying and may choose between shoddy or virgin wool. The French-Capper bill will compel textile manufacturers to label their all wool clothes with its content of virgin wool and of shoddy and will force the venders of shoddy out in the open."

The sheep industry is still in a bad way on account of the immense accumulation of wool. Mr. Wilson pointed out that in Wyoming alone more than half a million sheep have gone to the block since January 1. It will take years to bring the industry back to pre-war conditions even with the aid of legislation. About 75 per cent of the 1920 wool clip is still unsold and the 1921 clip is already under way with very little prospect of a market. It is up to congress to afford whatever relief the wool growers demand. Success of the various wool pools which have enabled farmers to hold and market their wool gradually is the one bright spot in the situation. Cutting out handlers' profits has been of considerable help.—Western Farm Life.

The Bull Association

The cooperative bull association is a companion enterprise of the cow testing association in the sense of both having a common object, that of upbuilding the dairy herd. The organization employing a cow tester is probably a more direct agency for improvement inasmuch as the low producer of the herd is forthwith discarded if production records do not favorably tally with the outgo for feed with a liberal margin to the credit of performance at the milk pail. Joint ownership in a pure bred bull signifies a refining process, frequently slow of development but none the less certain of results. Both organizations are united in their warfare on contagious diseases of cattle and in pledging mutual effort in the profitable marketing of surplus cattle and dairy products.

The idea of placing a pure bred bull of recognized merit at the disposal of a group of farmers unable to acquire sole ownership of one such animal to each individual farm had its inception in Michigan, a state likewise credited with the birth of the cow testing association movement.

The Michigan agricultural college reports: "It would seem highly desirable that some form of cooperation in breeding methods be established by communities, such for instance as the joint ownership and use of males by several parties rather than one. In theory this proposition sounds well, but in practice it has not worked out satisfactorily in the majority of instances, as illustrated by the universally undesirable results from the formation of stock companies in the ownership of stallions. In this instance, however, it is only fair to venture the assertion that the initial troubles among these companies are generally the fault of the organizer or promoter, the seller of males, who unloads something on the company that does not prove satisfactory. One cannot conceive any logical reason why several men in a community could not form a copartnership in the ownership and use of good sires. If such a plan could be followed the good influences of superior sires would become more far reaching and fewer males in all would be needed than in the case of individual ownership."

A cooperative bull association is a farmers organization whose purpose is the joint ownership, use and exchange of three or more high class pure bred bulls. The territory covered by an association is divided into three or more breeding blocks, and a bull is stationed in each block for the service of the 50 or 60 cows in the block. Every two or three years the bulls are interchanged. Therefore, at the initial cost, a bull for every 60 cows is provided for six or more years. The cost of bull service is thus greatly reduced, the very best bulls can be obtained, and the man with limited means and only a few cows is enabled to improve his herd. Bulls of outstanding merit are preserved for their entire period of usefulness. Associations of this kind teach cooperation, encourage careful selection of cows and calves, introduce better methods of feeding and management, intelligently fight infectious diseases of cattle, and assist in the marketing of dairy stock and dairy products.—Farm and Ranch.

EFFICIENT FLY SPRAY

The following recommendations are made by C. L. Blackman of Iowa to cow testing association members in that state:

Flies cause considerable annoyance to dairy cows during the summer and not only does the irritation tend to lower milk production but the restlessness of the cows is a frequent cause of inefficient milking.

A good fly spray can be made from 4½ quarts coal tar dip, 4½ quarts fish oil, 3 quarts coal oil. 3 quarts whale oil, 1½ quarts oil of tar.

Dissolve three pounds laundry soap in water, add the ingredients of the spray and bring the whole up to 30 gallons with lukewarm soft water. This spray will keep off the flies and prevent the coats of the animals from becoming harsh.

The cows should be sprayed twice a day, in the morning after milking, and in the afternoon when in the barn for silage or green feed. With a portable cart, made from a half barrel by attaching wheels and a spray pump and nozzle, two men can spray 40 cows in five minutes.

Thirty gallons of mixture will spray 40 cows twice a day for ten days at a cost of one cent per cow per day.

COST OF PRODUCING MILK

Market milk cost on the average 33.2 cents per gallon, $3.86 per 100 pounds and $213.13 per cow per year on 84 northern Maryland farms surveyed recently by the United States department of agriculture in cooperation with the University of Maryland. A preliminary report of this survey, just issued by the office of farm management and farm economics, shows that, with an average sale price of 34.2 cents per gallon, 48 of the 84 farmers, or 51 per cent, failed to make a profit over the book cost, with all feed and labor charged at full current rates.

The average number of cows on the farms surveyed was 18.2, and the annual production varied from less than 4,000 pounds to over 8,000 pounds, with an average for all cows of 6,074. Practically all of the milk in question was shipped, either to Washington or Baltimore.

Blackleg

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Write for free instructive booklet on Blackleg Prevention.

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Owned in California is a son of Miss Aaggie Acme Burke, world record two year old, with 1034.6 lbs. butter and 24,338.9 lbs. milk in one year. A brother to her sire, a brother to her dam's sire and a brother to her $41,000.00 calf are in service in our herd.

This bull was sired by a son of Miss Valley Mead De Kol Walker, world record three year old, with 36.8 lbs. of butter in seven days and 1113.5 lbs. of butter in one year. We have in service her brother, her grandson and a brother to her dam.

Their sons from yearly record dams at reasonable prices.

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As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

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Of the total cost of production about one-half ($121.38 per cow) was for feed, 56.6 per cent of this being farm grown. Grain fed totalled 2,259 pounds per cow per year, 512 pounds of this being grown on the farm. Hay fed totalled 1,793 pounds, practically all home grown. Man labor per cow totalled 291 hours, horse labor 29 hours.

These figures for feed and labor expenditures, in pounds and hours, are considered of greater importance than the costs as expressed in dollars and cents, since the former do not fluctuate greatly from year to year, and may be taken as basic in estimating the cost of milk production in the region surveyed.

A farm business analysis, made in connection with the cost studies, brings out in a striking way the relation between cost of milk production and farm income. It was found that the labor incomes of 15 farms with comparatively low milk costs averaged $1,448 higher than those of 15 farms with comparatively high costs.

GOATS IN THE WEST

Bulletin No. 749 of the United States department of agriculture, entitled, "Goat Breeding in the Pastures of the West," says:

The most economical and satisfactory results are obtained with flocks of about 1,200 goats; it is best to graze separately goats in milk, dry goats, bucks, yearlings and weaned kids. Goats should be put out to graze for four or five hours in the cool of the morning and for a similar time in the evening; they should rest during the heat of the day. The bed grounds should be changed several times a year; it would be still better to graze the goats for short distances and to bed them at night where they happened to be in the evening. This allows of the grazing of a larger number and increases the production of goats, hair and meat while improving the pasture.

The author recommends the Angora as the breed best suited to the western states of America where goats are kept chiefly for their hair and meat, and secondarily for milk and their skins. Young goats under 18 months of age are not yet suitable for breeding. One buck kept with the does at night and fed with a little grain as a supplementary ration will serve 50 or more does. In 1915 and 1916, for different flocks of Angora goats kept on open grazing grounds in New Mexico, the cost per annum of yearlings was from 95 cents to over $2 a head, exclusive of interest on the capital and the owner's labor; the average annual revenue for two year olds was about $2 a head; that for yearlings was slightly higher; the annual cost of pasturage of does and their kids varied from $1.62 to $2.78 per doe, and the average annual revenue per doe from $3 to over $5.50.

NEW LOW RECORD FOR FARM ANIMAL MORTALITY

Nearly 7,000,000 domestic animals were lost from disease and exposure on the farms of the United States during the year ending with April, 1921, as the bureau of crop estimates, United States department of agriculture, has recently estimated, and their value was about $150,000,000. These losses comprise about 369,000 horses and mules, 585,000 lambs, 1,223,000 mature sheep, 1,743,000 cattle, and 2,946,000 swine.

While these numbers are large from any point of view, yet they represent low rates of mortality. The rate for horses and mules, 1.47 per cent, has been exceeded for many years, and the same statement applies to 1.70 per cent loss of cattle from disease and 0.93 per cent from exposure, to 1.48 per cent loss of sheep from exposure, to 4.62 per cent loss of lambs from disease and exposure, and to 4.42 per cent loss of swine from disease, in this case with the exception of two recent lower years. Sheep diseases were fatal about as usual. A mild winter was favorable to the making of this low record of mortality. It is also true that animal mortality from diseases is declining as the various public agencies, veterinarians and farmers better understand how to combat them.

SIR AAGGIE DE KOL MEAD

His Sire: SIR AAGGIE DE KOL ACME, son of the world's official yearly butter record holder, Aaggie Acme of Riverside 2nd, 1,331.66 lbs. butter in one year, and she the dam of Miss Aaggie Acme Burke, 1,034.66 lbs. butter from 24,338.9 lbs. milk in one year as a junior 2 year old, world's milk record in class in 1920. He has over 100 living daughters, the first sire in California to have that distinction.

His Dam: MISS VALLEY MEAD DE KOL WALKER, 1,113.57 lbs. butter from 22,021.1 lbs. milk in 342 days as a junior 3 year old. She has three sons in active service, one of which, and a half interest in the other two, have commanded the highest prices ever recorded for bulls of any breed in the west.

THE RECORDS BEHIND SIR AAGGIE DE KOL MEAD:

Five of His Seven Nearest Dams Average:

Butter	2 Years	2,040.97 Pounds
Milk	2 Years	41,547.20 Pounds
Butter	1 Year	1,130.66 Pounds
Milk	1 Year	23,096.60 Pounds

His Seven Nearest Dams Average:

Butter	7 Days	30.47 Pounds
Milk	7 Days	627.60 Pounds

Keep your eye on this great young sire of the Aaggie Acme-De Kol of Valley Mead breeding. His first calves measure up fully to the promise of his pedigree, and you may need one of his young sons to round out your herd one of these days.

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S. C. White Leghorn Baby Chicks from heaviest laying (hoganized) stock. Safe delivery; live vigorous chicks guaranteed. No money in advance; pay on delivery. Price from May 15 to June 30 $3.50 per 25, $7.00 per 50, $12.50 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh St., Petaluma, California.

Fine Young King Pigeons $3 a pair. Guineas $5 a pair. Wyandotte, Partridge Rock and Leghorn eggs $3 a setting. Are disposing of some of our breeding geese; offering them at a bargain price. Yearlings $15 a pair, 2 year old birds $20 a pair. All bred from imported stock. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

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Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

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MACHINERY

1 Victory Oil Engine, 12 H. P. New, with Friction Clutch Pulley; regular price $775.00; will sell for $656.00. 1 20 H. P. Victory Oil Engine, two-cylinder, used two years, in first class shape; cost new $1150.00; will sell for $500.00. 1 New Associated Engine, 12 H. P.; will burn coal oil or distillate; regular price $736.00; will sell for $455.00. Edwin A. O'Donnell, Livingston, California.

Tractor Scraper for Sale—Have finished leveling my land with my Compton One-Man Tractor scraper. Would not want a better scraper if I had any more leveling to do. Will sell scraper for $130.00 cash, f. o. b. Fresno; $100,00, less than I paid for it. Scraper as good as new. Dan Hartwig, 2446 Rose Ave., Fresno, California.

For Sale 40 rebuilt windmills, tanks, pumps, steel towers, cylinders, rods. Special new 1,000-gallon galv. tanks, $39.25; 2,000, $53.25; 3-in. irrigating pipe, $16.75; 4-in., $19.75; also used pipe. Why pay more? Demmitt, 120 N. Main, L. A.

For Sale—Spalding Deep Tilling Plow, new. Will plow 16-18 inches deep. Just right for team or small tractor. San Francisco or Los Angeles delivery. California Plow Company, 140 Polhemus St., San Jose.

For Sale — Samson Tractor and plow, nearly new, $950.00. Moline Tractor and Plow $400.00. Floyd Kime, Norwalk, California.

For Sale—24 inch Acme ensilage cutter, good condition, and 40 feet blower pipe. Arden Dairy, El Monte. Phone El Monte 42.

For Sale—Pomona pump, 28 head, nearly new. Clarence Wagner, Terra Bella, California.

For Sale—Vaughan Almond Huller used one season. First class condition. Wiggin Brothers, Arbuckle, California.

WANTED

Wanted To Lease To Dairyman; 1,040 acres; 300 plow land, 60 in alfalfa, spring water for 150 acres. Might consider partnership with real dairyman or sell part or all—price $55,000. Also can offer 480 acres at $4,000 cash. If a partnership is formed I have 1,500 acres. I am a widower with one small child and need cash to improve is my reason for leasing or selling. Anyone wishing to locate in a fine cool mountain climate, 1 mile from railroad and school, write me at once. J. B. McConaha, Lock Box No. 6, Tehachapi, Cal.

Wanted — Men, with rigs preferred, to work spare or all time among ranchers selling for established concern. Good pay and territory to right parties. A. F. Leavitt, 5463 Huntington Drive, Los Angeles.

Herdsman—Position Wanted—Danish, 39 years of age; dairyman all my life; prefer a place where they do A. R. O. work. Married, no children. Give full particulars in first letter. Box "R," Cultivator, 112 Market, San Francisco, California.

Agents Wanted — Benedict Nursery Co., 185 E 87th St., N. Portland, Oregon.

SEEDS AND PLANTS

Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch—767 S. Central Avenue, Los Angeles, Cal.

R*O*S*E*S—$1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue KAVAN NURSERIES, San Bernardino, California.

10,000 Zante Currents, 2,000 Malaga rootings, some Tokays, Sultana; farm and garden seeds and plants. Box 501, Fowler, California.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination, 25c per lb. Aurora Seed Mill, Stockton, California.

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Roofing Paper Firsts. Complete
1-Ply $1.40; 2-Ply $1.90; 3-Ply $2.35.
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Roof Paint Special, 40c a gal.
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CAROB Seeds — CAROB Plantations — CAROB Trees

$1.20 lb. — $450 per acre — 50c up

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Avocados—I have a limited number of fine trees nicely balled and well established from two to six feet in height which I am offering for from two to three and a half dollars each. Fuerte, Linda, Puebla, Sharpless, Ganter and No. 2. Yearling Valencia trees 75c balled and guaranteed. A. R. Rideout, Rideout Heights, Whittier, California.

For Sale—100,000 Sour Orange Seedbed Stock. 10,000 Avocado Seedlings eight inches and up in pots. Also Washington Navel, Valencia Late Orange, and Eureka Lemon Trees. T. J. Walker, First National Bank Building, San Fernando, California.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

5,000 Valencias; 2,000 Eureka lemons; 3,000 Mission olives; 100,000 Florida Sour orange seed-bed trees; 50,000 Sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colo. 6352.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketscher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

For Sale—A few extra choice field grown Sharpless and Dickinson avocado trees for summer and fall delivery. Barrett-Chenoweth Nursery, Box 1206, Puente.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Budded Avocado Trees. Write for special prices for orchard planting. S. & S. AVOCADO NURSERY CO., 15 North Raymond Ave., Room 6, Pasadena, Calif.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

GOATS

For Sale—Purebred, Hornless, Shortcoated chocolate Toggenburg buck kids, 6 quart strain. Perfect conformation for milk production. Prices interesting. Pedigrees on application. High grade milk does, yearlings and kids. Carneta Goatery, Vista Street, Route 1, Box 81, East San Gabriel, Mrs. Harry Carnes.

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For Sale—Pure Swiss Toggenburgs, does and bucks, from finest milk strains. La Corona Goatery, R. 1-416, El Monte, California.

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Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

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Greenwood Farm Durocs — Moderate prices on bred gilts and weanling boars. Select individuals. Most popular breeding. H. C. Witherow, Mgr., Live Oak, Sutter County, California.

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Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

POLAND-CHINAS

Registered Poland Chinas. 40 tried brood sows; 40 gilts. Some choice young boars all at reduced prices to move at once. These Polands are as good as can be had anywhere at any price. W. D. Trewhitt, Route B Box 47, Hanford, Calif.

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price. $75.00 and up. J. A. Crawshaw, Hanford, California.

Big Type Poland Chinas—Breeding stock of both sexes for sale at all times. Prices reasonable. J. N. Cook, Orland.

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Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

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CALIFORNIA IRRIGATED LANDS
Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

Miller & Lux Lands—Write or call for beautiful illustrated map and booklet, containing valuable information for home-seekers. Kramer, Lake & Co., 441 Monadnock Building, San Francisco, California.

For Sale—160 acres 8 miles N. E. of North Bend, Oregon, on county road; $2,500.00 cash, or will give terms. For further information address: William M. Brown, 544 Union Street, Salem, Oregon.

Akey & Skaggs, San Jose, California, Minute Men Realtors. Santa Clara Valley ranches a specialty. See us for anything.

For Sale Cheap—Beautiful sightly residence lot on High Street, Melrose, Oakland, California. Clear. Address K, General Delivery, San Jose, California.

For Sale — Ranches, Homes, Acres, free list. Wilson Bros., Santa Cruz, California.

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Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

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Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City Glenn County, California.

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WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

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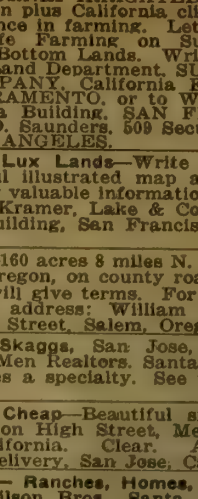
Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Bourbon Red Turkeys, Buff Ducks, Buff Orpingtons. The Ferris Ranch, Reservoir St., Pomona, California.

Mammoth Bronze Turkey Eggs 20 cents. W. L. Duvall, Pomona, California.

RABBITS

Pedigreed Flemish Giants — No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.



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Improves alkali soil, transforms potash and phosphorous into plant food. Prevents wire worms, smutty grain and potato scab.

220 lbs. per acre has increased crops up to 500%.

Write for circulars 6, 7 and 8, price list and samples.

DIAMOND "S" BRAND for Lime-Sulphur Solution. ANCHOR BRAND for dry dusting. CARBON BISULPHIDE for rodent control.

SAN FRANCISCO SULPHUR CO.
624 California St.,
San Francisco, Cal.

While the children should be encouraged to study art, they need not feel it necessary to decorate the new wall paper with pencil sketches.—Pajaronian.

OLIVE RECIPE BOOK

(Continued from Page 809.)

drops of onion juice. Spread this on rounds of bread toasted on one side. Cover with a thin slice of tomato dipped in French dressing. Cover the tomato with a layer of chopped egg and minced olives, well seasoned.

Cheese and Olive Canapes

Cut stale bread in one-fourth inch slices. Divide slices in halves and toast on one side. Cream six tablespoons grated American cheese with one tablespoon butter. Season with salt and cayenne. Spread on toasted side of bread and garnish with a one-fourth inch border of finely minced olives. Outline inner side of border with strips of pimiento.

These may be served in place of sandwiches.

Oyster Cocktail

Two dozen small oysters, or 1 pint cut in pieces, ¼ cup minched ripe olives.

Chill oysters and olives and put into small glasses, lemon or pepper shells or tomato cups. Pour over the following sauce and serve ice cold.

Sauce.—1 tablespoon horseradish, ½ teaspoon Tobasco sauce, 1 tablespoon vinegar, 1 tablespoon Worcestershire sauce, 2 tablespoons lemon juice, 1 tablespoon tomato catsup, ½ teaspoon salt. Mix together thoroughly. Sufficient for ten servings.

Lobster or Crab Cocktail

One cup crab or lobster meat, ¼ cup finely cut celery, ¼ cup minced ripe olives, 3 tablespoons tomato catsup, 1 tablespoon vinegar, 2 tablespoons lemon juice, ¼ teaspoon Tobasco sauce, ½ teaspoon chives, chopped. Salt to taste. Sprinkling cayenne.

Cut crab or lobster meat in small pieces and mix with celery and olives. Mix remaining ingredients together and add to first mixture. Chill and serve in cocktail glasses.

ALMOND HULLER

AND

English Walnut Cracker

Mr. Grower, I have a machine for your 5-10-40 acre almond orchard cheaper than a Ford.

CAN YOU BEAT IT?

It hulls the nuts by rubbing. Under complete control of levers set at the proper place to suit any size nuts or conditions. Can be changed instantly.

Do you see the Ford idea?

SIMPLICITY!

The two surfaces come just close enough to work on unhulled nuts. The hulled almonds glide along without being touched. The meats fall through the screens quickly. They are not broken or nicked. Off price on account of damaged meats practically eliminated.

FEEDS AUTOMATICALLY and does not require a man at the hopper to keep it clear. Does not get out of repair. Any man can run. Requires only 1½ to 2½ H. P.

Write for circulars giving full information.

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172 Elm St. Woodland, Cal.

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REGISTERED

Citrospray will successfully control Black and Citricola Scales at half the cost of fumigation. Controlling at the same time Spider and Thrips and eradicating fungus at no additional cost nor injury to trees or fruit.

A full page ad. could say no more.

Citrospray Chemical Co., Ltd.

2203-5 Santa Fe Ave.

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BURR AND AGEE HOLSTEIN SALE

The Burr Farm-Agee Bros. combination sale of Holsteins held at Burr Farm, Los Angeles, June 9, served to distribute a desirable lot of females at prices that must be considered conservative in view of the class of cattle offered. The sale was distinguished by the fact that nearly all the offering was taken by men either making their first pure bred purchases or recently engaged in the business.

The top of the sale was $575, which was paid by J. F. Grueb of Huntington Beach for the six year old Carnation Rag Apple De Kol from the Burr Farm consignment. C. M. De Vore of Coachella secured Pleasant View Freckles, a 20 pound cow, also from the Burr Farm herd, for $500.

Thirty-two females offered by Burr Farm made a general average of near $300.

Agee Bros. had a top of $450, which was paid by J. D. Hoffman of Pasadena for the 20 pound Maid Mutual Beatrice De Kol. Beauty Fobes Pontiac Korndyke followed closely at $425, going to the same buyer.

The 18 head from Agee Bros. herd averaged $237.

The sale was managed by C. L. Hughes of the California Breeders Sales and Pedigree Company. Rhoades and Rhoades were the auctioneers.

A representative list of sales follows:

Burr Farm Consignment

1, Amelia Bona De Kol 2d, Mar. 1915, 6 yrs., 26.15 lbs.; San Bernardino County, $485.

2, It Changeling Wildwood, Feb. 1918, 3 yrs., 27.43 lbs.; J. D. Hoffman, Pasadena, $450.

3, Princess Una Hengerveld, Aug. 1913, 6 yrs., 748.70 lbs.; C. K. Cook, Palmdale, $425.

4, Pleasant View Freckles, Apr. 1913, 4½ yrs., 20.83 lbs.; C. M. DeVore, Coachella, $500.

5, Carnation Rag Apple De Kol, Mar. 1915, 3½ yrs., 20.00 lbs.; J. F. Grueb, Huntington Beach, $575.

6, Vin Flo Princess Walker, Oct. 1917, 2½ yrs., 17.50 lbs.; J. L. Durrell, Hynes, $400.

7, Zozo Pontiac Netherland, Mar. 1918, C. C. Stafford, El Monte, $255.

8, Copa De Oro Pledge, Feb. 1909, 355 days, 680 lbs; F. O. Sargent, Whittier, $215.

9, Enid Gold Dust Crown, Dec. 1917; P. Sheehy, Los Angeles, $235.

11, Canary Segis Ursena De Kol, Mar. 1915, 2 yrs., 16.68 lbs.; San Bernardino County, $435.

13, Glencoe Aaggie Segis Korndyke, July 1918; McGee & Brice, Whittier, $175.

14, Happy Thought Orizaba, Aug. 1910, 321 days, 563.8 lbs.; J. D. Hoffman, $200.

15, Palo Verde Bess, Sept. 1918; T. W. Andrews, Los Angeles, $250.

16, Fanny Mercedes Korndyke, Sept. 1915, 4½ yrs., 15.84 lbs.; C. K. Cook, $425.

17, King Segis Beets Mabel, Mar. 1917; W. O. Brady, Garden Grove, $275.

18, Dosie Conejo Dellhurst, June 1916; McGee & Brice, $410.

19, Zola Holland, Dec. 1916; San Bernardino County, $410.

22, Netherland Beauty Mechthilde 3d, April 1916; J. F. Grueb, $275.

23, Yamhill Marilla Imp, Mar. 1919; W. O. Brady, $250.

26, Yamhill Nida Mobel, Feb. 1919; J. H. Betker, Inglewood, $330.

27, Yamhill Lulu Mobel, Mar. 1919; M. Wilcox, Los Angeles, $235.

28, Yamhill Marilla Plum Jewel, June 1911, 9 yrs., 18.72 lbs., C. K. Cook, $220.

29, Helen Walker De Kol Korndyke, May 1919; J. F. Grueb, $300.

30, Daisy Burke Luit, May 1918; T. W. Andrews, $250.

31, Empress Sadie Vale Rose, Feb. 1919; F. O. Sargent, $285.

32, K. P. N. S. Spofford 2d, Mar. 1918; M. Wilcox, $210.

33, Zozo De Kol Oakwood, Feb. 1919; J. F. Grueb, $260.

34, Burr Farm Model Aaggie, May 1920; F. O. Sargent, $250.

Agee Bros. Consignment

40, Ada Pontiac, Dec. 1910, 25.91 lbs.; McGee & Brice, $230.

41, Rowena Pontiac Princess, May 1917, 3 yrs., 16.51 lbs.; M. Wilcox, $225.

42, Whittier Pontiac 2d, Mar. 1917; E. R. Stalder, Wineville, $265.

43, King Spring Farm Pontiac Marie, May 1917; T. W. Andrews, $200.

44, Mattie of Visalia, Feb. 1910; J. F. Grueb, $225.

45, Aldermoor Grace, April 1915, 20.83 lbs.; C. R. Cook, $345.

46, June Trixie De Kol, Mar. 1915, 5½ yrs., 20.73 lbs.; T. W. Andrews, $215.

48, Maid Mutual Beatrice De Kol, Dec. 1914, 5 yrs., 20.24 lbs.; J. D. Hoffman, $450.

49, De Kol Pietertje Rowena, Nov. 1914, 6 yrs., 20.81 lbs.; McGee & Brice, $250.

50, Aldermoor Milk and Butter Botsford, July 1915; T. W. Andrews, $215.

51, K. H. S. Fayne, April 1915; McGee & Brice, $215.

52, Beauty Fobes Pontiac Korndyke, Aug. 1914, 21.2 lbs.; J. D. Hoffman, $425.

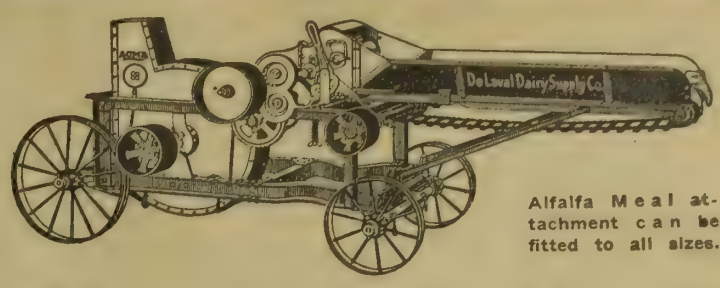
53, De Kol Pietertje Alka, Feb. 1915; J. D. Hoffman, $250.

54, Aldermoor Milk and Butter Rose, June 1915; San Bernardino County, $275.

55, Milk and Butter Clothilde Rose, June 1918; Guy H. Campbell, Fullerton, $205.

The ACME Cutter

Combined Silo Filler, Hay Chopper and Alfalfa Meal Machine



Alfalfa Meal attachment can be fitted to all sizes.

Save 10% to 30% of Your Feed

The saving of feed by cutting it up with an Acme Cutter has been demonstrated by many Pacific Coast Dairymen to be more than enough to pay for the cutter in one season.

It is the habit of stock, whenever given an abundance of feed to pick out and eat only the finer and more palatable portions; nosing out and wasting weeds and foxtail and the stemmy part.

This loss ranges from 10% to 30%, the amount depending upon the quality of the hay and the method of feeding.

Chopped Hay, with careful handling, will keep five cows, while the same weight of loose or bulk hay will only keep four. Waste is eliminated by chopping your hay.

Men who dairy on a business basis find that chopped feed is the surest way to utilize to the fullest extent the feed value of the entire hay crop.

The durable steel framed Acme will earn its cost every season chopping hay and at the same time provide you with a Silo Filler of superior cutting ability and an Alfalfa Meal Machine.

A FEW SPECIAL FEATURES OF ACME CONSTRUCTION

All steel triple frame construction.

Center hung blower fitted with six arm blower fan that will not clog.

Big range of pulley sizes permits in speed of cutting head and blower to suit length of cut and height of silo. All gears are well guarded.

Soft steel shear pins through fly wheel and pulley prevent accidents to machine or operator. Reverse lever with gears enclosed in housing. No ratchet to stick at critical moment.

Immediate deliveries.

Don't Buy a Cutter Until You Know All About The Acme

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Please send me free booklet giving price and full information and illustrations showing detailed mechanical construction of the Acme Cutter.

I am also interested to receive catalogues of your complete line of dairy supplies.

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WESTERN SURFACE IRRIGATION PIPE

Made in one piece with strong riveted seam of full gauge, heavily galvanized steel—insuring durability.

We also manufacture Well Casing, riveted Steel Water Pipe, Tanks, and Corrugated Culverts.

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1758 N. Spring St., Los Angeles 424 Market St., San Francisco

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Let the SUN give you plenty of HOT WATER

DAY & NIGHT

SEEMS impossible, doesn't it: But a DAY & NIGHT Solar Heater will actually deliver an abundance of piping hot water in your home every hour of the twenty-four, because it concentrates and stores the heat of the sun's rays. Thousands of successful installations in Southern California provide actual proof.

Think of the saving in gas this system insures you—fully three-fourths of your expense of heating water. Think what a necessity the DAY & NIGHT is if you have no gas supply. Adapted to country or city home—mansion, bungalow. Can be installed in new buildings or old; no expense after first cost. Write for illustrated folder giving detailed explanation of the DAY & NIGHT. Address Dept., E.

Day & Night Solar Heater Co.

632 Metropolitan Bldg., Fifth and Broadway Los Angeles

Experimental Feeding Test in Arizona

By William E. Schneider

RESULTS secured from feeding range steers at the Arizona college of agriculture branch station at Mesa, Arizona, during the past winter are now available. The feeding this year is of special interest because tests have thrown some light on the value of several important by-product feeds and also from the fact that they were followed through the plant of the Arizona Packing Company at Phoenix.

These 50 head of common range bred and raised two year old steers were purchased in the vicinity of Prescott during the latter part of December and shipped to the experimental farm near Mesa under the direction of Professor E. B. Stanley of the animal husbandry department of the Arizona college of agriculture. They were divided into six lots of eight steers each, so that in weight, condition and general appearance the lots were as nearly as possible alike. During the first ten days there were fed corn silage and alfalfa hay at liberty, starting on the test on January 26.

On account of the poor condition of range pastures in Arizona during the past year, cattle and sheep came through the winter with greater losses and in poorer condition than usually. The mortality, according to the bureau of crop estimate reporters, is 100 per thousand compared with 35 per thousand last year. Spring pastures in Arizona on May 1 are about 55 per cent of normal compared with 96 per cent a year ago. Fat cattle have been scarce within the state as compared with a year ago. A number of large companies are shipping out trainloads of cattle to Montana, North Dakota and Kansas for stocking the ranges.

A year ago the increase in cotton acreage in the state served to drive out considerable acreage devoted to alfalfa, while the utilization of such products as cottonseed meal, whole cotton seed and cottonseed hulls was a problem to be solved. The low price for these products on account of the decreased valuation of all farm products last fall led the animal husbandry division to conduct the feeding experiment with a view of ascertaining the advisability of feeding cottonseed by-products with corn silage and alfalfa hay.

The rations consisted of: Lot 1, alfalfa hay, corn silage and cottonseed meal; 2, alfalfa hay, corn silage and whole cotton seed; 3, alfalfa hay, corn silage and crushed cotton seed; 4, silage and cottonseed meal; 5, alfalfa, corn silage and cottonseed meal; 6, cottonseed hulls and cottonseed meal.

Many stockmen have been skeptical as to use of silage for fattening. They have always admitted its excellence as a ration for dairy cows or for roughing stock cattle through the winter, but not a few have contended that it could not be successfully used in finishing. Corn can be most successfully grown in practically all sections of Arizona to the point where it is ready for ensiling, and the recent feeding tests have proven its future in the feeding industry of this state.

The most important result of special interest to feeders is the uniform and rapid gains of the eight head that had been fed a ration of 3.84 pounds of cottonseed meal, 47.71 pounds of corn silage and 2.10 pounds of alfalfa hay. This lot started with an average weight of 718.8 pounds and in 90 days weighed 963 pounds per steer. It must also be noticed that steers in poor condition off the range require a longer feeding period than 90 days to be put in marketable fat condition. Arizona butchers and packers do not demand fat stuff.

Based on One Average Steer—January 26 to April 26, 1921, Mesa, Arizona

Lot	1	2	3	4	5	6
Initial average weight	718.8	705.0	636.8	697.5	553.0	643.8
Final average weight, pounds	963.0	937.5	854.0	969.5	854.8	860.8
Gain, average weight, pounds	244.2	232.5	217.2	272.0	301.8	217.0
Daily gain, average weight, pounds	2.71	2.58	2.41	3.02	3.35	2.41
Alfalfa	2.41	2.28	2.28	....	2.31	0.24
Silage	47.77	32.99	30.93	50.63	39.83	2.82
Cotton seed whole	....	6.24	....	....	....	....
Cotton seed crushed	....	....	5.54	....	....	....
Cotton seed meal	3.85	....	....	4.72	3.90	4.64
Cotton seed hulls	....	....	....	....	....	19.86
Feed for 100 lbs. gain:						
Alfalfa	88.6	88.8	95.0	....	68.9	10.10
Silage	1760.6	1277.2	1280.8	1675.4	1187.6	117.0
Cotton seed whole	....	241.6	51.0	....	....	....
Cotton seed crushed	....	....	178.5	....	....	....
Cotton seed meal	141.3	....	....	156.2	116.2	192.0
Cotton seed hulls	....	....	....	....	....	823.5
Cost 100 pounds grain	10.23	7.39	7.57	9.04	7.32	8.41
Initial cost per head @ $6.80 a cwt.	48.88	47.94	43.30	47.43	37.60	43.78
Feed cost per head	24.99	17.16	16.62	24.60	22.09	18.27
Interest at 8%	.80	.80	.80	.80	.80	.80
Marketing expense	.60	.60	.60	.60	.60	.60
Total cost per head	75.27	66.50	61.32	73.43	61.09	63.45
Value per cwt. selling	7.00	7.00	7.00	7.00	7.00	7.00
Returns per steer	62.02	60.38	55.00	62.44	55.05	55.44
Loss per steer	13.25	6.12	6.32	10.99	6.04	8.01
Necessary selling price	8.50	7.71	7.80	8.23	7.77	8.01
Necessary margin	1.70	.91	1.00	1.43	.97	1.21
Dressing percentage	56.90	53.60	55.60	56.40	56.80	55.50

Prices of feeds: Alfalfa hay $24, whole cottonseed $10, cotton seed hulls $12, corn silage $8, crushed cotton seed $12, cotton seed meal $30.

WORLD PRICES LOWER FOR MEAT AND LIVESTOCK

The recent declines in livestock and meat prices in the United States appear to be part of a world wide movement toward lower price levels, say specialists of the bureau of markets, United States department of agriculture. According to a report of the consul general at Auckland, recently received by the department, rump steak in New Zealand brought on April 1, 20 cents a pound; sirloin steak, 15 cents; corned brisket, 8 cents; legs of mutton, 11 cents; mutton chops, 13 cents; neck and breast of mutton, 7 cents; side of mutton, 10 cents; and veal, 9 cents. These prices are based upon the normal rate of $4.8665 to the pound sterling.

The report also shows that between March 1, 1920, and March 1, 1921, fine steers in New Zealand dropped $3.65 per 100 pounds, selling at $10.46; prime and choice steers, $3.52, at $9.49 to $10.21; plain and ordinary steers, $4.01, at $7.30 to $9; cows and heifers, $5.22, at $4.87 to $9.73. Best wethers lost $2.71 per head, selling at $4.62 to $7.47; ewes, 67 cents, at $3.89 to $6.08; and lambs, $1.82, at $3.40 to $6.44.

Comparisons of these prices with prices in American markets is impossible because of a difference in standards of grading in the two countries. For example, a choice steer in New Zealand might be placed in some other grade in the United States.

DAIRYMAN SAYS COW TESTER WOKE HIM UP

"I just wish to write a few words to let the farmers in general know what I thought of cow testing associations a year ago and what I think of them now," writes a Wisconsin dairyman to a field agent of the dairy division, United States department of agriculture. "About a year ago I was approached on the subject, and, after some talk, I said: 'Go ahead; if you can shoot in $40 or $50 I can, too.' So in April, 1920, we organized; and to top it they elected me secretary of the association. I did not think much more about it until the tester came to my place the first time, and when I saw him at work I commenced to wake up.

"I had two cows that had freshened about three weeks before that, and both of them had heifer calves which I intended to sell for veal; but after the test was made I saw that those two cows were making more butterfat for the month than any of my other cows. I decided to keep the calves, and further took interest enough to weigh the milk from each cow in my herd, and now those two cows are at the top of the list for the whole association.

"You may ask, what about those two calves? Well, if you have $300 you might get them, but not for less than that, even if they are grades. Does testing pay? Well, I will say yes, and if I can keep the association going next year, you bet I will."

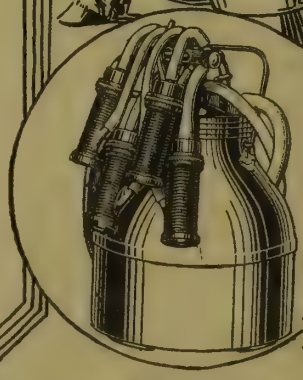
No More Reason why You Should Milk by Hand than Harvest by Hand

The De Laval Milker

saves more time during a year than a grain binder or any other labor-saving device a dairyman can own. In addition it increases the production of milk, many De Laval users say, to such an extent that the increased flow alone pays for the milker.

EASY TERMS can be arranged so that you can use the De Laval Milker while it pays for itself. Send for complete information.

DE LAVAL PACIFIC COMPANY
61 Beale Street San Francisco



A Better Way of Milking

Sooner or later you will use a

De Laval

Milker or Cream Separator

NATIONAL EGG LAYING CONTEST

By T. W. Noland, Director, Mountain Grove, Missouri

June is the month when the fight against mites in the poultry house should begin in earnest. The next few months is when the poultryman will experience the greatest difficulty in keeping down these pests.

Clean and spray all poultry houses, coops and brooders, remove dropping boards and perches, spray underneath as well as on top; get the spray material into all cracks and crevices, as this is where they go during the day and then get on the fowls at night. One-half pint crude carbolic acid to one gallon of kerosene makes a good spray and will get rid of mites if you get it on them or in the places where they harbor.

The 300 hens in the tenth National egg laying contest laid 6,138 eggs during the month of May, or an average of 20.46 eggs per hen.

Pen 34, White Wyandottes, owned by Brann & Walker, Memphis, Missouri, won the cup for May by laying 130 eggs during the month.

The number of eggs laid by the different breeds for the month and to date are: Leghorns, 1,150 for May, 6,562 to date; Wyandottes, 1,002, 6,191; Anconas, 972, 6,088; Rhode Island Reds, 978, 5,945; Plymouth Rocks, 1,022, 5,933; miscellaneous varieties, 1,014, 5,854.

The ten leading pens for May are: White Wyandottes, Missouri, 130 eggs; S. C. White Leghorns, England, 128; S. C. White Leghorns, Missouri, 128; R. C. Barred Rhinelanders, Michigan, 128; R. C. Black Rhinelanders, Michigan, 125; Anconas, Missouri, 124; Barred Rocks, Canada, 123; S. C. White Leghorns, Illinois, 122; S. C. Brown Leghorns, Missouri, 121; Anconas, Missouri, 120; S. C. White Leghorns, New York, 120.

The ten leading pens to date are: S. C. White Leghorns, Missouri, 789 eggs; White Wyandottes, Missouri, 771; S. C. White Leghorns, Missouri, 767; S. C. White Leghorns, England, 765; S. C. White Leghorns, New York, 711; R. C. Barred Rhinelanders, Michigan, 711; S. C. Reds, Missouri, 707; Columbian Rocks, Missouri, 699; Black Langshans, Missouri, 698; White Wyandottes, Illinois, 691.

Following is the number of hens laying 25 or more eggs during May: 1 S. C. Red hen laid 30 eggs; 1 Columbian Rock hen laid 29; 2 Barred Rock hens laid 29; 2 S. C. Red hens laid 29; 3 S. C. White Leghorn hens laid 29; 1 R. C. Black Rhinelander hen laid 28; 1 Barred Rock hen laid 28; 1 S. C. Red hen laid 28; 3 White Wyandotte hens laid 28; 1 S. C. White Leghorn hen laid 28; 1 R. C. Barred Rhinelander hen laid 27; 2 Columbian Rock hens laid 27; 2 Barred Rock hens laid 27; 1 Buff Rock hen laid 27; 1 S. C. Red hen laid 27; 2 Ancona hens laid 27; 5 S. C. White Leghorn hens laid 27; 3 B. C. Barrred Rhinelander hens laid 26; 1 Black Langshan hen laid 26; 1 R. I. White hen laid 26; 1 Silver Campine hen laid 26; 1 Black Minorca hen laid 26; 1 Columbian Rock hen laid 26; 2 Barred Rock hens laid 26; 3 S. C. Red hens laid 26; 2 Ancona hens laid 26; 1 White Wyandotte hen laid 26; 7 S. C. White Leghorn hens laid 26; 2 R. C. Black Rhinelander hens laid 25; 1 Columbian Rock hen laid 25; 3 Barred Rock hens laid 25; 1 S. C. Red hen laid 25; 2 Ancona hens laid 25; 6 White Wyandotte hens laid 25; 3 S. C. White Leghorn hens laid 25.

Sales value of eggs average bird for May, 33 cents. Sales value of eggs average bird to date, $3.66. Sales value of eggs best pen for May, $2.08. Sales value of eggs best pen to date, $29.20. Average price received for eggs during May, 19 cents per dozen.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, May 30, 1921.—Report for week ending May 29:

The hens in the egg laying contest at Storrs finished the month with a margin of more than 7,000 eggs in excess of the expected yield for the first seven months. During the last six years the average total score for all pens on June 1 has been 86,000, but in the contest now running the hens have started June with over 93,000 eggs to their credit.

In the thirtieth week of the race White Leghorns made distinct gains on the heavier breeds. John K. Roessner's pen from Irvington, New Jersey, was in first place with a yield of 60 eggs. Burchell & Janson's birds from Thetis Island, B. C., were second best for the week with a production of 58 eggs.

Many poultrymen are obliged to confine their birds in relatively small yards. It is therefore necessary for them to grow summer green food if they expect to get the maximum number of summer eggs which usually sell for a fair price and which cost less to produce than eggs in mid-winter. Four or five rows 25 feet long planted now to Swiss chard and four or five rows planted to rape will produce all the green food that 100 hens can possibly consume during the months of July, August and September.

The four leading pens in each of the principal varieties are as follows:

Plymouth Rocks

W. H. B. Kent (Barred), 1,217 eggs; Rock Rose Farm (Barred), 1,083; Jules F. Francais (Barred Rocks), 953; James F. Macdonald (White Rocks), 949.

Rhode Island Reds

Charles H. Lane, 1,276 eggs; H. S. Bickford, 1,164; F. S. Chapin, 1,150; Henry P. Walker, 1,128.

White Leghorns

L. E. Ingoldsby, 1,181 eggs; Hollywood Farm, 1,177; James O. Le Fevre, 1,170; Ernest H. Scott, 1,156.

Other Varieties

Obed G. Knight (White Wyandottes), 1,322 eggs; H. P. Cloyes (Buff Wyandottes), 1,069; A. E. Hampton (Black Leghorns), 938; Harry D. Emmons (White Wyandottes), 838.

Poultry Queries

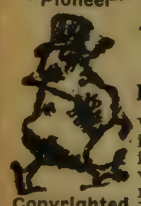
Conducted by Jean A. Koethen

Enlarged Crop

Our turkey hen and one pullet have enlarged crops. The turkey's is immense and filled with liquid and undigested feed with disagreeable odor. They have unlimited range and are fed Kafir or Gyp corn, rolled oats, lately some rice, and have a dry mash of bran, Surelay and alfalfa meal. About twice a week we put medicine in the drinking water.—A Subscriber, Marysville.

(Continued on Page 819.)

"Pioneer" **Baby Chicks**



All the Popular Breeds Every Day
Baby Ducks, Baby Turkeys

We can supply Baby Chicks in any quantity. Best quality. Can ship to any point within seventy-two hours' ride from Los Angeles. Copyrighted Hatching Eggs, Fireless Brooders, Poultry Supplies, Remedies, Feed, Seed, Feeders, Fountains for sale.

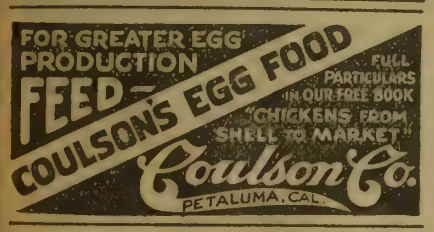
We are the SOLE AGENTS of this County for the Pioneer Incubators and Brooders. **Send for Price List.**
Visitors Welcome.

PIONEER HATCHERY
320 So. Spring St., Los Angeles, Calif.
"World's Largest Hatchery" Est. 1905

HEALTHO

Positive Poultry Delouser; banishes at once and permanently all lice, mites and nits; ECONOMICAL, as it lasts indefinitely; NO LABOR: CHICKENS DUST THEMSELVES. Order today—Standard Package $3.00.

HEALTHO POULTRY CO.
717 West 16th St. Los Angeles, Cal.



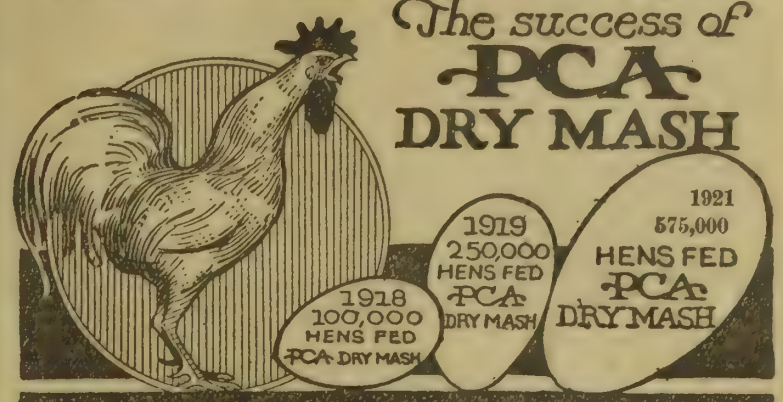
Sick Baby Chicks?

You can rid your flock of roup, colds, bowel trouble and other costly ailments. GERMOZONE is preventive as well as curative, a wonder worker for poultry. On the market over 20 years. Endorsed by thousands. If no dealer, order by card. Postman will collect. No extra charge. Handy as phoning. 75c and $1.50 pkgs. Baby Chick Book FREE.

GEO. H. LEE CO., Dept. F-30, Omaha, Neb.

A Record that Speaks for Itself

The success of
PCA DRY MASH



Something to crow about

STEADILY increasing demand demonstrates the superiority of P. C. A. Products. Today they are used exclusively on scores of the biggest poultry ranches in the Southwest. Surely such a record points the way to obtain greater egg production. Hens must be kept in a healthy, vigorous condition to maintain a high laying average, and there is no surer way to increase the laying ability of a hen than by feeding the perfectly balanced P. C. A. Products.

P. C. A. Dry Mash has won its way on sheer merit. It was evolved by an association of practical poultrymen after exhaustive tests and experiments.

Copies of "Co-operative Poultrymen," a journal of practical information for the Poultrymen, published by us, sent free to readers of California Cultivator. Kindly address your inquiry to Dept. B.

Poultrymen's Co-Operative Milling Association

1516 Industrial Street Los Angeles
Phone 12076, Main 2935

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One of Our New 3½ Ton Trucks

Equipped with Pneumatic Tires—Makes possible an ideal rapid transportation service between Los Angeles, San Francisco and way points.

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Experienced Packers and Movers

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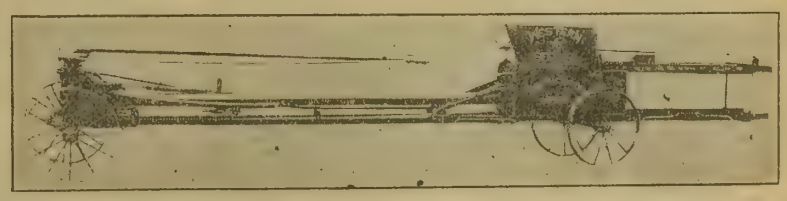
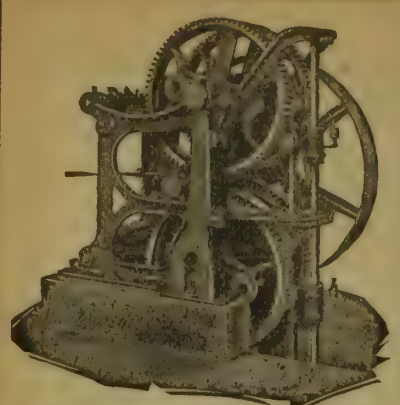
MAKE HAY WHILE THE SUN SHINES
BEST HAY BALER IN CALIFORNIA $500



MAKE QUICK MONEY—operating the quick set, fast baling low priced Western Star Press made in California. Light draft, big capacity, low step. Only baler made offering special non-binding head block feature for side hill sets. Over 600 in use in Southern California. No delays for repairs. Complete line heavy and light presses, horse, tractor and engine power. We will take in exchange any Eagle or Western Star press no matter how old.

WARR IMPLEMENT COMPANY Formerly Davenport Implement Co.
110 North Los Angeles St., Los Angeles, Cal.



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Duplex Plunger

Deep Well Pumps

and hold down the most important item of expense in your water supply, which is the power bill.

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The Pomona Mfg. Co.

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Rubber Boots For Ranchers and Irrigation Work

$3.98

A wonderful value in Hip or Knee Length Rubber Boots made of REAL gum Rubber with heavily reinforced seams. Made to order of the English Government for the British Army at actual COST OF MORE THAN WE ARE SELLING THEM FOR. Will stand all extremes of heat and cold and made to give extra long wear. Finest quality pure gum rubber with extra heavy soles. This is one of the very finest BARGAINS we have ever been able to offer our customers and the stock is limited so get your order in very early. Nothing better can be worn by ranchers or men who work in irrigated districts, rice fields, etc. This quality of Hip rubber boot would usually cost you $7.50 to $8.00. Remember you can get the full HIP boots for $3.98 or the shorter knee length boots for $3.29. Be sure to mark which kind you want on the coupon below. WE DO NOT WANT YOUR MONEY IN ADVANCE. We take all risk because these boots are such wonderful values. Fill out coupon NOW and mail at once if you want some of these boots before they are sold out.

Send for free catalogue of shoes for men, women, boys, girls and children.

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Send me.....pairs of Rubber Boots as marked below, postpaid, at once. I will pay postman for them on arrival. If I am not entirely satisfied I will return boots and you will refund my money immediately.

Size..... Hip or Knee Boot?.....

Name.....
(Print Plainly)

Address.....

Town.....State.....

Humboldt County reports range conditions the best possible because of fine rains.

Los Angeles Markets

Los Angeles, June 15, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price 37 cents.

June	8	9	10	11	13	14
'21	36½	36½	..	37	37	

CHEESE

Brokers' prices:
California flats, 16@18.

EGGS

Fresh extras (case included): Produce Exchange closing price 28 per dozen. Case count Produce Exchange closing price 27. Pullets, closing price 25 per doz.

June	8	9	10	11	13	14
'21	28	28½	..	29	28	

POULTRY

Price to producers: Hens, 18-27; colored, 30; broilers, 21@27; roasters, 40; old roosters, 12; fryers, 35; ducks, old, 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live 40; dr., 44; squabs, 44@45.

Belgian hares, live, 12@16; old 8.

LIVESTOCK

Los Angeles, June 14. — Weighed and delivered off cars without food or water:

Hogs (hard grain fed), 125 to 175 lbs., 9.00; 175 to 225 lbs., 9.50.

Cattle (on foot, gross weight): Steers, good, 8.00@8.50; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Calves, 125 to 150 lbs., 9.50; 175 to 225 lbs., 9.00.

Sheep: Ewes, 5.00@5.50; lambs, 8.50@9.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock June 14, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.

Potatoes: Supplies liberal, market weak. New stock: Wide range in prices, fancy 80@90, fair quality 65@75 per lug, No. 2, best 40@50, poorer 30@35 per lug. Sacked per cwt. 1.75@2.00 for ordinary quality. Sales to jobbers 50@60 per lug, and sacked per cwt., 1.50@1.75.

Onions: Supplies heavy, market steady. Coachella and Imperial Valleys standard crates Wax, 1.25@1.45. Yellow Bermudas 1.00@1.26. Jobbing: Bermudas 90@1.00; Fair, 80; Wax 1.00@1.10.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock June 14, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.

Asparagus: Market firm; supplies moderate. Local: 16@18 pef lb.; Northern 6@12 per lb.; mostly 8@10.

Beans: Supplies heavy. Green Kentucky Wonders, mostly 4@5 lb.

Beets: Doz., 35@40.

Cabbage: Field crate best mostly 1.75@2.00; poorer, 1.50.

Carrots: Doz., 35@40.

Celery: Supplies moderate, market steady, mostly 6.00@6.50.

Corn: Supplies moderate, market weaker, best 40@50 per doz., 1.75 lug.

Cucumbers: Supplies heavy, movement slow, market weak. Local: Lugs mostly 1.25@1.50. Signal Hill: Flats mostly 50@75. Hothouse, per doz., 1.00@1.25.

Lettuce: Local field crate quality poor. Poor, 60@75; best, 85@1.00; few 1.10@1.25.

Peppers: Supplies liberal, market firm. Imperial Valley: Bells best, 20; Chilis, best 15@18 per lb.; poorer 12.

Radishes: 15 doz.

Rhubarb: Local strawberry, best 85@1.10; fy. 1.10; poorer 65@75 bx.

Squash: Supplies moderate, market weaker. Summer squash: Local, 50@65 per lug; Italian, 1.25 per lug.

Tomatoes: Supplies liberal, market weak. Imperial Valley, per crate, 1.50@1.75; jobbing, 1.60@1.75 on fancy ripes; mostly 1.25 on greens and pinks.

Turnips: Doz., mostly 40@45.

FRESH FRUITS

Apricots: Market steady, mostly 5@6 lb.; poor low as 4@4½; few fancy 7.

Blackberries: Supplies moderate, market weaker. Best 3.25@3.75; few 4.00.

Cantaloupes: Supplies heavy, market weak, ponys 1.90@2.10, standards 2.25@2.50, few early sales flats 90. Jobbing: Standards 2.00@2.50, mostly 2.00@2.25, ponys 1.75@2.00, mostly 1.75.

Cherries: Supplies light, market firm on good stock. White, varieus varieties mostly 11@15 per lb.; Black Tartarians and Republicans mostly 10@15 per lb.

Loganberries: Supplies moderate, market weaker; 30 pint crates 2.50@2.80.

Peaches: Supplies liberal, market weak, various varieties 5@7; few 8; lug, mostly 1.40@1.50; ordinary 75@1.00.

Plums: Supplies moderate, market steady, 6@8 per lb., poorer 5.

Raspberries: Supplies moderate; mostly 2.75@3.00 per 30 pint crate; few fancy 3.25.

Strawberries: Supplies moderate, market weak. Per crate, 30 pints best mostly 4.75@5.25; ordinary 3.50@4.00.

Watermelons: Supplies heavy, market weaker, mostly 2½@3 per lb.; jobbing 30.00 ton.

CITRUS FRUITS

Grapefruit: Supplies liberal, market steady on good stock. Local: per box, market pack 2.00@2.50, special packed brands 3.00@3.25; ordinary 1.25.

Lemons: Supplies moderate, market steady, wide range in prices. Local: packed box 4.50@5.00; few fy. high as 7.00; loose 1.25@1.75 per box, per lug mostly 50@75.

Oranges: Supplies liberal, market steady. Valencias, best brands, all sizes, 3.50@4.00, few 4.50; ordinary 3.00@3.25; packing house culls 50@75, few best 1.00@1.75 per box.

HONEY

As reported by the Bureau of Markets: Supplies of White Sage and White Orange light, of other varieties heavy. Light wire inquiry. Movement slow, market dull. Carloads f. o. b. usual terms at loading points: White Orange, old, 10@11, few 9; new crop, 12@12½; White Sage, 10@11; Light Amber Alfalfa, old, 5¾; new crop, 6½; Light Amber sage, 8@8½; Hawaiian White, 6½@7; Light Amber, 5½@6; Honey Dew honey, 4½. Beeswax, in less than car lots: Light, 30; dark, low as 26. Heavy rains have helped the sage crop. The orange crop is now estimated at 30 per cent of normal, sage at 50 per cent. The above prices represent quotations at which carload lots can be bought. In small quantities higher prices are secured. For example, less than car lots of White Orange have sold for 12@15 in 60-lb. cans. In 2, 5 and 10-lb tins much higher figures are listed for the same grades of honey.

GRAIN AND FEEDS

Grain Exch. price bid June 14:
Corn: Bulk No. 2, Yellow 1.61¼.
Kaffir: Eastern, No. 2, 1.80.
Milo: No. 3 Eastern bulk, 1.75.
Barley: Carloads, 1.10.

HAY

Alfalfa Growers of California report under date of June 15:

No. 1 Dairy 25.00
Standard 20.00
Fertilizer 15.00

Receipts of alfalfa hay during the week continued light for this time of the year. Prices remained firm, especially for the better grades. Offerings for forward shipment of these grades are also light, so that our sales of round lots during the week consisted largely of hay spoiled by the rains, to be used as fertilizer in the orange districts; prices paid for these lots were from $14 to $15 per ton delivered. The period of the heavy movement of the alfalfa crop, which is also the period during which dealers and users accumulate reserve supplies for fall and winter, will this year undoubtedly be shorter than usual. As far as the year's supply of first class hay is concerned, this will probably also be short as it will have to come practically altogether from the remaining cuttings. Grain hay in strong demand, especially in the southern part of the state, where the production this year is very deficient, owing to unfavorable weather conditions.

Prices at ranch are: Hemet and Perris, $20; Chino, $21; Antelope Valley, $18.50; Mojave River Valley, $20; San Joaquin Valley, $17.

Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:

Tame Oats .....20.00@28.00
Barley .....16.00@24.00
Alfalfa, No. 1 Dairy 22.00
Standard 16.00
Straw .....10.00@13.00

San Francisco Markets

San Francisco, June 14, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 37

Dairy Exchange prices extras this week and year ago:

June	7	8	9	10	11	13
'21 ...	37½	38½	37	37		.37
'20 ...	54½	55½	..	57	..	..

CHEESE

Dairy Exchange quotations:
Jack, full cream, street prices....14½@16
Oregon Trips 20
Cal. Y. A. 22
Cal. Flats 17½

EGGS

The prices paid by wholesalers to producers are eight per cent less.

Dairy Exchange quotations, dozen including cases:
Extras 28½
Extra Firsts 27½
Dirties No. 1 27
Extra Pullets 25½
Undersized 23½

June	7	8	9	10	11	13
'21 ...	30½	30	28½	28½	..	28½
'20 ...	45½	45½	..	45	..	..

POULTRY

Wholesale prices are:

Young chickens, Leghorns, 1 to 1¼ lbs., 27, 1½ to 1¾ lbs., 30; 2 lbs. up, 35; heavy breeds, 1½ to 1¾ lbs., 35; 2 lbs. and up 50@55; old roosters, Leghorns, 13; do, heavy breeds, 18. Hens, Leghorns, large, 23; do, small to medium, 17@20; heavy breeds, 30@32.

Ducks: Young, 35 per lb., old 25.

Geese: 25 per lb.

Turkeys: Live, 35 per lb., do, dressed, 45@50 per lb.

Squabs: Fy. 45@48 lb., common, 3.50 per doz.

Belgian Hares: 13@14 per lb., do, dr., 18@20.

Pigeons: Old 3.00 per doz.

LIVESTOCK

Western Meat Company prices are:

Cattle: Steers, No. 1, 6½@7; do, second quality, 6@6½.

Cows and Heifers: No. 1, 5@5½; do, second quality, 4½@5.

Calves: Light weight, 6@6½; medium, 5½@6; heavy, 4@5.

Sheep: Wethers, 4@4½; ewes, 3@3½.

Lambs: Milk, 6¼@7¼.

Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 10; do, 200 to 250 lbs., 9; do, 250 to 350 lbs., 8; light sows, 8; heavy sows, 7.

California Farm Bureau Market Association reports sales:

No. Hogs	Ave. Wt.	Dock	Price
Tulare, June 7			
69	154	...	$9.30
74	200	...	9.00
82	191	...	8.95
100	159	...	8.65
16	240	...	8.30
29	125	...	7.95
3	240	30	7.30

Total four cars, 23 consignors, $5,786.87.

Visalia, June 8			
94	178	...	8.90
46	233	...	8.25
25	134	...	7.75
3	286	...	6.25

Total 2 cars, 6 consignors, $2,715.48.

Hanford, June 9			
12	126	...	9.60
102	151	...	9.45

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Citrus

And Ornamental

Vines & Roses

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L. ANDERSON CO., Mfrs.
Martinez, Cal.

73	183	...	9.00
91	178	...	8.85
83	193	...	8.85
21	244	...	8.00
8	130	...	8.00
13	299	190	7.00
1	500	200	6.00

Total 4 cars, 30 consignors, $5,807.29.

Corcoran, June 10

98	174	...	9.25
10	209	...	8.50
11	313	200	5.00
12	131	...	7.00
11	172	...	7.50
4*	160	...	4.00
1*	...	...	7.00

*—Crippled hogs.

Total 2 cars, 15 consignors, $2,197.32.

Total for the week 12 cars, 74 consignors, $16,506.96.

POTATOES AND ONIONS

Wholesale prices:

Potatoes: Street prices: River, nominal; do, Oregon Burbanks, 2.00@2.25; Nancy Hall, 5.00@6.00 per 100 pounds; Idaho Gems, 2.30@2.60.

New: Garnets, 1.75@2.00 per 100 lbs. do, White, 1.75@2.25.

Onions: Australian brown, 35@50 per bag; new red, 75@1.00 bag; green, 1.50@1.85.

Garlic: New, 6@8 lb.

VEGETABLES

Wholesale selling price:

Artichokes: Crate, 3.00@12.00.

Asparagus: Culls, 2½@3 per lb.; field run, 4@5; fancy graded, 7@10; green, 3@5.

Beets: 1.75@2.00 per sack.

Beans: String, 6@8.

Corn: 75@1.00 doz. for Bay; Winter. 1.00; Imp. Valley, sk., 2.50.

Cucumbers: Hothouse, small, 1.50@1.90 box of 2½ dozen; English, 1.00 per dozen. Signal Hill, 75@1.25.

Eggplant: Lb., 10@12½.

Okra: 15@20 lb.

Onions: Green, per lug, 1.50@1.75.

Peas: 6@8 lb.

Parsnips: Sk., 2.00@2.25.

Peppers: Bells, 10@30; Chili, 15@20.

Squash: Imperial Valley Summer, 75@1.00 cr., do lug, 1.25; Italian, do 75@1.25.

Spinach: Lb., 2@4.

Tomatoes: Mexican, 1.50@2.00 for L. A. lug; Imperial, green, 1.00@1.75; ripe, 1.75@2.00.

FRESH FRUITS

Apricots: 1.30@1.75 per 4-basket crate; 1.75@2.25 per lug box.

Avocados: California, doz., 3.00@6.00.

Bananas: Lb., 8½@10.

Cantaloupes: Standard, 2.50@3.00; ponies, 2.00@2.50; flats, 75@1.00; Honey Dew, 2.00@2.25 per crate; flats 1.25; Casabas, 2.50@3.00.

Cherries: Tartarian, bulk, 5@7 per lb., 1.00@1.25 per drawer; Bings, 10@12 per lb.; soft white, 3@4; Royal Anne, 5@8 per lb., 75@1.25 per drawer.

Currants: 50@55 per drawer; 8.00@9.00 per chest.

Figs: Nominal; white, 1.75@2.00; black, 2.50@3.00.

Gooseberries: 7@8 lb.; English, 15 lb.

Loganberries: Red, chest, 8.00@9.00; do, blacks, 7.00@8.00; 30@35 per drawer.

Loquats: 6@7.

Peaches: Boxes, 1.50@1.75; Los Angeles lugs, 2.50@3.00.

Raspberries: 90@1.25 per drawer; 2.00@2.50 per crate.

Strawberries: Peninsula and Watsonville, 50@60, some higher; Salinas, 1.25@1.50 per crate; Watsonville, 1.00@1.40 per crate, according to quality.

CITRUS

Navel oranges, 4.00@5.25; Valencias, 3.00@4.00. Lemons, 5.00@7.00 per box; lemonettes, 3.00@4.25; grapefruit, 2.50@4.00.

BEANS

Below California Bean Growers Association shippers prices choice recleaned:

Large Whites	4.40
Small Whites	3.35
Pinks	5.95
Mexican Reds	8.00
Red Kidney	9.70
Henderson Bush	4.95
Cranberries	6.75
Bayos	10.65
Blackeyes	8.00

HAY AND FEED

Alfalfa Growers of California quote June 13:

No. 1 Dairy	17.00
Standard	15.00

Under date of June 4, A. W. Scott Co. says:

Receipts past week 1,283 tons as compared with last week's arrival of 980 tons. Demand has continued light and the heavy receipts have created an extremely weak condition in the local market. While the rains have damaged large quantities of hay the recent fine weather has enabled the farmer to save and cure the greater part of the damaged stock, and the abundant moisture has accomplished wonders with the growing grain. Sales in the country have not been heavy as most producers are not inclined to accept present market prices, feeling that they are below cost of production. Still, a few sales are reported in all sections, and in all probability they will increase as hay is baled up and ready for the market. Export and coastwise shipment has been greatly interrupted by reason of the transportation strikes and will be in an upset condition until these matters are settled. Alfalfa continues exceedingly weak. In a number of points farmers are endeavoring to maintain a level of prices considerably above the various markets, and are asking $15 per ton for first class second cutting new crop hay. Purchasers will not pay that price and quite a bulk has been sold in various producing centers at from $12 to $12.50 per ton. New wheat hay has made its appearance and the choice grades are moving slowly at quotations. No new tame oat hay has yet come into San Francisco. Volunteer and barley hay are in excess of demand and slow to move. Mill feeds have been weak and prices a little off, chiefly caused by the weakness in grain, apparently the effect of the drop in foreign exchange.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charges of switching, cartage, commission and handling expenses must be added according to conditions).

Wheat Hay, fancy	18.00@20.00
Wheat Hay, light 5-wire bales	15.00@18.00
Tame Oat Hay	15.00@17.00
Wild Oat Hay, new crop	10.00@12.00
Barley Hay	10.00@12.00
Alfalfa Hay, new 2nd cutting	13.00@15.00
Alfalfa Hay, new first cutting	10.00@12.00
Stock Hay	10.00@12.00
Barley, Ground	30.00@33.00
Barley, Rolled	27.00@29.00
Oats, Rolled Feed	35.00@37.00
Bran, Red	33.00@36.00
Bran, White	37.00@39.00
Millrun	36.00@40.00
Middlings	46.00@48.00
Linseed Meal	35.50@37.50
Coco Meal	23.00@27.00
Alfalfa Meal, old crop	24.00@26.00
Alfalfa Meal, new first cutting	22.00@23.00
Cottonseed Meal	35.00@40.00
Sugar Beet Pulp	32.00
Molasses, Tanks	21.00
Molasses, Bbl.	25.00
Milo	44.00@46.00
Corn Meal	45.00@47.00

GRAIN

Wheat: Milling, 2.40@2.50; semi-feed, 2.30@2.50.

Barley: Feed, 1.15@1.17½; shipping, 1.25@1.30.

Corn: California yellow, 1.35@1.45; white Egyptian, 2.10@2.25 per cental; California red milo, 1.75@1.85; Eastern red milo, 1.60@1.65; Eastern kafir, 1.50@1.55.

Citrus Markets

Los Angeles, June 15, 1921.

All oranges are selling at remarkably good prices. Small offs showing decay are sometimes severely cut but quality large size stuff occasionally brings as high as $8 to $9 in auctions.

Lemons are likewise commanding good prices. There are but few foreigns and some very favorable weather has encouraged liberal movement.

Shipments

Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 26,567 cars; lemons, 6,475; total, 33,042. To same date last season: Oranges, 21,470; lemons, 5,073; total, 26,543. From Central California to date this seasonff Oranges, 6,571; lemons, 161; total, 6,732. To same date last season: Oranges, 5,359; lemons, 288; total, 5,647. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total, 283.

POULTRY QUERIES

(Continued from Page 817.)

Enlarged or pendulous crop is usually caused by too heavy or irregular feeding while the birds are growing. If the crop is once filled to the limit it is likely to be stretched a little, and if this happens frequently the stretched condition becomes permanent. In the case of your old hen the feeding of too much corn may also have caused indigestion. The most successful turkey breeders feed mainly barley and mash and use corn only when they are fattening for market. Then the medicine you are using in the drinking water is neither a tonic nor a help to digestion, but an antiseptic, and has doubtless done more harm than good. It would be well to cut out the Kafir and Gyp corn altogether and stick to barley, wheat and rolled oats, and not too much of either. If the birds are on good range they do not require heavy feeding, and will forage more if they are kept hungry. For the pendulous crop the only remedy, outside of a surgical operation, is a tight bandage, which will not permit it to be filled. A little baking soda in the drinking water will relieve the sourness, but do not use it more than once or twice. Pure, clean water is absolutely necessary to the health of fowls.

Mash Formulas

We wish to mix our own mash for hens and for pullets. Will you kindly print a well balanced formula for each. We have R. I. Reds and are feeding beside the laying mash 2 parts milo, 1 part wheat and 3 parts (by measure) sprouted barley. Hens are confined in Corning house and are giving very satisfactory results. Would appreciate any suggestions.—Subscriber, San Diego.

The ration used at the California laying contest at Santa Cruz is probably as good as any for laying hens. The scratch mixture consists of equal parts by weight of wheat, cracked corn, milo maize and whole barley. The mash mixture contains 240 pounds bran, 180 pounds ground oats, 180 pounds middlings, 80 pounds soy bean meal, 60 pounds beef scrap, 60 pounds fish meal, 30 pounds charcoad and 4 pounds salt. As soon as they are thoroughly mature and beginning to lay the pullets should receive the same ration. To insure symmetrical development and put off laying till they are of suitable age and maturity, try this conditioning meal which is recommended by a prominent poultryman: Bran 640 pounds, low grade flour 200 pounds, ground wheat 200 pounds, corn meal 300 pounds, ground milo 200 pounds, high grade meat scrap 50 pounds, ground green bone 75 pounds, charcoal 35 pounds, salt, 10 pounds. This is put before the pullets as soon as the first egg is laid and kept before them till they are laying so many that they can no longer be held back. This matter of conditioning pullets will be taken up more fully at an early date. The scratch mixture you are feeding may be quite as good for R. I. Reds as the Santa Cruz mash which is intended for Leghorns and contains rather more corn than Reds need, especially in summer.

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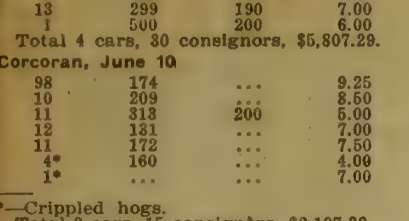

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The right foundation for Biscuit-making

In this article Belle de Graf treats a topic dear to the hearts (and stomachs) of us all. Piping hot biscuits—what would our meals be without them? Nor is Mrs. de Graf content to stop at biscuits proper. For she proceeds to show how versatile is the biscuit dough foundation at the hands of the ingenious housewife.

—EDITOR.

PERHAPS you have never stopped to consider the possibilities of the ordinary biscuit dough. This mixture lends itself to an infinite variety of good dishes.

It is quickly mixed and baked, and has the additional advantage of being one of the most inexpensive mixtures to make. Many very palatable sweets can be prepared from this dough, besides several varieties of bread.

Biscuits, scones, shortcakes, meat pie crust, fruit dumplings (steamed or baked), cinnamon or raisin rolls, cheese puff—there seems to be no limit to the number of things it is possible to prepare by using the biscuit dough foundation.

However, you must bear in mind that biscuit mixtures, to be at their best, should be served while fresh, generally direct from the oven. A heavy biscuit is usually due to inaccurate measurements and too slow an oven. This class of dough takes a hot oven; in fact, this applies to most all breakfast breads. Then, too, the amount of baking powder for the quantity of flour must be correct.

When sweet milk is used, always remember that two level teaspoonfuls of baking powder are used to each cup of sifted flour. This never changes, no matter how many cups of flour you are using.

If you use sour milk or buttermilk, soda will be your leavening agent. In that case remember that one-half teaspoon soda is used to each cup of sour milk. Or, you can use one-fourth teaspoon soda to neutralize the acidity of one cup of sour milk and one teaspoon of baking powder to each cup of flour.

And here's a closing word of caution: Never dissolve soda in the sour milk, as that process releases the gases too soon and the dough will be less light. Always sift the soda with the flour for biscuit doughs. Sour milk can be substituted for sweet milk in any recipe if these rules are followed.

Sperry Baking Powder Biscuits

2 cups Sperry Drifted Snow Flour; 1 teaspoonful salt; 4 teaspoons baking powder; 2 tablespoons shortening; ¾ cup milk or equal parts of milk and water.

Mix and sift dry ingredients; work in shortening with knife or finger tips. Gradually add the liquid, mixing it with a knife to a soft dough. Toss on a floured board, pat or roll lightly to one-half inch in thickness, cut with biscuit cutter, place in pan, brush over the top with either melted shortening or milk. Bake in a hot oven twelve to fifteen minutes.

Belle de Graf

Director Sperry Domestic Science Department

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

Los Angeles — An Illustrated Weekly for the Rural Home and Ranch — San Francisco

Vol. LVI — June 25, 1921 — No. 26

UNIVERSITY OF CALIFORNIA
JUN 2- 1921

The Makin's of Mohair. Scene in New Mexico

See Article by Mr. Dahl on Page 825

Established 1877 Forty-fourth Year

CALIFORNIA CULTIVATOR

and LIVESTOCK and DAIRY JOURNAL

A Journal of Horticulture, Agriculture and Livestock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

Vol. LVI No. 26

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C. B. Messenger, Editor.
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The San Francisco office is Room 822 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

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Member Audit Bureau of Circulations.

Entered as second-class matter February 12, 1900, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Saturday, June 25, 1921

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

If any of the 40,000 Cultivator subscribers fail to find any article they desire to purchase advertised in the Cultivator's columns, a special request is extended you to let your wants be known to the California Cultivator and we will place you in touch with proper parties.

EDITORIALETTES

According to the census of 1920 California has 115,759 goats. Nearly 80,000 of these are raised for fleeces. Presumably the greater proportion of the remainder, or some 36,000, are milk goats. Our greatest goat county is Tehama with slightly over 15,000. Doubtless practically all of these are raised for their fleeces. The number of goats in the state in 1910 was 138,413. It will be interesting to note the more complete returns when forwarded by the census bureau as to the increase in number of milk goats. The scene on the cover of this issue is not a California scene but may help in giving an idea to some of us of the great importance of the fleece goat in building up lands and proving a profit bringer, especially to lands of little value for other purposes.

* * *

The Curtis Corporation, packer of olives, has filed suit to recover damages to the extent of $1,000,000 from the board of health of the city of Detroit. This because of alleged rulings and publicity during the botulinus poisoning scare of a couple of years since.

* * *

Changes have been made in several state offices at Sacramento. Harry S. Maddox, formerly with the chamber of commerce of Yolo County, later with the Sacramento County chamber, and a short time ago appointed sealer of weights and measures, has been appointed state market director. Former Market Director Gilbert B. Daniels has been appointed by the governor to membership in the state board of control, succeeding Marshall De Motte, and by the board has been elected its chairman. Robert C. Melvin has been appointed to the weights and measures work. Presumably these appointments will hold only until the reorganization of these various departments under the state department of agriculture.

* * *

CARPENTER, D. Sc.

Dr. Ford A. Carpenter, author of article on Page 823 of this issue, has been honored within the last few days by Occidental College in the conferring of degree of Doctor of Science "for accomplishment in practical research in the field of aeronautic meteorology, for the successful application of the principles of weather science for the benefit of agriculture, thus contributing towards making the air safe and the ground productive."

Dr. Carpenter has entered an entirely new branch of agricultural work and is finding opportunity to give to producers information which makes for far greater certainty in farming operations which are affected by meteorological conditions.

The Los Angeles chamber of commerce has seen the importance of Dr. Carpenter's work, and he is gathering data which will prove of great value to future producers. In addition, his work has extended to several large ranch companies.

SALES TAX

I note your insertion in the center of Page 734, California Cultivator of June 4, 1921, of a quotation from H. C. McKenzie of the federal farm bureau.

I like to ask questions. Here is one: Why would not a federal sales tax give cooperation such a boost that in the long run it would benefit both the producer and consumer? Why not by cooperative buying and selling entirely eliminate the middleman and place cooperation on the proper basis?

If it were not for from three to six or more turnovers I could not buy cheaper from a mail order house than from my home town merchant. If he, Mr. Home T. Merchant, were forced into cooperative buying with the fellow across the street, in preference to going out of business, we would all benefit.

Now some of us would go broke during this "period of readjustment" just as we are likely to do anyhow, but I think this same sales tax would be a club which could and would be made to work both ways.

As an instance of how the sales tax might work I would think the California Associated Raisin Company could, by selling direct to the wholesaler, very much undersell an "independent" outfit.

If I am wrong, all wrong, be good enough to tell why.—Lawrence Beckwith, Tulare.

We cannot see where adding from three to six sales taxes to the price of the farmer's product will result in anything other than loss to him and ultimate disaster. The farmer never has been able to name his price. Price naming is possible in various "exchanges" or possibly at times by the ultimate consumer. It may be that by putting a burdensome tax on these products some of the middlemen will be forced out of existence, but our venture is that the middleman's power of passing the buck to the farmer will be no less under sales tax than it is today, and the most casual observer of us all has a reasonably close guess how this has operated in the past. The fact that our Tulare subscriber and others have not succeeded in making their home merchant quit because of patronage of mail order houses is one indication of how more burdensome taxes would not operate. The selling of our dozen of eggs direct to the consumer is attractive in theory, but as the world is now constituted the consumer has formed the habit of dealing with his home merchant, and there are advantages to him which will induce him to continue, and we do not believe that the world will take a step backward and eliminate the great distribution machinery.

Now this is not a word against cooperation in marketing, but we believe that the true cooperators in marketing coordinate their forces and handle marketing conditions as they now exist rather than as we wish they were.

UNFORTUNATE ATTACK

The United States Bureau of Public Roads made exhaustive investigation of California's state roads. There were 7,500 photographs taken; 638 cores were drilled in pavements at intervals on the 800 miles of highway between Red Bluff and San Diego; a traffic census was taken at 103 stations; a report covering 500 pages was made, and from its conclusions we note: "The work of the state highway commission and of the highway engineer shows a continuous and intelligent devotion to public duty. Their construction operations have been widely extended under greatly varying conditions. A high degree of standardization was doubtless necessary and is evident * * *. The operations have produced a large mileage of very serviceable roads and of continuing benefit to the state."

In transmitting the report Secretary Meredith said: "I trust this study may prove of service to the California highway commission and to the people of California in continuing their program of development upon which such splendid advancement has already been made."

The chief of the federal bureau stated: "The financial administration has been scrupulously honest and careful * * *. There should be no hesitation in going forward with confidence."

The Automobile Club of Southern California is mailing to its members under date of June 16 a return postcard ballot on which is opportunity to ballot on the matter of endorsement of the attitude of the club opposing the highway commission and its work, and attempting to show "that our state highways are inadequate to meet the needs of the traffic over them because built upon insufficient foundations, without proper preparation of subgrade * * * poorer in quality than similar highways now being built by other states, etc."

We presume the state highway commission makes no claim to producing the ultimate, or the perfect, highway. It is honestly endeavoring, however, to fulfill the demand of the voters of California. When they voted upon the proposition of bonding the state for $40,000,000, it was with the idea of a certain number of miles of construction on routes fairly definitely outlined at that time. War came on; costs went up; road bonds went down; and the commission has been confronted by difficulties other than those of mere heckling. The start was made with a four-inch by 15 foot base. Heavy traffic over these roads since the beginnings of their construction has increased some 1300 per cent, the four inch base proved inadequate, and in rice fields and alkali sections where a perfect sub-base could not be secured results were unsatisfactory. No one knows this better than the engineers of the commission.

Of course it has been best to widen and make heavier base construction. This has cost more money, and yet the commission is doing its utmost to reach the demands of the people in extending roads which will enable most economical transportation of our products to the markets and as quickly as possible. It has been estimated that the annual saving to producers and highway users of California is greater than the total cost of all California highways.

It is possible—and, in fact, the work already has been begun—to make heavier foundations of these earlier laid roads, and in practically all of the newer construction work in situations where the sub-base creates an unfortunate condition, reinforcing is practiced.

Californians take pride in their roads and we believe will look with little favor on the present attempt to discredit them.

EVER BEEN

LOST?

IT'S an unpleasant feeling that you need never experience again. Somewhere in your car you should tuck away

A Good Road Map!

The very latest one has just been issued by the **Puente Oil Company** showing the whole State of California.

HUNTING, camping and fishing locations are noted very accurately. This Map is being given gratis to AUTOMOBILE OWNERS in the southern part of the state. HAVE YOU YOURS?

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BENT RANCH Alpaugh, Tulare Co.

California Cultivator

Vol. LVI, No. 26 | Los Angeles, June 25, 1921 | One Dollar Yearly

Potato Planting in California by Climatic Surveys

By Dr. Ford A. Carpenter, Consulting Meteorologist

Illustrations by the Author

WHILE the climate of a place cannot be changed, yet when the meteorological factors are definitely known, land may be developed in accordance with these weather conditions, thus producing maximum efficiency. Of the three features, soil, water, and climate, the most important is climate. The factors of soil and water supply may be known and varied at will, but the value of the climatic factor cannot be determined until exact observations of accurate instruments and resulting studies are made. The procedure is now on a definite base, and in California we have the first direct and

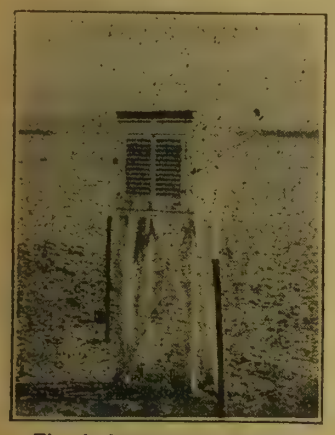

Fig. 1: Instrument Shelter.

In order to secure uniform temperature of the air and humidity observations, self-recording instruments are located in lattice covered boxes with double roofs. This method permits comparison with accepted meteorological standards.

practical application of agricultural climatology.

Two years ago a climatic survey of a large ranch in Southern California was begun and useful results secured at the very beginning. One feature was the planting of potatoes in various fields in an extensive valley on the ranch, and this in accordance with temperature contours. Initial work of this character was accomplished by the writer seven years ago on another large ranch in Southern California. The widest divergence in temperature and relative humidity has been found within short distances on both these ranches, and it is the correlation of successful crops with accurate air data that insures effective plantings. The margin between success and failure nowadays in agriculture is entirely too small to overlook any means which experience has proved efficient.

The subject of agricultural climatology is too extensive to be treated in detail within the compass of a magazine article, so attention will therefore be given to but one phase of the work, that of potato growing. Potato culture will be discussed, but only as planned with regard to temperature profiles of crop seasons and temperature contours of the district under consideration. By this method costly errors are prevented and absolute knowledge replaces the otherwise inevitable annual experimentation.

Instrumental equipment of known accuracy was naturally the first consideration. The thermometers had to be dependable, of the self recording variety and they had to be properly located. Thermographs, which record all variations in temperature minute by minute, were distributed generally over the valley. As the supply of recording instruments was limited, they were interspersed with standard (horizontal) recording minimum thermometers. The thermometers were calibrated; this was necessary although those of the best makers were selected. Thermometer exposure is shown by Fig. 1 which is an illustration of a standard U. S. weather bureau instrument shelter. Thermometers are thus sheltered because a number of errors enter into the readings of a thermometer exposed to the sun's rays. The instruments were visited at a regular hour each day by a trained field observer. The thermometers were read to the nearest tenth of a degree and the observation double checked. It has been found necessary to observe the utmost exactness in the matter of thermometer values, for slight differences in temperatures, which would pass unnoticed by an untrained person, ofttimes make or unmake the availability of the data for study.

Daily observations of temperatures were used in a diagram of variations in temperature of all of the stations. The daily variations are profiled by plotting actual temperatures in comparison with a "control" station. The profiling of the temperatures with relation to this control gives a definite basis for determining whether the several other locations are warmer or colder and the relative amount of variation. The control is shown on Fig. 3 as "Station C," and the other stations are designated by circled figures. Although much of the 40,000 acres of the ranch has been studied, only a relatively small portion is shown on the map. The district consists of a fertile valley of nearly uniform elevation above sea level. To all appearances it might be fancifully designated as a "lake of air," and the coldest portions would conform to the physical contours. Such, however, is not the case, for the orientation of the valley with relation to the land and sea breezes, the unequal heating of the north and south sides, and other causes contribute to much variation in temperature. The temperature diagram shows that within a quarter of a mile of the control station the growing season averages an increase of 30 days. In other words, plantings may be made approximately 15 days earlier in spring and harvested 15 days later in the autumn. The practical value of such a chart need hardly be emphasized to an experienced farmer. In the planting of potatoes, for example, it gave segregation to the one crop and the two crop districts. It also allowed the planting and seeding to be economically distributed. The diggers of the first crop and the planters of the second were able to work in harmony. This method greatly increased the value of the potato harvest of last year. This was partly owing to the extraordinarily high prices in 1920

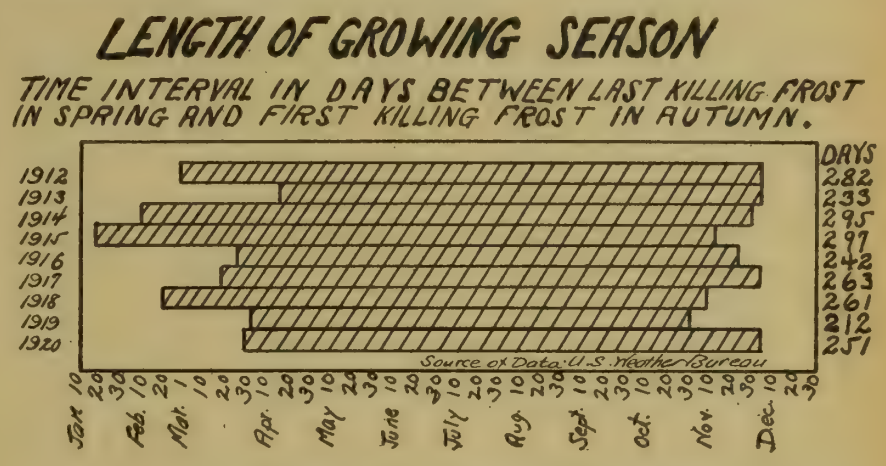
LENGTH OF GROWING SEASON
TIME INTERVAL IN DAYS BETWEEN LAST KILLING FROST IN SPRING AND FIRST KILLING FROST IN AUTUMN.
DAYS
1912 282
1913 233
1914 295
1915 297
1916 242
1917 263
1918 261
1919 212
1920 251
Source of Data: U.S. Weather Bureau
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

Fig. 2. Diagram Showing Length of Growing Season

A control station is selected having a long and accurate record. The meteorological data are carefully checked, and yearly, monthly, and hourly comparisons are made in order to secure a satisfactory constant. The diagram shows by shaded lines proportionate period of year when temperature was above freezing point. For example, the longest growing season occurred during the year 1915, January 15 to November 10, and the shortest, April 2 to October 30 in 1919.

and partly to the increased acreage made available by the climatic survey. Photographs of some of the potato fields are shown in Fig. 4.

As to the practicability of using climatic surveys for all plantings it may be stated that results show two outstanding facts: First, that general dependence can be placed upon temperature contours, or isotherms, over a a year or two (the longer the observations the better) will bear the same relationship to each other whether a particular season be cold or warm, wet or dry. So then it will be necessary to secure a "general control" station in order to extend the climatic record over a period of years, thus obtaining "normals." Byron's line, "The best of prophets of the future is the past," is as true in meteorology as it is in history.

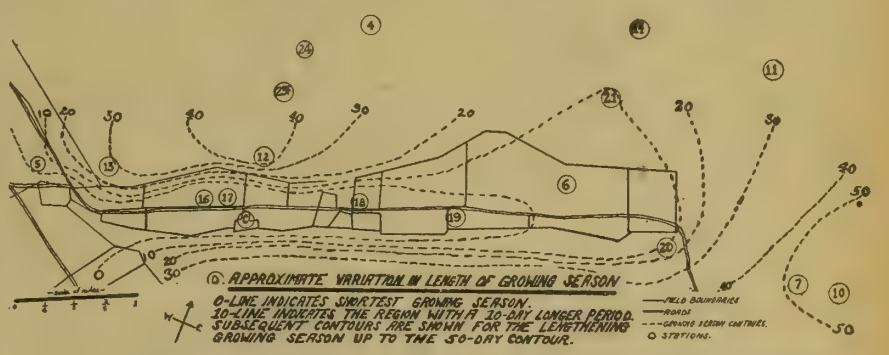
APPROXIMATE VARIATION IN LENGTH OF GROWING SEASON
O-LINE INDICATES SHORTEST GROWING SEASON.
10-LINE INDICATES THE REGION WITH A 10-DAY LONGER PERIOD. SUBSEQUENT CONTOURS ARE SHOWN FOR THE LENGTHENING GROWING SEASON UP TO THE 50-DAY CONTOUR.
FIELD BOUNDARIES
ROADS
STATIONS.

Fig. 3. Approximate Variation in Length of Growing Season Shown by Contours

surveyed district for succeeding years, and second, that other crops may be successfully grown without actually trying them out by simply taking the temperatures of a successful crop and applying to the surveyed region.

As to the dependability of the contours of temperatures holding good for succeeding years, we may enunciate an axiom that variation in the climatic factors of a limited area will remain constant to each other. Local variations discovered over a period of

A "general control" station would, in all probability, be one of the several thousand cooperative U. S. weather bureau stations. Cooperative stations generally have suitable instrumental exposure for they are situated in the smaller towns and in places where the instruments have ground exposures. A station of this kind, being not too far distant and having a not too dissimilar climate, was used for general comparison in this survey.

In this article only two of the five climatic factors of temperature, humidity, rain, wind, and sunshine have been touched upon, and only one crop considered, but this introduction to the new application of weather science to farming may show the necessity of adding climatic surveys to soil and water supply investigations essential to successful agriculture.

Fig. 4. Where Temperature Contours Enabled Intelligent Harvesting Operation.

Photo on reader's left shows Early Rose potatoes planted the middle of April and dug early in June of 1920. They brought an unusually good price as they were of fine quality and averaged large as shown in the photograph which represents three separate hills. Shortly after the harvest was finished in the field shown on right the ground was immediately prepared for another planting as the temperature contours of this district showed a relatively short season. The second crop was gathered successfully.

Agricultural News Notes of the Pacific Coast

Northern California

Two large fruit packing houses at Newcastle, Placer County, burned last week.

Loma Rica colony, in Browns Valley irrigation district, will plant 900 acres to figs.

It is estimated that California will harvest 150,000 acres of rice this season.

A large winery at Healdsburg has been purchased by Sebastopol Apple Growers Union.

Clarksburg, Yolo County, farm center is encouraging the building of a union school and community hall.

Cherry growers are not very happy over demand shown for their fruit. Canners are offering few contracts.

The Mono County board of supervisors has decided to fence state highways through the county where necessary.

Twenty thousand dollars worth of shook stored for the coming table grape crop was burned at Lodi last week.

Butte County is already planning for the coming state fair and has its appropriation in hand to cover the exhibits.

Chico, Butte County, has a temporary landing for airplanes and expects soon to have a permanent one near Edgar Slough.

Prospects are reported good for the building of a railroad along the Pit River to the great lumber sections in Modoc County.

Cull rice, which formerly found free sale to brewers, is now proving to be one of the best stock feeds, especially valuable to poultrymen.

A Yuba County superior court judge has ruled that it is legal for an alien parent to convey by deed or gift property to children who are native born.

Those interested in the irrigation project in Grass Valley have secured funds in excess of $5,000 that will be sufficient to finance preliminary steps.

Farmers of Siskiyou County are being compelled by the fish and game commission to screen entrances of their irrigation ditches to keep out the fish.

Strawberry growers associations are making special efforts to dispose of their fresh fruit to retail dealers as canners seem unwilling to make contracts.

Modoc County wool producers say that they now have two or even three seasons' clip still in storage with "rumors of offers ranging from 17 to 22 cents."

More than 65 women representing eight of the farm home department centers of Alameda County gathered in annual picnic at Laurel Grove the last Wednesday in May. Reports of work accomplished show enthusiastic support of all the activities of the department.

Canning interests and Indian fishermen on the Klamath River in Humboldt County have started proceedings to prevent building of dams at the mouth of the Salmon River and south of Orleans. They say the building of these dams will ruin the spawning grounds on the Klamath.

Central California

Los Banos, Merced County, is building a new creamery.

Kings County reports a 45 per cent crop of apricots and peaches.

The California Olive Association reports prospects for heavy crop.

Stanislaus County planted two and a quarter million grapevines this season.

Exeter, Tulare County, shipped its first car of peaches and plums, June 1.

Prof. J. W. Nelson is planning to make survey of soil conditions in Stanislaus County.

Monterey and Santa Cruz Counties report salmon plentiful and running close to shore.

"West Side" farmers have contributed a carload of grain for Colorado flood sufferers.

A 20 acre vineyard at Kerman, Fresno County, was sold last week at $1,500 an acre.

The traveling school of fig growers in the San Joaquin Valley is reported a huge success.

Fresno County alfalfa growers have organized and will affiliate with the state association.

Melon growers of the valley recently met at Turlock and discussed marketing and shipping problems.

Madera County Milk Producers are signing up in the reorganization of the Milk Producers Association.

The Corcoran farm bureau center of Kings County is working to secure better mail service for that district.

Hughson, Stanislaus County, is planning to use the building of the big sorghum syrup factory for early season canning.

The Central California Milk Producers Association recently held meeting in Modesto, discussing work of the coming year.

All the apricot producing sections began cutting for drying earlier than usual. Lemoore cutting sheds were in full swing June 12.

A large factory has been established at Visalia for manufacture of grape juice, making special use of cull and second crop grapes.

The Pajaro Valley chamber of commerce is pushing for extension of good roads work and especially for completion of work now under way.

Farm Adviser Sullivan of Kings County has secured an assistant to aid in checking up experiments in pruning and fertilizing alfalfa.

Much of the wheat and barley put in west of the Kings River and in Huron Sinks has been a failure owing to dry weather and heavy winds.

The dairy department of the Kings County farm bureau claims to have added seven silos to the 25 in operation last year, through its silo campaign.

Fresh apricots are not commanding as fine prices as were expected in the East. The quality is fine but the buying public seems to have poor appetite.

The Lodi Tokay district expects its finest crop this season both in quality and quantity. Grapes of all varieties are reported setting heavily in that section.

Southern California

Palo Verde Valley has organized a drainage district.

Palo Verde Valley is making experimental plantings of hemp.

Melon shippers of the Imperial Valley are materially aided by the federal bureau of markets.

A new warehouse and packing house has been built at Yucaipa to receive fruit and vegetables.

Farm bureaus of Southern California are planning to make a combined exhibit at the state fair.

Santa Barbara and Ventura County walnut growers report "Walnut crop far advanced, big crop."

Southern California fair folks at Riverside are making bigger plans for their fair October 11-16.

Lima bean fields, replanting of which was made necessary by the rains, are now showing green again.

The farm bureau of Riverside County has made contracts for the printing of a new farm bureau monthly.

Riversiders are planning a memorial for Mrs. Tibbetts who planted the first two navel trees in California.

Imperial Valley people are planning celebration in honor of the completion of the Indio-Brawley highway.

Apricot orchards of Riverside and San Bernardino Counties report frost damage not so severe as feared.

Indian reservation near Banning has disposed of its apricot crop for $60 per ton, this, however, only for selected fruit.

A butter and egg storage plant has been opened at San Bernardino. The egg room has a capacity of 10,000 cases.

Garden Grove, Orange County, is planning for large participation in the Orange County fair at Huntington Beach.

Yucaipa Valley is ready to market Bing, Royal Anne and Lambert cherries. The Tartarians have all been shipped.

The Sespe Light and Power Company is beginning work on a great development project in the mountains of eastern Ventura County.

Santa Barbara farm bureau is observing farm bureau week. Every farmer in Santa Barbara County is being given opportunity to join.

Apricot dryers are pleased with the sunshine which has been given during the last few days. It has been an exceptionally cool, foggy season.

Coachella Valley, Riverside County, producers are discussing generating their own power, a step which is made necessary by excessive charges.

Citrus people have refused the offer of railways to give lower freight rates if the shippers would refrain from further plans for water shipments.

Riverside County Beekeepers met recently and discussed markets. An address was made by Manager Millspaugh of the State Honey Producers Exchange.

The newly formed date company is planning to take over the packing plant at Coachella, formerly owned by the California Date Growers Cooperative Association.

The Coast and General

Don C. Mote has been reappointed state entomologist of Arizona.

Arizona has 3,265 acres in cantaloupes this season; New Mexico, 2,200.

Prizes are being offered by the Signal Peak farm bureau of Pinal County, Arizona, for the best exhibit of six potatoes.

Chandler, Arizona, banks are back of the junior and vocational classes in agriculture in the purchase of pure bred calves and pigs.

The cooperative association of New Jersey cranberry growers reports an average price of $10.58 per barrel on a total of 82,516 barrels sold.

Construction charges on the Salt River Valley project for the years 1920 and 1921 have been deferred for a period of 12 months, dating from December 1, 1921.

The receipts of the Phoenix, Arizona, postoffice show an increase for the past five months, said to be the largest of any first class postoffice in the United States.

The dry weather still continues on the ranges of Arizona. With the exception of a few localities the range throughout the state is the poorest for many years. On the Mogollon plateau south of Flagstaff there is a small area where the grazing is good. In practically all other parts of the state the range is from 30 to 50 per cent of normal.

The Bankhead highway of the state has been routed through the following towns: From Rodeo, New Mexico, to Douglas, to Bisbee, to Tombstone, to Benson via Schieffiin Monument and St. David, to Vail via High Bridge to Tucson, to Florence, to Chandler, to Mesa, to Tempe, to Phoenix, to Hassayampa River via Coldwater, Buckeye and Palo Verde, to Agua Caliente via Summit pass, to Wellton via Palomas, crossing Gila River at Antelope Hill bridge, to Yuma via Dome, to El Centro, California, and then to San Diego.

E. S. Turville, county agricultural agent of Pinal County, Arizona, states that about 70 per cent of the grape cuttings put out this spring are living. Many of these were shipped in and were subjected to the hot water quarantine regulation which has resulted in the loss of many cuttings. As an example of what may be done he cites the case of one vine in the garden of D. H. Prettyman of Casa Grande. This was planted from a cutting March 1, 1920. On May 27, 1921, when it was inspected, it covered a space on a trellis 7½ feet high and 9 feet wide and carried 43 well filled clusters of grapes.

A California company has filed articles of incorporation for the building of a dam in the Colorado River, which it is claimed will produce 4,350,000 horsepower, equal to one-half of the total hydro-electric power now generated in the entire United States. Provisions are also being made for the irrigation of 2,250,000 acres. Arizona, Nevada and Utah, more than one-half of Colorado and New Mexico, and one-fifth of Idaho and Wyoming, with possibly large areas in northern Mexico, and three-quarters of the state of California may be served with electric power. The cost is estimated to be between $600,000,000 and $800,000,000.

Planning the Garden

By Ernest Braunton

THOSE having well established gardens may fancy they are not interested in garden planning; that it is a subject only for those about to solve the problems of a new piece of ground. There is no place of great extent, and but few small gardens, that could not be changed for the better, and there is no garden but may be changed somewhat, somehow and somewhere without much expense or sacrifice, so that all should be interested in the rules governing landscape gardening, now recognized as one of the fine arts.

Though there are many rules which govern the landscape designer they fall into three divisions and all others are subordinate: Preserve open centers; plant in masses; avoid straight lines. These three rules of three words each constitute the text of this garden sermon. Each rule is violated in our midst every day in some gardens. There are, of course, exceptions that cannot fall under these rules, but these are small city lots that necessarily dodge the third — "avoid straight lines." It is better, perhaps, in small places to have none but straight lines. One of the lesser rules of landscape art is that lines close to buildings should parallel those of the buildings. On a small lot one cannot get far enough from the house to diverge from these parallel lines.

Preserve Open Centers

A consideration of this rule presumes that we are to have one or more enclosures, that the garden owner is not one of the votaries of city fashion that dictates the open, unadorned lawn so common everywhere. We are to have a border plantation, a fence, wall, hedge, whether the latter be formal or informal the plan and planting will be orderly. The garden, especially in our climate, should be considered an outdoor extension of the house and therefore necessarily enclosed, and actually closed, by a gate.

Nature preserves open centers. We have broad stretches of open country or little glades surrounded by forests or woods, though far less common and less marked in California than elsewhere. But California is "unnatural" compared with other states; the plan and disposition of landscapes violate all "rules" so evident elsewhere, even as we violate this first and most important rule of landscape design. Few appreciate the possibilities of even the smallest lot. Instead of keeping the entrance walk to one side the front space is about equally divided by the concrete walk from street to front door. This leaves a space on either hand about as large as a tablecloth. In the center of these puny spaces a palm or other large growing plant is placed. Your "open center" has vanished. You can no longer stand in the front yard and view the landscape about you. Have your entrance walk near to one boundary, leaving not less than three feet, far preferable is six feet, on one side. Group shrubbery in the borders or margins so you will have a framed greensward. If you will have palms, plant the fan leaved or the beautiful Cocos plumosa in the borders; do not use the spreading date palms.

Plant in Masses

Do not isolate "specimens" in all parts or you have an orchard. Orchards are so disposed for economic reasons, ease and uniformity of irrigation, cultivation and harvesting to give each tree an equal space and chance. Art is not present or considered. All is based on utility, for commercial results. Group each kind of shrub or plant by itself, thus adding a character to that part. It may be acacias or roses or carnations. Do not have some of each plant in all parts of the garden or character is lost, and charm, interest, attractiveness have been shut out. Woman preserves open centers in the rooms by arranging the furniture around the walls. If the room is large chairs are grouped in corners and convenient parts, with other furniture intervening; chairs are not spaced one to every four or six feet, etc. Collections of minerals, Indian baskets and other curios are kept each by itself. See that the garden planting is so carried out whether it be of cabbages or chrysanthemums.

Do not crowd everything into the front yard and leave the rear garden bare. You have to live equally with both ends of the garden. Don't be like the timid street car passenger who asked: "Which end shall I get off?" And the sensible but caustic conductor answered: "Either; both ends stop." Both ends of the garden are yours and yours only. Don't plant for the public, the "look-at-me" type of garden, plant what you please and have a backyard laid out on the same plan as the frontyard and equally pleasing. The lawn here may be a drying ground, a place for children to play, perhaps an outdoor dining room. It may be better in size and effect than the frontyard, as often no bisecting path is necessary. One may have more of privacy, seclusion, intricacy of design than in the more public part, though all these points should be aimed at in all parts. Do not be afraid of massing or planting thickly or of crowding against the boundary. You do not get behind border plantations. They have but one face and that is toward you.

Avoid Straight Lines

Nature makes no straight lines nor can man without some contrivance like a ruler, straight-edge, taut string, etc. If one thoughtlessly strolls from one point to another, pursuing what he thinks is the shortest distance between two given points, he will find by looking backward he has made a path of faint but beautiful curves. All who have walked over freshly fallen snow know how far these paths diverge from straight line. The canopy above us, the horizon surrounding, the lines of bird or horse, river or lakeshore are graceful curves, never straight. Nature never intended man should make a straight line or try to. Economy alone moved him to make straight lines for crops, property lines, business streets, business buildings, etc.

But in avoiding straight lines do not be absurd. A walk of ten feet from street to door cannot well be curved. Neither should one curve that is only three or four times as long as its width. If it is a concrete walk of ten feet in width and 50 in length, it should be straight. Such a walk belongs to a school, church, library, etc.; it has no place in home grounds except it approaches a pretentious mansion. If 50 feet long and three to five feet wide it may curve. If possible do not have the gate opposite the front door so the public may look directly into the house. The latter is a private, not a public building; why should the same rules prevail? Plant a shrub or group of plants between the two points and make it appear necessary for the pedestrian to leave his course to avoid the object, even as animals in the cow trails avoid a rock, bush, knoll, etc.; even as a river is deflected from its course by a huge rock, cliff or other obstruction. Present a reason for curves other than an absurd desire to see things "squirm" or twist.

What is the true test of garden planning? How may you measure success? If the artist comes to sketch; the photographer, amateur or professional, calls to "snap"; if passersby stop to soberly study, even though mute, you have built a picture. Such effects woo all, child as well as adult, the busy man from the skyscraper, the tiller of the soil, the grave student or the thoughtlessly gay, to come again and again, perhaps to enter that they may the more admire. The tired, overtaxed worker, whether laborer or banker, will here find relaxation and rest, a return to nature. Would that all could so garden.

The Goat Industry in the United States

By Arthur L. Dahl

IN comparison to their size goats give very large amounts of milk, for the average doe will produce from two to three quarts a day or from 10 to 18 times her weight in milk annually.

Goat's milk does not have the "rich" appearance of cow's milk, since it is invariably pure white in color, but this does not imply that the milk lacks the food qualities of the cow's. The fat globules in goat's milk are very small and rise to the top very slowly, or not at all, so that the cream from goat's milk is seldom skimmed. From experiments made at the New York agricultural experiment station it was found that the fat in goat's milk varied from 3.2 to 4.4 per cent; the solids, other than fat, ranged from 7.72 to 8.61 per cent, and the total solids ranged between 11.4 and 11.9 per cent. A chemical study indicated that there is no essential difference between the constitution of its casein and that of cow's milk although marked differences were observed in the salts of the ash as compared with the ash of both cow's milk and human milk, but the effect of these differences has not been fully determined.

A large number of milk goats were kept for experimental purposes at the New York agricultural experiment station and the milk produced was used largely for infant feeding at one of the nearby infant asylums. It was found that the milk was especially valuable for building up the physical condition of very young children who lacked the ability to properly digest or assimilate other milks.

Goat milk is not used to any extent for making butter, but is in cheese making, and several distinct varieties are made entirely from goat's milk or a mixture of goat's and cow's milk.

While the number of goats in the United States is comparatively small the industry is growing, and it is said that there is a steady demand and ready market for all pure bred milk goats that are bred here. At the present time there are 304 farmers engaged in the business of breeding and developing pure bred milk goats, and over ten per cent of the goat farms are owned and operated by women. Several of the largest goat ranches are located in California, where the number of animals kept runs up over a thousand. Within recent years San Diego County is coming to the front as a goat developer, several large ranches there operating with different breeds of milk and fleece goats.

While there are a great many different breeds of goats in European countries only a few of them are found in considerable numbers in the United States. Of these the most important are the Toggenburg, Saanen, Nubian and Maltese. The Toggenburg comes from the valley of that name in Switzerland, where it has been bred for centuries. Its prevailing color is brown with white markings. As a rule this breed is hornless though horns sometimes develop in individuals. The head is long, ears of medium size and ordinarily held erect, the neck long and slender, and there is usually a beard which on the male is long and heavy. The goats are very hardy and do well in America.

The Saanen is another Swiss breed quite similar to the Toggenburg in general conformation but heavier. It is white or cream color and usually short haired.

The Nubian is a native of Nubia, Upper Egypt and Abyssinia and although a valuable breed is not very well represented in America. Its important peculiarities consist of long, drooping ears, convex face, forehead especially prominent, while there is a depression at the nostrils and the lower jaw projects slightly beyond the upper. The Nubian goat is large, with short fine hair, colored black, dark brown or tan, and with or without white markings. The breed will not stand as rigorous a climate as some of the other breeds, and most of those in this country are found in the southern part.

A number of Maltese goats are found in Texas and New Mexico where they have a good reputation as milk producers. This goat is white or grayish in color, but many have brown, black or reddish spots.

Throughout the South are to be found a large number of common, or "American" goats, but most of these are poor milk producers although they

(Continued on Page 832.)

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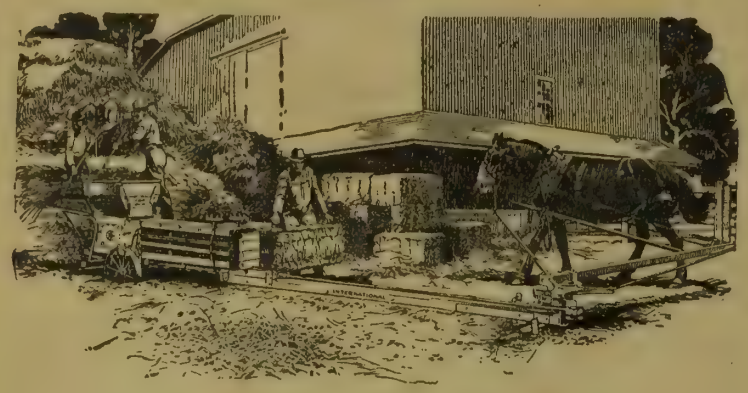

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Fumigation

SO long as fruit trees exist it is probable that insects will continue to levy tribute, and once the tribute is levied there is similarity to other taxes in that it is dead certain to be collected. Our orchardists have escaped, or at least secured a degree of relief, in a very few cases by fighting the injurious insects with other or beneficial insects. In this particular there have been one or two outstanding successes, especially in the vedalia-white scale fight.

The great mass of our injurious insects demand to be killed very dead before they will relinquish their right to levy tribute. The success of fumigation has been sufficient to cause the building up of a great industry in the manufacture of tents, of poisonous gases, and in organizing operating crews. Spraying has likewise proved efficacious, and in some cases is useful where fumigation is impossible. Such cases may be noted as red spider, aphis, and a number of other insects, and, of course, nearly all fungous or other plant diseases. Fumigation has been commended because of its success, and on the other hand has proved rather expensive, but the expense has been justified by its effectiveness, at least in the eyes of a great majority of the scale fighters.

Now comes the gas tight tent, at least it is here in theory and presumably soon will be in practice, and it is hoped that this will very materially reduce fumigation costs. We quoted some months ago from address by Prof. Quayle at the last citrus institute held at San Bernardino. We quote again from that address, giving only the summary, or general conclusions teached by Prof. Quayle:

Summary Made by Prof Quayle

With the use of gas tight covers not only better and more uniform results can be secured but results can be secured where it is not now possible to get results with canvas tents.

Wind (unless a strong wind) does not interfere with fumigation with gas tight tents and the results are not impaired as is the case even in a slight wind with canvas tents.

Humidity or moisture does not increase the injury to the tree because the gas tight tent does not vary in gas holding capacity. The tents also dry more quickly and mildew less readily.

Leakage of gas through the tent, which is the most variable and serious factor in fumigation, is prevented.

It is possible to determine a constant, or dosage for each scale, that will apply to any particular district.

Greater safety from injury to the tree and fruit, because there is less variability in dosage, is insured with gas tight tents. (This does not apply to work done in sunlight.)

With rubberized gas tight cloth the patching and repair work on tents is easily and quickly done in the field.

With the reduction in amount of hydrocyanic acid requred the use of gas tight covers should eventually reduce the cost of fumigation to the grower.

* * *

At the same institute J. A. Prizer, superintendent of the Merryman Fruit Company of Tulare County, gave a general review of a year's observation with spray pump and fumigation. Fumigation is very generally used in that field as is shown by Mr. Collins' figures taken from Mr. Prizer's address. Mr. Prizer said:

"The only scale insect of real importance in central California, and for which fumigation is practiced, is the Citricola. Fumigation for this pest has, on the whole, been very satisfactory. The records of the county horticultural commissioner, Chas. F. Collins, from 1916 to 1919 inclusive, show that a total of 10,192 acres was fumigated during this period, and of this amount there was rated as unsatisfactory only 94 acres. These records contain complete data on weather conditions, conditions of tents, time of exposure, dosage, cost of the work, and results for every orchard fumigated. Mr. Collins and his deputy commissioner, Frank Brann, both state that fumigation has been very successful in controlling citricola, and with such data to back them up we must accept this as final."

In this particular Mr. Prizer's conclusion is:

"It would seem that in cases of heavy infestation of scale the only means of control to employ is the same in Tulare County that it is in the south, fumigation. Then it would seem to be possible after a good fumigation to hold the scale in check and at the same time control the thrips by light summer spraying put on in May, June and the first part of July. If a program of this kind can be carried out, clean fruit of good quality will result."

NUTTING DATE TREES SAVED BY VALLEY RANCHERS

Says the Associated Grower: "The five year struggle of W. R. Nutting to establish the date industry in the San Joaquin Valley was saved from defeat by hundreds of ranchers last month visiting the Nutting date palm ranch near Sanger and carrying away thousands of young palms to plant on their own places. Mr. Nutting, having sold the ranch, was required to remove the palms and give possession. As a result of wide publicity in the newspapers and agricultural magazines of California and the appeal of W. E. Packard of the state land settlement service to salvage the palms and save to the San Joaquin Valley a possible industry of value, hundreds of ranchers have either bought the palms from Mr. Nutting or taken them from him with the expectation of growing them on shares.

"Mr. Nutting was very much gratified by the public spirit shown by the growers and as his original idea was to develop date palm growing on a co-operative basis, he believes that as a whole the situation for the future is promising. Just to what extent the date industry may develop in the San Joaquin Valley no man knows. While many varieties will not mature here, it is believed by such authorities as Professor Packard that careful supervision of the plant breeding will result in the development of a strain suited to our soils and climatic conditions.

"Thus another splendid dream of Mr. Nutting's may come true."

Book Review

MANUAL OF SUBTROPICAL FRUITS

"Manual of Tropical and Subtropical Fruits, Excluding the Banana, Coconut, Pineapple, Citrus, Olive and Fig," by Wilson Popenoe, agricultural explorer, United States department of agriculture, published by Macmillan Company, New York, for $5.00.

Wilson Popenoe has performed a distinct service in gathering this great fund of informaiton as to tropical and subtropical fruits. Among the hundred or more fruits discussed are the following: The avocado, which seems destined to rank with the olive because of its high oil content; the cherimoya and the sapodilla, neglected and delicious fruits for table use; the guava, the mango, the Chinese litchi, the breadfruit, the loquat, the papaya and the jujube.

It is a book of 474 pages, 16 chapters, a bibliography and a complete index. There are also 24 full plates including the frontispiece. Different chapters touch upon outlook for tropical fruit, avocado, mango, annonaceous, dates, papaya, loquat, myrtle including the guava, feijoa and many other fruits now little known in California, litchi, sapote, kaki or Japanese persimmon, pomegranate, mangosteen and breadfruit. In addition each of these chapters touches fully upon various relatives of the fruits under discussion. In the chapter on avocados there are four plates with many line drawings and nearly 70 pages of text. It is one of the most complete treatises on the avocado we have seen. It begins with the botanical description and then touches history, distribution of fruit, climate and soil, cultivation, propagation, picking, packing and mar-

keting. We believe the book may also be secured through F. O. Popence, Pasadena.

PINK BOLLWORM CONFERENCE

There was recently held in Washington, D. C., a conference of cotton growers to discuss the pink bollworm. There were representatives from Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Oklahoma, New Mexico, Arizona and California. California's representatives were F. W. Read of the state department of agriculture and Robert Armstrong of the International Cotton League of the West and the representative from Arizona was Don C. Mote. The conference made the following recommendations:

We indorse and commend the policies of the federal horticultural board in dealing with the pink bollworm situation in the United States. We wish, furthermore, to express our approval particularly of the work of Dr. W. D. Hunter, who has been in direct charge of the field work in the infested states; his energy, persistence and tact in dealing with an unusually difficult situation was especially to be commended. To his efforts and to those of the proper state authorities who have worked in cooperation with him, especially in Texas and Louisiana, the other cotton growing states feel deeply indebted that this pest has not spread more widely since 1917.

It is clear to the conference that the only practicable method of eradicating the pink bollworm is by the continued prohibition of the growth of cotton in infested districts for a period of years. The feasibility of extermination work where conducted according to the methods and maintained for the period of time recommended by the entomologists of the cotton states and approved by the federal horticultural board is completely demonstrated in the Hearne district, where a noncotton zone has been maintained since the fall of 1917 and intensive scouting each year thereafter has failed to show any recurrence of the infestation. Furthermore, it is apparent in the Trinity Bay district that the maintenance of a noncotton zone for one year is not long enough to accomplish extermination.

The conference believes that there is now a possibility of exterminating the pink bollworm but that this opportunity is one that must be taken prompt advantage of. On the other hand, we feel that the continuance of the infestation in any areas under regulated system is fraught with grave danger to the entire cotton industry. Therefore, we believe that the present establishment of regulated areas in west Texas and New Mexico should be considered only as a temporary arrangement, to be conducted only so long as may be necessary for appropriations to be made to maintain this district as a noncotton zone. In the meantime, also, we would recommend that efforts be made to secure the cooperation of the Mexican authorities in maintaining a noncotton zone on the Mexican side of the border. In order to provide further safeguard against the introduction of infestation we believe the immigration service should be so strengthened as to secure the movement of all laborers coming from Mexico into the United States through the proper points of entry where adequate inspections can be maintained.

In dealing with the pink bollworm situation adequate provisions by state laws should be made for a technical commission which should be vested with full authority in establishing the fact of infestation as well as exercising wide discretion in relation to the fixing of the limits of any areas which may be placed in noncotton zones or regulated zones, such zones to be continued in force automatically until changed by the act of the commission.

The remaining recommendations have to do with treatment, with conditions prevailing on the Mexican side of the line, with division of the costs of the eradication by various states directly interested and by the entire nation equally interested.

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Owners: Helena Orchards

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HAROLD SOMERS, 150 De Kalb Ave., Brooklyn, N. Y.

STRENGTH OF AGRICULTURAL ORGANIZATION RESTS UPON INDIVIDUALITY

By Bronte A. Reynolds

In analyzing the record of agricultural history, hardly 75 years old, it is obvious that wherever successful results have been realized those results have been made possible only through the close application and intensive development of the farmers and fruit growers cooperative organizations. And, too, as we scan the lists for successes and failures, we find uppermost and flourishing to be those particular organizations wherein unity of purpose was realized only through the high degree of efficiency on the part of its individual members, and also we find that their well being is in direct proportion to their individual interest and efforts.

Viewing these performances of the past with retrospective eye, we may see without undue exaggeration how truly the indifferent, the skeptical and in many cases disloyal individuals, as members, constituted the weak links that spelled failure or retarded the activities of a given organization.

From time immemorial we have been taught, and we have seen, that the only true index of efficiency and its foster brother, economy, lies in the concentration of effort through one single centralized head, and any deviation from that order results at least in the temporary impairment of the functions of the organization at large.

If we may now assume that organized agriculture has at last attained its rightful place among industries; if we look forward to and expect greater things of the agriculture of the future, let us now as individuals place the credit for these things on our respective cooperative organizations that through the centralization of effort assure success.

PREMIUM LIST OUT

The California Association of Nurserymen is mailing premium list for the "First Annual California Flower and Horticultural Exhibit" to be held at Exposition Park, Los Angeles, October 20-23. Entries on potted plants, trees and shrubs will close at midnight, September 20, and entries on cut flowers will close October 15. The show and fair are to be given by the California Association of Nurserymen, and in connection with them will be the eleventh annual convention of the association.

A large section of the sunken garden at the park has been turned over to the management and work is already under way in the plotting and planting so that many of the exhibits will be seen under ordinary field culture conditions. Reservations in the sunken gardens may be made with O. W. Howard, while entrance blanks and premium lists may be secured of H. W. Kruckeberg, 236 Court Street, Los Angeles.

There are a few medals, diplomas and other honorary awards to be made, but the showing of premiums carries some long purses in addition.

In connection with the convention of the association the ladies auxiliary will hold its fifth annual meeting.

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One-piece Piston Rings

eliminate pre-ignition troubles

because: they correct improper lubrication, which is the cause of fouled sparkplugs, pitted valves, and excessive carbon accumulation. And those are the harmful influences which give rise to pre-ignition troubles. Gill Piston Rings keep oil out of the combustion chamber not only because of the patented Gill leakless joint, but because they maintain a definite, firm, all-around, ***oil-proof*** contact with the cylinder walls through all the rigors of piston ring usage.

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Gill Service is nation wide. There are more than 2,500 stocks of Gill Piston Rings in the country. Some one of these dealers is located near you to supply you with whatever size you may want and the number you want ***when*** you want them. If your garage or repairman or accessory dealer doesn't happen to carry Gill One-piece Piston Rings tell him to get them from his jobber or from the nearest of our 39 Branch Offices.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Lease to Chinaman

Has a Chinaman the right to lease fruit land?—Subscriber, Sonora.

As between the lessor and lessee no prohibition has ever been made as to the leasing or purchasing of real property by aliens. The alien land law instituted by the initiative act in its essence declares that in an action brought by the state of California in its own name any title to or in real property of an alien not eligible to citizenship may on the judgment of the court be declared forfeit and escheat the estate. As between the individuals, however, such contracts are valid and enforceable.

Partition of Estate

Can the owner of an undivided interest in an estate secure an order compelling the sale and partition? This is opposed by the other owners owning three-fourths interest. — Subscriber, Los Angeles.

Such proceeding is authorized both before and after distribution of the estate. In the first instance, at any time after the elapse of four months from the issuance of letters testamentary or administration any heir or devisee or successor may present a petition to the court that his share of his estate be given to him upon giving bonds for his payment of the portion of the debts of the estate. Notice of this application is given to all other parties interested and if at the hearing it appear the estate is but little indebted, the court must make an order for the payment of such share upon the giving of bonds sufficient to cover the proportion of the debts due from the estate, but where there are no outstanding debts or where all such debts have been satisfied or secured with a mortgage the court may dispense with the bond. If a partition is necessary it must be ordered and made in the same manner as partition after final distribution, which constitutes the second case. Such partition may be ordered upon petition of any person interested after notice to all other of the parties interested in the estate. There are quite elaborate proceedings for the method of appointment of commissioners to make the partition, the method of equalizing the partition and the sale of the estate if it appears that it cannot be otherwise fairly divided.

Compulsory School Attendance

Does the compulsory school law require attendance during the whole of the eighth and sixteenth years, or may the child leave school after the sixteenth birthday even if only in the sixth grade What can be done to keep children in school who stay out a day or two each week? What can be done with trustees who neglect their duties with respect to the compulsory school law?—Subscriber.

The compulsory school law deals with children who have passed their eighth birthday and not yet attained their sixteenth birthday. After the sixteenth birthday they pass from the jurisdiction of this law, it matters not how far they have progressed in learning. The law imposes the obligation upon each parent, guardian, or other person having control or charge of any child under the purview of the law to send such child to a public full time day school for the full time for which the public schools are in session. If such parent or guardian fails so to do complaint may be made to the board of trustees or board of education by any person, the board must make an investigation of these charges, and if a violation of the act is found it is the duty of the clerk of the board to file a criminal complaint with the proper authorities and cause such charge to be prosecuted. It is made the duty of the board of trustees to appoint a truant officer to enforce the provisions of the act, or if no such truant officer is provided then the board of supervisors of the county may appoint. If the trustees fail to perform their duties under this act they are subject to removal in the same way as other officers, but a complaint made to the county superintendent of schools would probably have the proper effect.

Right of Survivorship

What exemption is allowed a husband who survives his wife under joint deed of survivorship?—Subscriber, Covina.

The provision of the inheritance act is that whenever property, real or personal, is held in the joint names of two or more persons, or deposited in such joint names, the right of the surviving joint tenant to such property shall be deemed a transfer taxable in the same manner as though the whole property belonged absolutely to the deceased joint tenant and had been devised by such decedent to the survivor by will, excepting such part as may be proved by the survivor to have originally belonged to him and never to the decedent. At another point in the act referring to this provision it is provided that in case of a transfer of community property of husband and wife held in joint tenancy one-half of such community property shall be held subject to the provisions of the act, provided further that the general presumption of law that property acquired after marriage is community property shall not apply for the purpose of the act, but the burden of proving such property to be community property shall rest upon the person claiming it as such community property. It is, therefore, quite difficult to state just what position the husband would be in in the case of such joint deed. Whether he would or would not be able to prove that it was community property would be one question. Another legal question would arise as to whether or not this act is in conflict with the general rule of community property. The husband's general exemption from tax is $10,000. In some of the eastern jurisdictions the opinions of the courts have failed to uphold the strict provisions of acts similar to this.

GROWTH OF FUNGI

The University of California has just issued a scientific bulletin entitled, The Temperature Relations of Growth in Certain Parasitic Fungi, by Prof. H. S. Fawcett. Four forms were used, all of them being parasitic on citrus trees. The one of most interest to our citrus growers is the brown rot of the lemon, a soil infesting fungus known to science as Pythiacystis citrophthora, named by Smith and Smith of the university. This fungus was found to develop best at a sustained temperature (for five days) of 75 degrees Fahrenheit. The other three fungi ranged from this to 82 degrees as the best temperature for highest rate of enlargement.

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Experienced farmers and agricultural experts—men who really know valuable land — have pronounced Opportunity Acres far superior to the world-famous Fresno grape lands. And in some instances grape lands around Fresno sell for $1,000 per acre and up.

Opportunity Acres lies in the heart of the San Joaquin Valley, famous the world over for the rich returns and the variety of crops successfully grown there.

Ideally situated, 4½ miles from Porterville, Tulare County, Opportunity Acres, a unit of 700 acres, is located in one of the most beautiful as well as profitable sections of the San Joaquin Valley. There is an abundance of pure water available from shallow wells, with a lift of less than 25 feet. Electric power serves this part of the valley.

Grapes, deciduous fruits of all kinds, berries, vegetables and all farm crops grow in luxurious abundance.

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The Price of Opportunity Acres is Exceptional

$245 Per Acre $295

Don't Wait—Act Now and Secure the Choice Locations

Be Independent, Buy in Opportunity Acres Where Nature Works With You

For every lick of work that you put in, nature puts in manifold. Proof of this statement is the almost astounding returns that farmers receive from the lands adjacent to Opportunity Acres.

A few short years of real work will reward your efforts far beyond your most vivid expectations. If you are a young man, strike out for yourself, get onto the soil, the one place where success can be acquired by the least number of years of hard work. Experience the thrill which comes with that pride of possession of something real and worth while in life. Tingle with that deep satisfaction of ownership as you stand at sun-down and gaze upon the accomplishments of the day.

There is no pride equal to the pride of Success.

Opportunity Acres Plus a Few Years of Work Equals Success

This Is Your Chance—Take Advantage of It.
WE RECOMMEND AND STAND BACK OF EVERY ACRE OF THIS LAND.

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Questions and Answers

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Dehorning Goat

Please tell how old Toggenburg kids should be to be dehorned. We did not take them young enough to use lunar caustic on them and I presume that the horns will have to be removed with a saw or with cutters. Which is the better, and what is the method of procedure?—Subscriber, Mecca.

The best way to remove horns from goat kids or from young calves is by the use of caustic just before or just as the horns break through the skin. After the horns have grown beyond this point it is necessary to cut them off. The use of a saw is preferable to the use of cutters, especially after the horn has become rather hard. The action of the cutters sometimes crushes the horn and cracks the portion remaining in the head, which often prevents it from healing properly. A saw is therefore desirable as it leaves no ill effects, although it takes a little longer to remove them by this method. The animal should be put in a stanchion where it can be held and the horns sawed off just as close to the head as possible. This makes a better looking job than if sawed a short way from the head and also prevents them from growing further. Usually there is some bleeding. Sometimes the horn bleeds rather profusely. There is seldom any danger of the animal losing too much blood, however. If blood continues to spurt out, a compress should be placed over the head to stop it. It is desirable to paint the base of the horn with pine tar, as this is a disinfectant, is healing and prevents flies from bothering. Pine tar can be applied two or three times if found desirable.—G.E.G.

Lame Cow

I have a cow lame in one hind leg. In stepping, toe turns backward and drags on ground until muscles or cords give a jerking thud and she is able to step forward all right. This occurs every two or three steps. She seems in good condition and gave a negative test for tuberculosis. Please let me know what is the matter and what can be done for her.—Subscriber, East Bakersfield.

It is difficult to diagnose the trouble with your cow. It would seem from the information available that she had perhaps been injured some way, either by a blow or by injuring her leg on a stump or fence or by slipping or falling in some way. The trouble may be caused by an injured muscle or an injured tendon which may have been bruised or may have slipped out of place. The trouble, of course, might be dislocated joint, which might slip in and out of place. It would undoubtedly be desirable to give your cow a rest, allowing her to stand just as still as possible, and it might be desirable, if convenient, to put a swing under her body which would relieve the weight on this leg. Such conditions sometimes correct themselves in time while on the other hand if allowed to run along, particularly if the trouble is in the muscles, sometimes the animal becomes permanently disabled. If you are not able to find the seat of the trouble I would suggest that you consult a veterinarian, who could undoubtedly diagnose the trouble for you.—G. E. G.

Yellow Star Thistle

Answering queries as to means of eradicating yellow star thistle, we have the following from Harry P. Stabler, horticultural commissioner of Sutter County:

"We have severe infestations of yellow star thistle in parts of the county, and wherever it is possible we find that putting the land into cultivated crops is successful in controlling it. In other places where rice can be grown the water used for flooding seems to be effective in controlling the thistle. Where neither rice nor cultivated crops can be resorted to we are advising owners of infested fields to summer fallow the land in order to discourage the thistle. Mowing is not a success as the plant will go on growing and will mature seeds. In slightly infested places hoeing off the plant just under the surface of the ground has given results. The pest is a serious one and the importance of its control is appreciated now more than ever before."

Earle Mills, horticultural commissioner of Butte County, writes:

"The yellow star thistle, being an annual, is quite readily controlled by ordinary cultural methods. The chief difficulty in eradicating this is along roadways and pasture areas and such other situations as are not easily cultivated. However, it is not entirely without its usefulness as a plant. In the early period of its growth before the barbs about the flower become stiff, stock feed upon it, sheep being quite fond of it; in fact, some of the large land holders object to having it destroyed on this account. It also serves a long felt want of the honey producers as the flower blossoms throughout the period of our summer when there seems to be a dearth of honey flow from other sources."

Powdery Mildew

Twigs of apple are badly infested with mildew. Have sprayed with Bordeaux. Will this be sufficient?—Subscriber, Los Angeles.

Powdery mildew is extremely hard to control, especially in a spring like the present. One trouble is that the application of a strong solution of Bordeaux endangers health of leaf. The apple leaf in growing rapidly, at this time of the year, is not tolerant of copper compounds. Lime-sulphur solution is somewhat less injurious. Even free use of powdered sulphur, if the orchardist could have occasional sunshine, would prove very beneficial.

Redwood Shavings

Have a chance to get plenty of shavings from a mill close by for use on the ground to keep in moisture. Have been told not to use redwood. What would you suggest? We have a sandy 'dobe soil.—Subscriber, Mt. View.

Redwood shavings contain sufficient tannin or other deleterious substances that they have at times caused serious injury to orchards on which they have been used as a mulch. They have, however, been used after long exposure to air and rains, when partially decayed, and have proved most beneficial. Pine and cedar shavings, on the other hand, have proved beneficial. Of course, if plowed into a sandy soil it would cause rapid drying and possibly injury to a limited extent. However, this would have a beneficial effect on heavy 'dobe soil. We imagine that safety would dictate not to use shavings or sawdust or like material in large quantities, but occasional light application might be handled and prove beneficial. For instance, if used in stables as absorbent and later applied to soil there would be less danger of injury and more economy because of the absorbed elements which would otherwise be wasted.

FIRST REPORT ON UNIVERSITY FARM MARIOUT

Mariout barley, the sensation of grain growers last year, will probably show equally good results in California this season, judging from the first report of 1921 yields. Assistant Farm Adviser Bougher of the Los Angeles County farm bureau says he has never seen a better stand of grain than on the hundred acre field of I. E. Miller at Lawndale, where the estimated yield was 30 to 35 sacks to the acre. Common barley planted on adjoining land was hardly good enough to cut, as a result of the dry spring winds which burned it up but did not affect the Mariout. Mr. Miller's yield of common barley last year was 15 to 17 sacks to the acre so he has just about doubled his yield by planting Mariout.

NEW SUGAR BEET

Material progress in the selection of types of sugar beets that will be resistant to the curly top leafhopper, a very destructive insect pest, is reported by specialists of the bureau of entomology, United States department of agriculture, who are investigating means for checking the pest's damage in California. A large series of mother beets, it is said, have been retained in cold storage during the last season, and a great supply of seed grown last year will be available for the resistance tests.

Some very promising types, reports say, have been selected and are being planted in isolated places throughout Riverside County, in order that the necessity of using bags on the seed stalks may be obviated.

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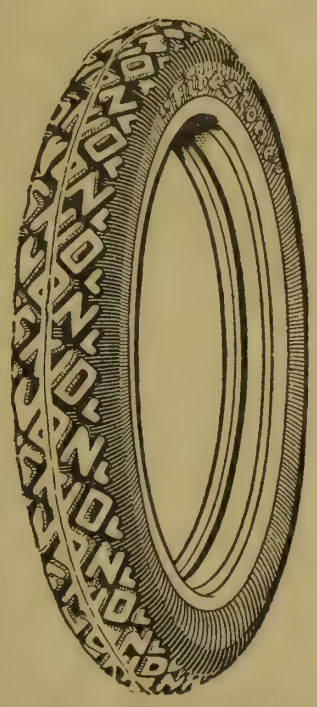
30x3½ Standard Non-Skid Tire



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This new low price is made possible by strictest economies and specialized production.

Plant No. 2 was erected for the sole purpose of making 30x3½-inch Non-Skid fabric tires. With a daily capacity of 16,000 tires and 20,000 tubes, this plant permits refined production on a quantity basis.

All materials used are the best obtainable. The quality is uniform. It is the best fabric tire ever offered to the car owner at any price.

Firestone Cord Tires

Tire repair men, who judge values best, class these tires as having the sturdiest carcass made. Forty-seven high-grade car manufacturers use them as standard equipment. They are the quality choice of cord users.

30x3½-inch	Cord	-	-	-	New Price	$24.50
32x4	"	"	-	-	" "	46.30
34x4½	"	"	-	-	" "	54.90

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We have a limited number of the new 1921 model Singer, White, New Home and New Method Electric Sewing Machines that were slightly scratched in shipping, which we are offering at a Big Reduction—on terms of

$10.00 Down
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These machines are Guaranteed to be absolutely new and just as represented.

Singer Style 128-3. Known as the Long Shuttle machine and sold by Agents for as much as $116.00.

Our Sale Price $69.60

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White Rotary Electric. Agents' price $126.00.

Our Sale Price $85.00

New Home V. S.—Long Shuttle machine. Agents would sell this machine for $100.00.

Our Sale Price $74.50

The New Method Rotary Electric. As Good a machine as money can buy.

Our Sale Price $76.50

These machines can also be had on the Regular Stands, with or without Motors. We also have a large stock of all makes of slightly used and second hand machines at special prices and terms.

We have a complete stock of needles and parts and specialize in repairing all the different makes of sewing machines.

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Check below make and style of Machine you are interested in

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Household Department

THE SAND CASTLE

The tide is out, and all the strand
Is glistening in the summer sun;
Let's build a castle of the sand—
Oh! will not that be glorious fun?

With walls and outworks wide and steep,
All round about we'll dig a moat,
And in the midst shall be the keep,
Where England's flag may proudly float.

And where a drawbridge ought to be,
We'll make a causeway to the shore,
Well paved with stones, for you and me
To get to land when tempests roar.

We'll sit within our citadel,
And watch the tide come over the rocks;
But we have built it strong and well;
It will not fall for common shocks.

The moat may fill, the waves may beat,
We watch the siege all undismayed,
Because, you know, we can retreat
Along the causeway we have made.

"Haul down your flag!" "Oh, no!" we shout,
Our drums and trumpets heard afar—
The castle sinks; but we march out
With all the honors of the war.—Anon.

HOME MADE PRESERVES

By W. V. Cruess

AT present (June 1) strawberries are abundant. Soon loganberries, blackberries, currants, then apricots, figs, peaches, pears, quinces and other preserving fruits will be with us in profusion. No other fruit product gives more pleasure in the preparing than fruit preserves. In the winter nothing tastes "quite so good" as rich syrupy preserves and hot biscuits. Making good preserves, it is true, is an art. Therefore, it might be argued that the successful preserver must possess natural talent and spend years of practice to master this art. However, it is not difficult, and if the principles are known, various good recipes can be followed successfully.

General Principles

The Fruit: Firm, ripe, well colored fruit only should be used for preserves. A good preserve should be whole, not broken, nor cooked to a pulp, and should retain an attractive color. Most preserves should be semi-transparent. The syrup should be clear and not caramelized (brown) in color.

Such a product can be best secured by the use of sound fruit of high quality and by observing certain fundamental principles, which follow:

Adding the Sugar: To tender fruit such as strawberries, loganberries, currants, etc., the sugar may be added direct. Some fruits shrivel and become tough if the dry sugar or if too heavy a syrup is added to them. This is the case with cherries, tough pears, quinces, kumquats, figs and cling peaches. Such fruits should be placed in a thin syrup, 30 degrees Balling or 15 degrees Baume, and the syrup boiled to a heavy consistency, 55 to 60 degrees Balling or 29 to 32 degrees Baume. This permits the sugar to penetrate the fruit as it is cooked and avoids shriveling and toughening. The same result can be attained by first boiling the fruit in water until tender before adding sugar or syrup.

Cooking: The cooking of preserves is for the purpose of removing excess moisture, thus concentrating the syrup, and also for the purpose of causing the sugar to penetrate the fruit to impart the desired flavor and texture.

Prolonged cooking may result in caramelizing or "scorching" of the product and in its becoming broken or "ragged" in appearance. Most home made preserves are overcooked.

The cooking should be rapid and should not be carried too far.

Most preserves are "done" when a thermometer inserted in the boiling syrup and fruit registers 220 degrees Fahrenheit or when a Balling hydrometer inserted in the hot syrup in a suitable cylinder tests 55 to 60 degrees Balling or a Baume hydrometer tests 20 to 32 degrees Baume. A candy thermometer or a dairy type thermometer reading to 225 degrees Fahrenheit or above is more convenient than the Balling or Baume hydrometers, although one of these may be used if on hand.

Drug stores and some hardware stores can obtain these instruments. Every preserver and jellymaker should have one and use it. The Tycos instruments are very reliable.

Sterilization Preserves are often lost through molding or fermentation. This loss can be prevented by sterilization much in the same manner that canned fruits are sterilized.

The process is described below under strawberry preserve recipe No. 1.

Strawberry Preserves

This fruit makes the most popular of fruit preserves. Thousands of tons of strawberries are utilized annually for preserves and jams. Pure strawberry jam and preserves properly prepared are delicious.

Recipe No. 1—Use fresh, firm berries. Sort and stem carefully. Wash thoroughly. To the wet berries add one pound of sugar per pound of fruit. Bring slowly to the boiling point. Stir carefully during heating to prevent scorching but do not break the fruit by stirring too vigorously. Boil not longer than five minutes; three minutes will usually suffice. Remove from stove and allow berries to stand in the preserving kettle with occasional stirring for about 15 minutes. Skim. Then pour the fruit into a shallow pan to cool and to absorb syrup over night, or for 12 to 18 hours. Pack the fruit carefully in scalded jars. Glass top jars, such as the "E-Z" seal, etc., are excellent for the purpose. Seal with scalded caps and rubbers. Place the jars on a false bottom in a wash boiler sterilizer or large kettle. Cover with cold water. Heat the water to 185 or 190 degrees Fahrenheit (simmering hot) and maintain this temperature for 30 minutes. This will sterilize the product and prevent loss by mold or fermentation. The fruit should be whole and plump and of good color. Wrap jars in paper or store in a dark room to avoid loss of color from action of light.

Recipe No. 2—Sun Preserves: The sun cooking recipe is not suitable for foggy districts or during cloudy weather. To one pound of berries add one pound of sugar. Heat barely to boiling. Pour at once into a shallow pan. Cover with mosquito netting to exclude insects. Place in the sun until the syrup has become very thick and the berries have become plump. The preserves may then be packed in ordinary jelly glasses and sealed with paraffine. Usually sterilization is not necessary because of the density of the syrup.

Recipe No. 3—"Old Method": The usual recipe for strawberry preserves calls for one pound of fruit and one pound of berries. The mixture is brought to boiling and boiled slowly until the syrup becomes very heavy, that is, boils at 222 degrees Fahrenheit. The fruit and syrup are poured boiling hot into jars and sealed or into jelly glasses and sealed with paraffine. The finished fruit is often brown in color and badly broken, but often pleasing in flavor. Recipe No. 1 is to be preferred.

Figs

Recipe No. 1—Use firm ripe or slightly underripe fruit. Place in a thin syrup consisting of three-fourths pound of sugar and two pints of water for each pound of figs. The syrup will penetrate more satisfactorily if the figs are punctured through and through in several places with a fork. Boil slowly until the fruit becomes clear and the syrup heavy, that is, 60 degrees Balling, 32 degrees Baume, or a boiling point of 220 degrees Fahrenheit. Seal hot in jars.

Recipe No. 2—Sweet Fig Pickles: Prepare a syrup of 3 pounds of sugar, 1 pint of water, 1 pint of vinegar, 1 tablespoon of coarse ginger root, 1½ tablespoons of stick cinnamon. One tablespoon of whole cloves may be added if desired. All measurements level spoonsful. Parboil 3 pounds of the figs for three to four minutes in water. Transfer them to the above syrup and cook until figs are clear or a heavy syrup is obtained. Allow figs to stand in the syrup over night. Heat to boiling and pack hot in jars.

(Continued next week.)

The Cultivator Patterns

3276-3257. A Dressy Dress for the Matron—Waist 3276 cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3257 cut in seven sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. A medium size will require 7¼ yards of 40 inch material. The width at lower edge is 1¾ yard. Two separate patterns, 10 cents for each pattern.

2860. Girl's Dress and Sun Bonnet—Cut in five sizes: 2, 3, 4, 5 and 6 years. Size 4 requires 2½ yards of 36 inch material for the dress and ¾ yard for the bonnet. Price 10 cents.

3597. Ladies' House Dress—Cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require 5 yards of 36 inch material. The width of the skirt at the foot is about 2 yards. Price 10 cents.

3611. A New Skirt—Cut in six sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. A 28 inch size will require 2⅞ yards of 40 inch material. The width of the skirt at the foot is 2¼ yards. Price 10 cents.

3618. Misses' Dress—Cut in three sizes: 16, 18 and 20 years. An 18 year size will require 3¾ yards of 54 inch material. The width of the skirt at the foot, with plaits extended, is 2 yards. Price 10 cents.

3619. Girl's Dress—Cut in four sizes: 8, 10, 12 and 14 years. A 12 year size requires 4 yards of 36 inch material. Price 10 cents.

3045. Ladies' Envelope Chemise—Cut in four sizes: small, 32-34; medium, 36-38; large, 40-42; and extra large, 44-46 inches bust measure. Size medium requires 2⅝ yards of 36 inch material. Price 10 cents.

3607. Ladies' Blouse—Cut in six sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. A 38 inch size will require 2¾ yards of 36 inch material. Price 10 cents.

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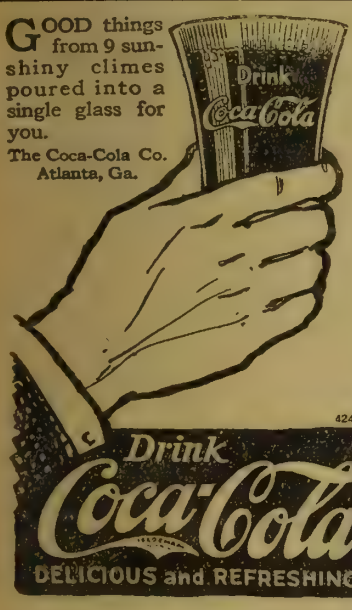

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HINTS FROM HOUSEKEEPERS

How to Send Orange Blossoms East

I sent blossoms, or rather buds, to New York state, and was informed they arrived in fine condition. My friends had never seen the real orange blossoms, so may not have been good judges, but the blossoms were packed as follows: A medium sized orange was placed at each end of a long, narrow box and sewed securely to the box with a long darning needle, pierced through the orange and paraffined over pricked holes so juice would not ooze out. Then box was lined with soft tissue paper and packed solidly with stems holding buds, stuck half into the oranges, then covered with tissue paper.—Mrs. Chas. Casey, Pasadena.

Honey Drop Cookies—Layer Cake

2 eggs, 1 cup strained honey, 1 tablespoon butter, salt and flavoring, 1¾ cups flour, 1 cup chopped raisins, 1 teaspoon baking powder. Beat whole eggs until light, add honey and butter, beat till smooth. Add salt and flour to which has been added the baking powder. Flavor and beat well. Drop by spoonsful on buttered pan and bake in moderate oven.

Honey Layer Cake—Beat three eggs very light, mix in ¾ cup strained honey. Add alternately one cup milk and enough flour to make moderately stiff batter. Add 2 teaspoons baking powder with last cupful flour. Beat well, then mix in ½ cup melted butter last thing.

Honey Cookies—2 cups honey, 1 cup sour milk, 2 eggs, 1 cup shortening, 1 large teaspoon soda, salt, flour to make stiff dough, flavoring to suit.

Honey Sweetened Pie—Line pie pan and fill with well floured fruit, add honey according to sweetening required. Cover with top crust and bake in usual manner.—Mrs. A. C. McCready, Modesto.

Honey Recipes

In answer to the inquiry of Mrs. L. G. Rapp, Glendale, I am sending two tried and true recipes using honey.

Honey Cookies—1 cup honey, 1 cup sugar, 1 cup sour cream, ¼ teaspoon salt, 2 eggs, well beaten, 1 teaspoon soda, 1 teaspoon baking powder, flour to roll.

Honey Cake—1 cup honey, 1 cup sugar, ½ cup butter, 1 pint flour, 1 teaspoon baking powder, 2 eggs. Mix honey and sugar, add butter and cream. Then add eggs well beaten and lastly the flour and baking powder sifted together.—Mrs. Harold C. Rudolph, Esparto.

Honey Cake—In Peaches

Some one wants to know about using honey instead of sugar. This was printed in the Cultivator a few years ago and has been pronounced delicious.

For Canning Peaches—For 1 quart of peaches peeled and halved, 1 cup honey, ½ cup water. Let boil 2 or 3 minutes. If any scum rises take it off. Put the fruit in and let boil a little longer than when using sugar. Can same as other fruit.

Here is one for Cake—1 cup honey, 2 cups flour, 3 eggs, 1 teaspoon soda, 1 teaspoon cinnamon, a little cloves. This has been tried and is good.—Subscriber, Riverside.

HOUSEHOLD QUERIES

Peanut Taffy

Will some housewife give me a recipe for the good old peanut taffy?—Subscriber, Ono.

We don't quite understand "peanut taffy," but here are Lowney's recipes for peanut brittle and butter taffy. Perhaps our inquirer can use either or both of these, or if some of our housewife readers have a peanut taffy recipe we will be glad to give subscription credit for it.

Peanut Brittle—Two cups sugar, 2 cups shelled peanuts. Melt sugar; when a golden brown add chopped nuts, pour into buttered pans, crease and cool.

Butter Taffy—One cup molasses, 1 cup sugar, 2/3 cup butter, 2/3 cup milk, 1 tablespoon vanilla, few grains salt. Cook all ingredients till brittle when tried in cold water. Pour into hot buttered pans, crease and cool.

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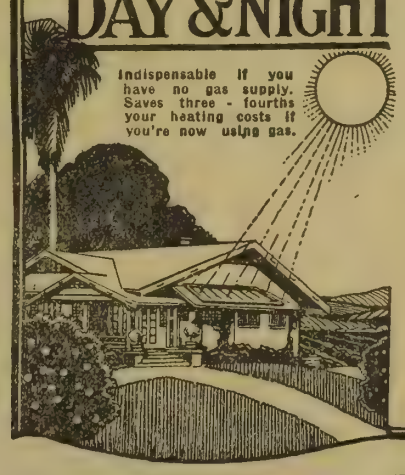

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Proper Care Doubles Manure Value

FOR more than a century it has been the custom on farms in parts of eastern Pennsylvania to store stable manure in walled yards, partly or wholly covered, in which the stabled animals are allowed to exercise during the day. Manure thrown into such a yard and thoroughly tramped by the stock loses much less through heating and leaching than does manure piled in the open.

It is well known that there is a great difference in the methods of management of barnyard manure on farms in the same locality and that the best yields are found usually where it receives the best care, says Farmers Bulletin 978 on Handling Barnyard Manure in Eastern Pennsylvania. Ten farms in Chester County, Pennsylvania, provide exceptionally good examples of efficiency in this direction. The average crop yields for the state as a whole are very much lower than those for 378 Chester County farms surveyed, while the averages for the ten farms selected as exemplifying a high degree of efficiency in handling manure are in some cases nearly 100 per cent above the state averages. The comparatively high yields obtained in Chester County, or the exceptional yields on the ten farms referred to are not due entirely to the way in which the manure was handled because Chester County soil undoubtedly is better than the average for the state and the standard of farm management is higher. But special attention to manure is a prominent feature of the farm management under which these high yields are obtained.

Manure Pit Adjoins the Barn

The typical barn of this part of Pennsylvania is the "bank barn," also known as a "Swiss barn" or as a "Pennsylvania overhang barn," the standard type of barn in that region for more than a century. These structures seldom are made of stone, as formerly, but are of frame on stone foundations which serve as the retain- used for grain, hay, or other feed. As ing walls for the basement or cellar.

The stables are almost always in the basement, the story above being a rule the stables open into an area called the "overhang" or "overshot," 10 or 15 feet wide along the whole front of the barn where the basement floor comes out even with the surface of the ground. The barnyard or manure yard is a feature of this kind of barn. This is a plat of ground adjacent to the overhang of the barn and into it the basement of the barn opens. Usually it is surrounded with a stone wall and may be anywhere between 30 and 100 feet square in area. This wall keeps the manure from being blown or washed away and protects the stock.

The ground floor of these barnyards usually is hollowed out in the center to prevent the liquid manure from escaping and often is paved with flagstones. Vents are provided in the lower side wall to allow surplus water to run off after rains. In some cases pits are provided to catch the liquid manure. The important value of this construction and care is shown by the fact that these walls are kept in good repair. It is noticeable, too, that in some cases repairs are being made nowadays of concrete instead of stone and mortar. "Under present conditions," says Bulletin 978, "stone is not economical for building the walls for such a manure yard except where surface stone is abundant and easily available. Elsewhere concrete will be found by far the better material."

Farms Produce Record Crops

On the ten farms chosen as examples to show efficient handling of manure, the yield of corn is maintained at 75 bushels an acre or more. Indeed, the average yield on the ten farms was 85 bushels an acre, as against a state average of 42.5 bushels. It is known that all ten farms are financially successful. The manure on these farms is practically all saved and is of very high quality. The ten farms have a wheat average of 29.75 bushels an acre against the state average of 18 bushels. The state produces an average yield of 33.1 bushels of oats, and three of the ten farms have an average of 45 bushels—only three of the ten growing oats. The ten farms saving and using their manure grow 2.65 tons of hay to the acre against the state's average of 1.43 tons.

Wins Cultivator Prize for May

Five cows owned by Eug. Biondini of Ferndale, Humboldt County, had the highest average production of butterfat for grades in the state dairy cow competition during the month of May, viz., 82.26 pounds, and the California Cultivator prize for this month was accordingly awarded to him.

The production of the individual grades for the month was: Rachel, 1,835 pounds milk, 4.9 per cent butterfat, 89.92 pounds butterfat; No. 1910, 1,699 pounds milk, 4.9 per cent butterfat, 83.25 pounds butterfat; Shortie's Best, 1,268 pounds milk, 6.4 per cent butterfat, 81.15 pounds butterfat; Hannah, 1,358 pounds milk, 5.9 per cent butterfat, 80.12 pounds butterfat; Twinnie, 1,507 pounds milk, 5.1 per cent butterfat, 76.86 pounds butterfat; average, 1,533 pounds milk, 5.36 per cent butterfat, 82.26 pounds butterfat.

These cows are all grade Jerseys, and so far as known, mature animals. They stand first among the groups of five cows in 27 different dairy herds that competed for the Cultivator prize the past month. Of this number the average production of all but six came above 50 pounds of butterfat, the lowest producing group averaging 33.36 pounds for the month. Five grades produced on the average over 50 pounds butterfat in the herds owned by the following dairy farmers: Eug. Biondini, Ferndale, 82.26 pounds; N. Hauk, Alton, 76.33 pounds; J. A. Genzoli, Loleta, 75.81 pounds; W. Terkelsen, Ferndale, 74.83 pounds; Earl Graham, Compton, 71.09 pounds; W. F. Early, Grizzly Bluff, 70.42 pounds; Peter Iversen, Grizzly Bluff, 70.04 pounds; M. L. Pontoni, Arcata, 68.75 pounds; Giacomini & Pedrotti, Waddington, 68.61 pounds; Leo. Christen, Waddington, 68.27 pounds; H.L.Wakeham, Santa Ana, 66.36 pounds; J. B. Harbers, Waddington, 65.63 pounds; Los Angeles County Farm, Hondo, 64.33 pounds; W. B. Gries, Ferndale, 63.34 pounds; Arden Dairy, El Monte, 61.17 pounds; F. F. Pellissier, Whittier, 60.62 pounds; Napa state hospital, Imola, 59.63 pounds; Adohr Stock Farm, Van Nuys, 56.69 pounds; R. H. Walrath, El Centro, 53.94 pounds; El Mirador Dairy, Pasadena, 52.56 pounds; J. C. Broady, Palm City, 50 pounds.

Eleven of these herds are located in Humboldt County, six in Los Angeles County and one each in Napa, Orange, San Diego and Imperial Counties. The Cultivator prize has so far gone six times to Los Angeles County, twice to Humboldt County and once to San Joaquin County.

THE GOAT INDUSTRY

(Continued from Page 825.)

are prolific breeders. Where goat raising has been undertaken on a large scale these common goats are often used as a starting point for breeding and the quality of the herd gradually improved through the use of pure bred rams. Goats, like milk cows, grade up very rapidly when bred to a pure bred sire, and some very fine herds of grades are being built up in this manner.

The price of a pure bred buck of any of the leading breeds runs from $25 to $100, while a pure bred doe will bring from $25 to $150, depending upon individual traits, while a grade or crossbred doe can be bought for from $5 to $50. It is largely milk production in the doe that establishes her value.

The Angora goat is raised largely for mohair, and Texas leads in the

number of animals kept for that purpose. Over a million Angora goats roam the plains of the Lone Star state, and although the average weight of the Texas fleece is 1.85 pounds, as against 3.7 pounds in Oregon, the former state shears the goats twice in a season, so that production is above the average.

The Angora goat originated in Asia Minor and large numbers are also found in South Africa where the mohair industry is an important one. In America the Angora has been found peculiarly adapted to logged over areas which spring up to dense growth of underbrush. By turning loose a band of goats in these waste lands a double purpose is effected, for the animals are able to wax fat on the vegetation, and they in turn keep clear the lands of undesirable weeds and plants that would prevent the growth of young tree seedlings.

In the Ozark mountains of southwestern Missouri it has become the common practice of owners of mountain lands to either run bands of goats for themselves or contract with other owners to drive their goats through certain brush covered areas for the purpose of clearing them for other uses. The animals are close feeders, consuming nearly everything green in their path, and in a short while a band can convert a dense mass of wild vegetation into a closely cropped lawn. In addition their fertilizing influence upon the soil has a certain value, and landowners sometimes pay goat owners from 50 to 75 cents per animal per season to clear the land for them. Thus the herd owners, by renting out their goats, have received good returns for their browsing instead of having to pay feed bills.

In addition to the rental income good Angora nannies will return an average of three pounds of mohair per year and will likewise bear a goodly number of kids.

It has been found from careful studies made of goat districts that to clear an acre of brush land requires the constant browsing of from two to five goats, depending on the density and size of brush. Two years of constant browsing with this number of animals results in absolute destruction of practically all underbrush, but it has likewise been found desirable to provide the animals with better range for at least a part of each grazing season. By increasing the number of goats used for land clearing operations and moving them frequently to different types of pasture, considerable areas can be kept clean and the health and development of the animals will not be interfered with.

DE WOLF HOLSTEINS AT BARGAIN PRICES

The dispersal of the H. A. De Wolf herd of Holsteins at the farm near Ripon, June 15, proved to be one of the greatest bargain events of the present sale season. Forty-six head, consisting of bulls, cows and young things, averaged $160, a valuation that was regarded as entirely too low for the class of cattle offered. A large crowd was in attendance and the sale list included 26 buyers, but they played their bids on a very short line. The top of the sale was $375, paid for Segis Pontiac Charlotte. Leeman and Kilgore of Ripon were the most active buyers for the better things and succeeded in annexing a number that should prove splendid investments.

The sale was managed by the California Breeders Sales and Pedigree Company. Col. Ben A. Rhoades, assisted by Col. John A. Davis, were the auctioneers.

ANNUAL RAM SALE AVERAGES $26

The second annual ram sale held by the members of the California Woolgrowers Association at the university farm, Davis, lacked quite a margin of coming up to last year's sale or to what might have been expected. The sale list included 262 head, mostly rams, of the following breeds: Rambouillet, Shropshire, Hampshire, Corriedale, Southdown, Romney and Leicester. The general average was $26. The top of the sale was made by a yearling Hampshire ram from the Straloch flock at $112.50. The Straloch flock also made the top average of the sale, receiving an average of $80. The sheep men present were in no way disheartened and all agreed that there was never a better time to engage in the business than now. Certain it was that the buyers secured breeding material that cannot fail to make good and to make money. H. D. Eddingfield of Mt. Pleasant, Iowa, was the auctioneer.

JERSEYS BRING RECORD PRICES AT AUCTION

That no serious deflation in the price of good livestock has taken place is evidenced by the total and average prices paid for Jerseys at the big auctions during National Jersey Week. Record sized crowds were on hand at four sales at which 278 head brought the grand total of $324,690, or an average of $1,168.

The opening event was at Coopersburg, Pennsylvania, May 30, where T. S. Cooper and Sons held their annual Decoration Day sale. The 84 animals that went through the ring sold for $72,000, an average of $857 per head. The top price animal was a six months old bull calf, Simone's You'll Do Fontaine, bought by R. J. Fleming of Canada at $3,500.

A special train had been chartered by the Meridale Farms management to take Jersey buyers from the A. J. C. C. annual meeting in New York to Meridale Farms at Meredith, and at this place 72 head brought an average price of $1,203 per animal on June 2. S. A. Guy, an oil operator of Shreveport, Louisiana, who also operates a large ranch in Texas, was the buyer of the highest priced cow, Golden Cymbeline, at $10,000. Returning on the same special train, the buyers attended the W. R. Spann & Sons sale at Morristown, New Jersey, on June 3, where 76 head of Jerseys brought $76,075, an average of over $1,000.

Many were of the opinion that wary pocketbooks would prevent the breaking of any records, but the Jerseys offered by L. V. Walkley of Southington, Connecticut, on Saturday, June 4, were wanted at higher prices than had before been offered, and 46 head were sold for an average price of $1,954, the highest sale average of the week. The sale of Gamboge Oxford Gem for $18,000 established a new world's record for cows of the Jersey and other Channel Island breeds.

Mr. Severin is a Poor Photographer, but---

WE do not ask you to accept Mr. Severin's recommendation. Examine the Papec for yourself. Compare it with any other ensilage cutter made. Note the Papec has six fans on the cutting wheel instead of three or four—the perfect knife clearance—the fact that it will cut and elevate from 3 to 30 tons per hour (at 600 r.p.m) to the height of any silo without clogging the pipe. These are only a few of the Papec advantages. You should know all of them, whether you intend to buy a cutter now or later. The coupon, mailed today, will bring complete information promptly.

Santa Fe Lumber Co.,
16 California St.,
San Francisco.

Gentlemen:

As you will see by the enclosed, I am a poor photographer. I took a half dozen "different shots" while cutting silage with the Papec N-13.

From a photographer's point of view the effort was a grand failure, but the redeeming feature is, however, that from the farmer's point of view the machine is equally a grand success, as it has been every time we had occasion to fill the silo the past three seasons.

We fill twice each season with barley early in the summer, and with corn from the same field later in the fall.

Am sorry we cannot supply you with any better snap shots but can recommend the N-13 Papec to any prospective cutter purchaser.

Sincerely yours,
J. H. SEVERIN.

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Aids Digestion—Makes Healthier Cows

ATTRACTIVE PRICE
NOW IN EFFECT

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The Larrowe Milling Co.
Los Angeles

Watch La Tierra de Uva Durocs — **Pathfinders, Orions, Sensations**
Three Top Boars

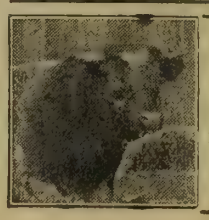
Fannie's Orion King assisted by Uneeda Orion B, 2nd prize aged boar at State Fair, 1920, and grand champion at Glenn County Fair, 1919, and Valley View's Sensation, 3rd prize junior boar pig and litter mate to 1st prize and reserve champion at State Fair, 1920, and a wonderful string of prize winning sows and gilts, including Miss Sensation, 1st sow pig and reserve champion at State Fair

C. C. ELLIS — Exeter, Cal.

Order One of These Duroc Gilts Now

and get started in the hog business. A few extra good yearling gilts, either open or can be bred to California Orion King or King Cherry Orion, a pair of proven herd boars that are unequaled in any herd in the West. Satisfaction or your money back. BETTER DUROCS AT REASONABLE PRICES

Harvey M. Berglund — Dixon, Cal



Facts About Shorthorns

Do you wish to know more about Shorthorn cattle? The Shorthorn is the breed for the farmer. Purebreds should be grown on every farm. Write this office for literature.

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& R H O A D E S WE CONDUCT SALES OF REG. DAIRY CATTLE GRADE CATTLE GEN. FARM SALES in all parts of Calif. and adjoining States. Satisfaction guaranteed. Write for dates and terms.

For Profitable Durocs

As we have sold out of bred sows and gilts, we are now offering big growthy fall pigs, either sex, at attractive prices.

D. G. Cummins & Son
Route 1 — Visalia, Cal.

Duroc Weanling Pigs

By Wavies Professor, grand champion Indiana state fair. Dam, King Orion Lady 2d. Litter mate to King Orion Cherry, second prize junior yearling boar state fair.

Weanling Boar Pigs $25 Each
WALNUT GROVE STOCK FARM
Box 152, Walnut Grove, Cal.

Grape Wild Farm
Berkshire Public Auction
Grape Wild Farm, Tuesday, June 28th
Escalon, California

Fifty head of the choicest young sows and a few outstanding herd boar prospects will be sold. The sows are sired by or bred to the following well-known boars:

WILSONIA KING LAUREL 240674

A litter mate to the famous Real Type, the boar that sired so many good ones for E. J. Barker, Thornton, Ind.

ESCALON BIG JOE 278121

Grand Champion at every fair shown on the coast in 1920, a record that no other Junior Yearling boar of the year attained.

ESCALON ARTFUL LEADER 3D 282698

A big, long, heavy-boned son of Big Leader.

ROYAL FASHION LEADER 299295

A very promising big type young son of Escalon Royal Leader, by Big Leader, the big type son of Grand Leader 2nd, the Grand Champion of the world.

GRAPE WILD CHALLENGER

Another one of those big sons of Big Leader

ESCALON TYPE 267740

A son of Majestic King 6th, Grand Champion Boar of California State Fair, and he himself was Junior Champion at Los Angeles and San Francisco in 1919.

A special invitation is extended to California breeders to attend this sale. We want our home folks to buy these foundation animals. Hogs are necessary to maintain and increase the fertility and productiveness of California soil. There never was a better opportunity to purchase high class breeding stock at your own price than will be afforded in this sale. Write to day for complete information and arrange to attend the sale.

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GRAPE WILD FARM

A. B. Humphrey, Prop. **Escalon, Cal.**

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IT CONTAINS A HIGH PROTEIN VALUE IN DIGESTIBLE FORM

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Pacific Oil & Lead Works **155 Townsend St., San Francisco**

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The daughters of Sir Ormsby Skylark are making wonderful yearly records. We have a number of their sons sired by sons of Sir Pietertje Ormsby Mercedes for sale at Farmers' Prices. We want you to know the individuality, conformation and production these bulls will put into your herd.

You Can Buy a High Record Bull Right

Every animal tuberculin tested and guaranteed a breeder.

Maxwell Farms **Hollywood, Cal.**

Correspondence with the advertisers in the California Cultivator will convince you that their articles will save you money.

recently started by the Live Oak farm bureau center.

Among the more recently established Duroc herds of Northern California is the one owned by Stanley S. Rogers, formerly a member of the staff of the college of agriculture but now engaged in farming near Davis. Mr. Rogers does not expect to maintain a large herd but is making his plans to have what he hopes will be ranked as one of the best herds of the state. It is probable that this new herd may be represented at the fall fairs.

V. F. Dolcini, owner of the June Acres Stock Farm, Davis, is building a large and modern hog barn to house his herd of Durocs. The barn follows the general plan of the swine barn at the university farm. Dolcini is preparing to exhibit a herd at the coming state fair.

A meeting of the California Cattlemen's Association is being planned the week of the state fair at Sacramento. An effort will be made to attract the largest attendance of the year.

The beef cattle show at the state fair this fall is going to be very strong. Practically all of the breeders of Herefords and Shorthorns have already picked tentative herds and are starting to condition them. Along with the old timers there will be a number of herds shown that have not been in competition before. Frank Van Natta has been chosen to judge the Herefords.

Advanced Registry tests in California as reported by the college of agriculture show total number pure bred animals on semi-official test for the three months beginning January 1 as 1,854: Holsteins 1,112, Jerseys 518, Guernseys 111, Ayrshires 29, Shorthorns 42, milk goats 42. The testers report:

"In addition to the 1,854 cows listed above we conduct monthly tests for several owners of grade cows who are competing in the state dairy cow competition. California during this period produced another 1,000 pound cow, Adirondac Wietske Dairy Maid, owned by Bridgford-Holstein Company, producing 31,899.9 pounds milk and 1,036.088 pounds fat. This is the fourth cow in California to exceed 1,000 pounds. Attention is also called to the fact that milk goats are increasing in our list with a probability of more to be heard from shortly."

The Third Annual Invitational Picnic was held at the Ratto Bros. Stock Farm at Ratto Station, Napa County, Sunday, June 12, with over 900 guests attending. The special train from San Francisco carried 600 guests and over 70 machines came from surrounding counties.

VALUE OF SKIMMILK

The University of Michigan has issued two bulletins on The Feeding Value of Skimmilk for Swine. A summary of the results of a large number of feeding trials by different experiment stations throughout the United States was made to determine the value of skimmilk as a supplement to maize and other cereal grains when fed to pigs.

It is pointed out that 415 pigs fed on cereal grains only made an average gain of 100 pounds from 486.5 pounds of grain and that 325 pigs fed on cereal grains supplemented by skimmilk made an average gain of 100 pounds from 266.9 pounds of grain and 785.1 pounds of skimmilk. This indicates that 100 pounds of skimmilk replaced 28 pounds of grain. Calculated on the basis of $50 to $80 per ton for the different grains used, which included maize, wheat, rye and barley, the value of the skimmilk ranged from 0.7 to 1.2 cents per pound. Much greater returns were got from the skimmilk when two to three pounds of milk was fed per pound of grain than when the milk was fed in larger quantities. It is computed that a pound of any of the following supplements would replace the designated amount of grain: skimmilk, 0.28 pound; tankage, 2.53 pounds; middlings, 1.05 pounds; linseed meal, 2.62 pounds; soy bean meal, 2 pounds. Buttermilk is considered to be equal in feeding value to skimmilk, and whey about half as efficient.

ECONOMIC LOSSES FROM OX WARBLE FLY

A careful study of tht economic losses produced by this pest will lead investigators and observers to some rather startling conclusions. It has been estimated that the ox warble fly is responsible for the following economic losses:

The bovine milk yield is reduced 10 to 20 per cent.

A loss of flesh in cattle due to the activities of the grubs and endeavors by the animals to obtain relief from the irritation produced by the larvae.

The meat of grub infested animals presents a greenish yellow gelatinous appearance at the points where grubs were located and the amount of such meat condemned is estimated at from one to five dollars per head.

Leather produced from grubby hides has been estimated to be worth only about two-thirds as much as a perfect hide.

The total loss to the cattle industry in the United States excluding the direct damage to beef is found to be not less than $55,000,000 a year.

When we consider the enormous economic losses from the activities of this pest we naturally should endeavor to devise efficient means for the control of ox warble flies. Various means of combating these flies and grubs, according to Herms, are:

The tumors in which the grubs occur may be treated with kerosene, benzine, turpentine or carbolic acid, a few drops of any of which are introduced into the opening by means of a machinist's oiler, or merely smeared over the surface. An ointment composed of sulphur and vaseline is also serviceable. These remedies are objectionable inasmuch as the grubs are not eliminated, but die within the tumor where they must be slowly absorbed; serious abscesses may result.

The grubs may also be destroyed in situ with a sharp scalpel or a hot needle, but here again the same objection as above is encountered.

A better method is to remove the grubs bodily. which can easily be done by squeezing them out if the grubs are about ready to leave the tumor. If not easily squeezed out, forceps with slender blades may be introduced into the opening, the grub grasped and removed. In some cases the use of a lancet may be needed to widen the opening in the tumor.

After removal, the grubs must be destroyed to prevent further metamorphosis, and the wound should be treated with a carbolated salve.—O'Toole.

Los Angeles County farm bureaus have been holding demonstratons under direction of Advisor Hodgson in the matter of inarching and saving gopher girdled trees. A young tree is set alongside the injured tree and inarched into the trunk of the injured tree.

Imperial County home center meetings: Verde, June 28; Lantana, 29.

Prevent
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DON'T WAIT — Write us your needs in Registered Holsteins—young bulls from yearly tested dams in our Federally tested herd of 800, headed by world record sires. Satisfaction guaranteed. Prices $150 and up. *Write for Sales List No. 304* and special newspaper on Carnation Registered Holsteins.

Carnation Stock Farms
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Livestock News Notes

LIVESTOCK SALE CALENDAR

Holsteins
June 29, Gotshall & Magruder, Ripon.
Berkshires
June 30, A. B. Humphrey, Escalon.

The 1921 premium list and classification for the California state fair has been issued and copies may be secured from Secretary Chas. W. Paine.

Liberty Girl, grand champion Poland China sow at the last state fair, died at the Straloch Farm, Davis, as a result of the extreme heat early this month.

The National Holstein sale held at Syracuse, New York, in connection with the annual meeting of the Holstein Friesian Association of America made a general average of $805, as compared to an average of $3,075 last year when California was represented by the top consignment. The highest priced female this year was the cow Arcady Segis Atia 2d, a 30 pound daughter of Ormsby Korndyke Lad. The top bull sold for $2,800 and was the 31 pound Fishkill Korndyke Ormsby, a son of the sire of the top female.

O. L. Raper of Glenn County has purchased the Shire stallion Dovecote King from the Blackhawk Ranch, Diablo. Dovecote King was bred in England and was sired by Barn King, a son of Locking Forest King. He was a winner in the old country and has proven a successful sire in this country. Mr. Raper who operates a large ranch also owns a herd of Shorthorn cattle.

Dr. C. P. De Langle of Yountville has been selected to tie the ribbons in the milk goat classes at the coming state fair.

Trevor H. Moore, well known among the livestock interests of this state through his work as a fieldman, has returned to his former home in Missouri, where he expects to locate.

Oran N. Nelson of the Oregon agricultural college will serve as judge of the sheep classes at the 1921 state fair.

T. S. Glide, owner of the Hilcrest Farm, Davis, and one of the pioneer livestock breeders of the West, recently suffered a large loss when his mountain range was destroyed by fire.

J. R. Bush of Merced, who was one of the heaviest buyers of Holsteins at the spring sales, has leased 1,000 acres of the famous Chowchilla home ranch and expects to move his cattle to his new location. Mr. Bush is planning to carry around 300 head of cows as soon as he gets settled.

Guy H. Miller of Modesto, veteran Jersey breeder of the West, was recently elected a director of the American Jersey Cattle Club. This is the first time California has been so honored and it is a well earned tribute to a man who has been an influential factor in the development of the Jersey in the West.

The Warren Gray Jersey sale recently advertised in this paper was held at Marion, Oregon, June 8, and resulted in a general average of $222.50.

The first livestock entry for the 1921 California state fair to be held here September 3 to 11, inclusive, has been received by Secretary Chas W. Paine from the Butte City Ranch of Butte City, Glenn County. This breeding establishment has entered a number of head of Shropshire sheep. Included in the entry are three registered Shropshire wethers. George Phillip, sheep expert of the university farm, considers one of the wethers good enough to go to the International.

Chas. M. Talmadge reports: "The Warren Gray sale of registered Jerseys held at Marion, Oregon, on June 8, was well attended and 30 head were sold for an average of $222.50 to 18 buyers. Three cows sold for $500 and up, with a top of $540 for Plymouth's Ixia Lola, a beautiful three year old cow, falling to the bid of Burton J. Neal of Turner, Oregon. Aside from three head going to British Columbia and one to Washington, the offering was absorbed by Oregon buyers."

Tom Dinsmore of the O. W. Ranch at Santa Barbara is not kicking on the price of hogs. Mr. Underhill has, by careful study and scientific breeding, evolved a Hampshire that will not fail to put on a pound a day with less than three pounds of barley and alfalfa pasture. With barley at a cent and a quarter Tom is making good money feeding hogs for which the butchers are glad to pay him around 10 cents.

The Grapewild herd of Guernseys owned by A. B. Humphrey at Escalon is rapidly forging to the front. It contains a lot of young females of his own raising that are winners. Starting with a foundation herd of cows rich in the blood of May Rose II Mr. Humphrey used the May Rose bulls, Bullion of Edgemoor and Don Adonis of Linda Vista. He is breeding the heifers to Nobleman of Rich Neck, another May Rose bull who was senior champion at the Los Angeles and Riverside shows last fall, and the calves which are being born have as many as 16 crosses of the popular May Rose blood lines. A large majority of the Grapewild females have high Advanced Register records and a couple of state champions and national class leaders are in the herd.

J. I. Thompson, manager of C. Harold Hopkins' Straloch Farm, Davis, has sold the roan two year old bull, Golden Milmar, to the Jack London Ranch, Glen Ellen. Golden Milmar was bred by Thos. T. Miller of Hollister and was sired by Diamond Choice, a son of Diamond Goods. His dam was Lespedeza Sunbeam by Imperial Gloster. Golden Milmar has been used to some extent in the Straloch herd and has to his credit some of the most attractive calves dropped this spring.

It was reported last week that the entire Jack London Ranch herd of Shorthorns had been sold to a Petaluma buyer. The report is without foundation and Mrs. Eliza Shepard, manager of the ranch, states that they not only do not contemplate selling the herd but rather have in mind strengthening it.

Business apparently keeps on following the recent Caledonia Shorthorn sale. Two bulls were sold last week to Frank G. Baum of San Francisco. The sale included Pine Grove King 19th, a Scotch calf sired by Pine Grove King and out of a Missie dam and Rose King, another son of Pine Grove King.

H. C. Witherow, manager of Greenwood Farm, Live Oak, has sold a young Duroc gilt to the United States Indian School at Greenville; a yearling boar to Tisdale Ranch, Grimes; boar pigs to the Stanford Ranch, Vina, and to Joe Gomez, Meridian. Mr. Witherow has also supplied gilts to the pig club

Guaranteed Grade Holsteins

I have for sale now a herd of wonderfully marked young Holstein cows. These cattle were bought as young things out of a dairy with state wide reputation for having Holsteins of superior breeding and production.

Every animal in keeping with my method of selling is positively guaranteed.

Terms can be arranged to responsible persons.

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Bean Pumps

"Bean" Deep-Well Turbines

Deliver a remarkably large quantity of water from wells of comparative small bore. Thoroughly lubricated. All parts readily accessible. Shaft protected from water, thus eliminating danger of bearings being cut or worn by sand and grit. All sizes. Send coupon.

BEAN SPRAY PUMP CO.
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Send me your new Pump Catalog.
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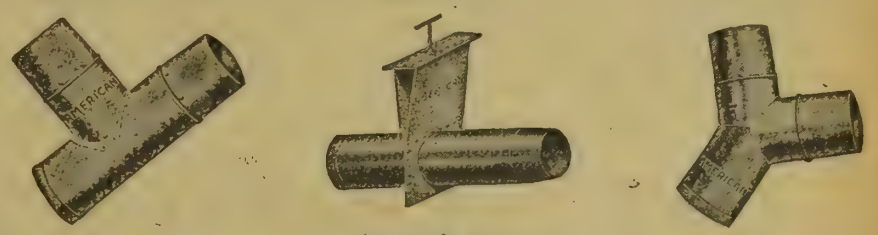

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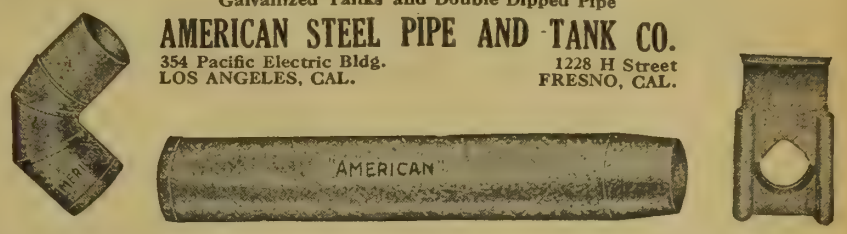

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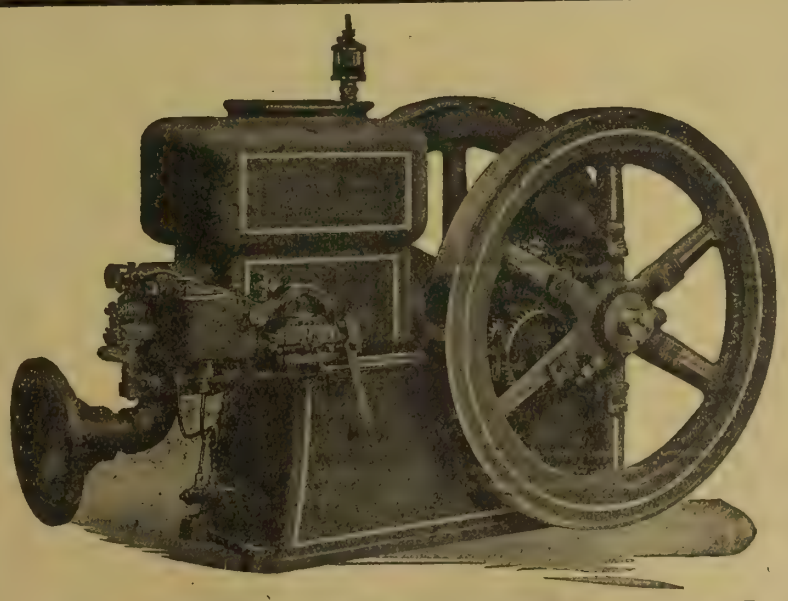

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But *ground* feed is *all* digested. Feeding it, means a 20% cut in feed costs, also fatter, higher priced stock. Come in and let us show you without any obligation, how easy it is to get these results with the

LETZ *America's Leading Feed Mill*

The *fine cutting* of the Letz is due to the 848 keen cutting edges of the patented Letz Grinding Plates. In one operation cuts, grinds, *pulverizes* into finest meal all grains and grasses, wet or dry; and cannot clog.

Grinds corn, shelled or on cob—snapped corn—or complete stalk, ear, leaves, and all. Grinds oats, hulls and all; grinds barley, rye; special attachment for alfalfa, clover, millet, Kaffir corn and other roughage crops. Grinds into finest flour.

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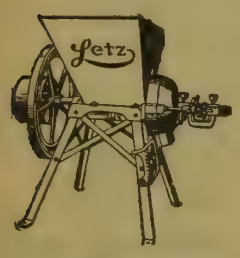

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WARR IMPLEMENT CO.
Distributors
110 North Los Angeles St., Los Angeles, Cal.

Guernsey Bulls

We are offering some dandy young bulls—some ready for service—for sale

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Sired by Nobleman of Richneck, senior champion at Los Angeles and Riverside last fall—and by Bullion of Edgemoor and out of high record cows.

——16 May Rose Crosses——

Write and see how cheaply you can own a good one

GRAPE WILD FARM

A. B. Humphrey, Owner Escalon, Cal.

Stop & Consider

TYPE -I- World's Record in Production

SYCAMORE ACRES

I have more females in my herd who are either sisters or daughters of the following bulls than any herd in the United States:

KING SEGIS PONTIAC

King Segis Pontiac Alcartra—His $50,000 son.
King Segis Pontiac Chicago—His $20,000 son.
King Segis Pontiac Count—"The Marvel Sire."

Could you go wrong on some of these? I can spare a few. Fresh cows, springers or yearlings. Priced right; tuberculin tested and guaranteed right in every way. Come and see them. One hundred twenty-five head to select from. Six miles east of Perris.

ROBT. N. CLAPP—NUEVO, RIVERSIDE CO., CAL.

HOLSTEIN Fred Hartsook RANCH CATTLE

We have assembled an excellent foundation herd of females and will be glad to have breeders call. Fred Hartsook, Lankershim, California.

TOSANTOS HERD PURE BRED HOLSTEINS

Some Exceptional BULLS for Breeders and Dairymen

E. D. BARRY, JR. COVINA, CAL.
WORKMAN AND AZUSA AVE.

Better service is assured by the advertiser if when writing you mention the California Cultivator.

BLACKHAWK RANCH MAKES NOTABLE SHORTHORN PURCHASE

By R. P. Royce

That California is destined to own some of the greatest collections of Shorthorns in America is indicated by the activities of a number of the leading breeders in this state during the past year or two. Only last fall the famous Blackhawk Ranch owned by Messrs. Ward and Easton of Diablo received an importation of Shorthorns direct from Scotland, included in which was the white bull, Collynie Prince Lavender, secured from the world famous Duthie herd and one of the very, very few Duthie bred bulls in service in America. This month the Blackhawk Ranch was represented at a number of the leading Eastern sales and Mr. Ward, assisted by Manager Lovell, selected 16 females of as choice breeding as ever came West. This recent addition to the herd is of such character as to be of more than passing interest to the breeders of this state and will undoubtedly be regarded as a most important acquisition to the breed.

Blackhawk Ranch was the leading buyer at the Carpenter and Ross sale at Chicago in which the following purchases were made:

Imp. Nonpareil Bud, a roan February two year old sired by Dunglass Radiant, a son of Collynie Coronet, and out of a straight Nonpareil dam by Broadhook's Major. She is in calf since April to Imp. Golden Rosador.

Imp. Whiterow Buttercup 4th, a red and white March two year old by Primrose Prince, a grandson of Morning Star, and out of a Strowan Buttercup dam by Collynie Grand Knight. She, too, is in calf to Imp. Golden Rosador.

Imp. Beauty Blush, a roan two year old of the Kilbean Beauty tribe by Robert Bruce and out of a daughter of Windsor Lad, a bull bred by the King of England. She is also in calf to Imp. Golden Rosador.

Imp. Wrelton Mina, a roan two year old by Upsall Star 10th and out of a Campbell Mina dam. She carries the service of the good bull Straton Baronet.

Imp. Gay Lassie, a roan two year old by Robert Bruce and out of a Charlote Corday dam by Windsor Lad, mentioned above. The Charlotte Corday family is esteemed very highly in Scotland and is comparatively rare in America. No other Charlotte Cordays are owned in the West. She is bred to the Rosador bull.

Imp. Keilburn Rosewood, a roan March yearling by the noted Cluny Sir Augustus, a son of President of the Mint. Cluny Sir Augustus won his class at Perth in 1918 and was later sold for $10,000. The dam of Keilburn Rosewood is a straight Rosewood by Warsprite of Naemoor.

Imp. Woodborough Violet, a roan three year old by Edgecote Sceptre by Royal Sceptre and out of Woodborough Verona, a Queen Bess, by Newton Knight. This cow is bred to Imp. Rodney, one of the most popular imported bulls in America.

Imp. Golden Blinkbonny 2d, a roan three year old by Cluny Roan Prince, a son of President of the Mint and out of a Blinkbonny dam. She, too, is safe to the service of Imp. Rodney.

Imp. Oakwood Wimple is a roan three year old by Edgecote Commander by Earl of Kingston, generally rated as the greatest living Shorthorn sire. Her dam is by Revenue, a son of Golden Mint. She is well along to the service of Rodney.

Imp. Rosemary 112th, a white two year old by the Duthie bull, Merry Matador, and out of a straight Rosemary dam by Royal Mint. She was bought with a roan heifer calf at foot by Imp. Rodney.

Imp. Lustre of Maxwalton, a white January yearling by Redgorton Gauntlet, a son of Edgecote Czar and out of a Lustre dam by Gartley Courtier, a son of Proud Caledonia.

Maxwalton Dorothy, a roan February two year old by Revolution, the great son of Avondale and out of a Duthie Lady Dorothy dam. This heifer carries the service of Maxwalton Mandarin.

Sultan's Mina 5th, a red two year old daughter of Imp. Rodney and out of a Campbell Mina dam by Maxwalton Renown. Bred to Maxwalton Mandarin.

ACME Silo Filler

CHOPS HAY
FILLS THE SILO
MAKES ALFALFA MEAL

The cheapest and best milk producing cow feed known—chopped alfalfa and corn silage—is most economically made by the Acme Cutter. You need one. Built in five sizes.

DE LAVAL PACIFIC CO.
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JERSEYS

Venadera Herd

Offers some excellent young bulls ready for service. Sired by Japs Perfection Owl. Out of cows with Register of Merit records. Also a few heifer calves.

GUY H. MILLER
Route 1 - Modesto, Cal.

Young Jersey Bulls

FOR SALE

One at the head of your herd will pay big dividends on his cost. Write to

W. J. Hackett
Modesto Cal.

The Highest Priced Holstein Bull

Owned in California is a son of Miss Aaggie Acme Burke, world record two year old, with 1034.6 lbs. butter and 24,338.9 lbs. milk in one year. A brother to her sire, a brother to her dam's sire and a brother to her $41,000.00 calf are in service in our herd.

This bull was sired by a son of Miss Valley Mead De Kol Walker, world record three year old, with 36.8 lbs. of butter in seven days and 1113.5 lbs. of butter in one year. We have in service her brother, her grandson and a brother to her dam.

Their sons from yearly record dams at reasonable prices.

LOS ANGELES COUNTY FARM
Hondo, California
Phone Downey 42

NOVEMBER 2

is the date of my

Fourth Public Sale of Shorthorns

30 Scotch Females
10 Scotch Bulls

All of My Own Breeding

W. M. CARRUTHERS
Live Oak Cal.

Rosebud Shorthorns

A Choice Herd of Fifty Females Headed by Milmar Stamp a Cruickshank Secret

FOUR BULL BARGAINS:

We have for sale at real bargain prices four extra good yearling bulls that are well bred and of good color. These calves are just right for the range man who wants to improve his cattle. Visit our herd or write for prices. Satisfaction guaranteed.

Edinger-Johnson Company
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California Breeders

have sold more than $500,000 worth of registered cattle in our sales, under the most stringent requirements laid down by any sales organization in America. Satisfied buyers have been the rule in all our sales.

California Breeders Sales & Pedigree Company
C. L. Hughes, Sales Mgr. Sacramento, Ca

USE SHIRE HORSES

Breed your mares to Shire Stallions, good Shire Geldings are in demand. Get some registered Shire Mares.

Shire owners, record colts young, fees are double after one year old. Prepare Shires for fall shows, premiums are very liberal this year. For information on Shires write

W. G. Lynch, Secretary, American Shire Horse Association, Tonica, Illinois.

Kingwood Marigold, a roan February yearling by the noted Imp. Kingwood and out of a Marigold dam by Lord's Lad, a son of Lord Avondale.

In addition to the above females, a Rosewood by the $17,000 Anoka Champion and in calf to Rosewood Victor was secured from the B. F. Hales sale.

The value to accrue to this state from the addition of such distinguished breeding can hardly be estimated and the Shorthorn fraternity of California is to be congratulated that it numbers among its members men with the ambition, courage and progressiveness manifested by Messrs. Easton and Ward and others.

From now forward it will be difficult to understand the necessity of any local breeders leaving this state to secure breeding material and it is to be hoped that our local people will show their appreciation of the efforts our leading breeders are making to put California in the very front rank as source of high class livestock.

ALMOST A MILLION HOLSTEINS

The annual report of Secretary Houghton of the Holstein-Friesian Association of America discloses some interesting facts concerning the present status of the breed. During the year just closed 127,850 animals were recorded, a gain over the previous year of 11.7 per cent. This brings the total registration from 1894 to date up to 945,047, as shown by the following: 1894-1895, 3,187; 1895-1896, 3,070; 1896-1897, 2,536; 1897-1898, 2,963; 1898-1899, 6,479; 1899-1900, 4,746; 1900-1901, 5,108; 1901-1902, 5,990; 1902-1903, 6,841; 1903-1904, 8,044; 1904-1905, 9,773; 1905-1906, 11,823; 1906-1907, 14,650; 1907-1908, 16,534; 1908-1909, 19,591; 1909-1910, 26,176; 1910-1911, 32,889; 1911-1912, 37,535; 1912-1913, 43,315; 1913-1914, 48,086; 1914-1915, 67,680; 1915-1916, 72,665; 1916-1917, 73,847; 1917-1918, 88,279; 1918-1919, 90,887; 1919-1920, 114,503; 1920-1921, 127,850; total, 945,047.

The number of males recorded was 39,585, comparing with 36,791 for the fiscal year 1919-1920. The number of females recorded during 1920-1921 was 88,265, comparing with 77,712 for the previous year.

During the year 1920-21, 128,615 bulls and females were transferred on the books of the association, of which number 38,741 were bulls and 89,874 females; in 1915-1916, transfers of bulls 26,752, cows 42,014, total 68,766, 2.98 per cent. 1916-1917, bulls 27,434, cows 48,450, total 75,884, 10.35 per cent. 1917-1918, bulls 31,289, cows 60,230, total 91,528, 20.61 per cent. 1918-1919, bulls 32,254, cows 65,138, total 97,392, 6.40 per cent. 1919-1920, bulls 38,326, cows 93,497, total 131,823, 35.35 per cent. 1920-1921, bulls 38,741, cows 89,874, total 128,615, 2.43 per cent.

The application of the income from transfer fees to expenditure of the extension service followed the action taken in 1919 at Philadelphia, and at that time the fees to be charged were quadrupled. Although the new rate was not in force for the entire fiscal year 1919-1920 the amount received was $144,291.50, representing fees on 131,823 transfers, which was an increase over the previous year at the old rate of $110,135, and of 34,431 in the number of transfers made. The results of the fiscal year just ended show receipts of $182,620 for 128,615 transfers recorded. Under the caption, "Extension Service," are included practically all expenditures in the secretary's office not directly a part of the work of administration relating to registration; or, more specifically, it is paid out for prizes at fairs, for advertising space, printed matter, club organization, salaries, clerical service, etc., in a general effort to increase the demand for our cattle, the details of which appear in the report of the extension service.

The intimate relation between the prices for which animals are sold and the volume of transfers warrants a review of the results of public sales for the past ten years showing the number of sales, number of cattle sold and the average price received: 1911, 3,346 head sold for $685,918, average per head $205. 1912, 4,170 head sold for $814,970, average per head $195. 1913, 4,529 head sold for $1,115,009, average per head 246. 1914, 5,832 head sold for $1,534,806, average per head $263. 1915, 6,441 head sold for $1,592,203, average per head 247. 1916, 12,730 head sold for $2,474,843, average per head $194.41. 1918, 14,537 head sold for $3,754,603.50, average per head $256.47. 1917, 12,728 heead sold for $3,136,544.10, average per head $246.43. 1919, 18,279 head sold for $6,606,901, average per head $361. 1920, 18,836 head sold for $7,010,214, average per head $372.12.

TEN REASONS FOR A SILO

As the principal business of farming is to make money, the silo, especially on the stock farm, will best accomplish this end.

Corn silage is the farmer's cheapest source of digestible carbohydrates. As this is the principal food element required by our domestic animals it certainly is wise to provide it.

Summing up all the experiments conducted by some 23 different state experiment stations over a period of 15 years, silage has proven the most economic food for the production of stock and stock products.

There are about one-half million silos now in use in the United States, and it is difficult to find a user who is not more than pleased with the results from his silo. Silo salesmen use as a slogan, "Ask the man who has a silo."

The greatest expense connected with the livestock business is the cost of feeding the animals. The silo will lower this cost and therefore it should be one of the first considerations of the stock keeper.

The silo stands ever ready as an insurance against many of the common crop failures, especially such failures as damages from early frost, drouth and hail. Wet seasons often prevent the putting up of a crop of clover or alfalfa; this can be saved in the silo. Whatever is grown in the way of forage can be siloed and preserved for future use.

The silo is a labor saving equipment and it saves in storage space. Eight times more feed can be stored in the silo than in the mow. Cattle can be fed quickly and easily from the silo, as silage is a condensed form close to the point of feeding and is always in condition for feeding. Many feeding arrangements require the hitching up of a team to a wagon or cart and the hauling of feed from one place to another. A silo properly placed will do away with this.

Silage is a succulent, grasslike feed, easily digested, and seems to stimulate digestion. It has much the same effect as grass, giving thrift to the animal, and less sickness is experienced among the stock when good silage is fed. Silage stimulates the milk flow and all milking stock should receive it. Silage is cooling and appetizing and it prevents many of the troubles resulting from the overfeeding of concentrates.

Experiments and experience have taught that the most profitable feeding is liberal feeding, such as will supply the animal with its requirements. Quick growth is profitable growth, large production is profitable production, and the feeder of silage is more inclined to feed well, which means profitable feeding. The man with the silo is supplied with a large amount of good feed and in emergency it can be carried over for several years and still can be used with good profit.

Competition is keen in all lines of industry and the stock keeper with a silo has an advantage over his neighbor without one. In order to compete with the silo keeper, all stock keepers must use silos. World competition in growing stock and producing stock products will require the American farmer to use the best and most economical means. With the silo we need fear no competition from any country of the world.—Hoards Dairyman.

100 REGISTERED HOLSTEINS 100

At Public Auction — Wednesday, June 29, 1921

Dispersal of Gotshall & Magruder Herd, Ripon, Cal.

The offering will include the dispersal of the Gotshall & Magruder herd of 91 head, and 9 females from the select small herd of W. A. Walker, Ripon, California.

The sale will include some of the most highly bred females offered this season, and the list is altogether one of excellent cattle. Among the females are

A BEAUTIFUL 25 POUND 4 YEAR OLD with 753.1 lbs. butter in one year as a 3-year-old, and her daughter by a 32 lb. son of King Mead of Riverside.

A 21 POUND 3-YEAR-OLD DAUGHTER of King Segis De Kol Korndyke, with 646 pounds butter in one year as a 2-year-old, her dam a 28 lb. daughter of King Walker Segis.

A 17 POUND JUNIOR 2-YEAR-OLD DAUGHTER of Sir Aaggie De Kol Acme out of a 26 pound 3-year-old whose dam is by a 33 lb. grandson of Hengerveld De Kol.

A DAUGHTER OF KING MEAD OF RIVERSIDE due to drop her first calf on June 27th.

A DAUGHTER OF THE 37 POUND COW BOWEDA, sired by a 1,000 pound son of Segis Pontiac De Kol Burke.

AN 18 POUND JUNIOR 2-YEAR-OLD daughter of the 35 lb. 4-year-old K P Idyl Segis, now well along on yearly test.

A DAUGHTER OF THE 36 lb. cow K P TOLA, sired by It, and now milking with first calf.

A SPLENDID FAMILY consisting of a 25 lb. granddaughter of Colantha Johanna Lad, her three daughters, and two granddaughters. Be sure and look this group over before sale.

SPRING FARM CORNUCOPIA ORMSBY, the dam of Karlray Ormsby Alcartra the great junior 2-year-old that made 916.5 lbs. butter in one year and sold in the last Guaranty Sale for $1,850. Two of her daughters are also in this sale.

A 28 POUND COW. OUT OF A 26 POUND DAM that milked 610 lbs. in 7 days and made 723 lbs. butter in one year.

A DAUGHTER OF SIR AAGGIE MEAD, the $9,250 son of Sir Aaggie De Kol Acme.

A 26 POUND COW and her daughter by a 32 lb. son of King Mead of Riverside.

A LARGE NUMBER OF OTHERS with official records up to over 25 lbs. butter in 7 days, some with yearly records, others now on yearly test.

EVERY ANIMAL GUARANTEED TO BE A BREEDER; EVERY ANIMAL OVER SIX MONTHS OLD TUBERCULIN TESTED AND SOLD SUBJECT TO RETEST BY THE BUYER

TERMS OF SALE: One-third cash, balance in three equal payments in three, six, and nine months, with approved note bearing 8 per cent interest.

PLACE OF SALE: The ranch formerly owned by C. A. Miller, on the French Camp Road, 6½ miles northwest of Ripon, 13 miles southeast of Stockton.

CATALOG OF SALE FREE ON REQUEST

Auctioneers:
Ben A. Rhoades, Los Angeles
John A. Davis, Manteca

Management
California Breeders Sales and Pedigree Company
C. L. Hughes, Sales Manager, Sacramento, Cal.

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POULTRY

Big "Profitable Poultry" Summer Sale—Feed lower, eggs higher this fall. Buy your heavy winter laying pullets, hens now—at reduced price. Chicks off every week of year. Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, Andalusians, Ducks (Turkeys). Bred 25 years to lay winters, 180-290 eggs yearly, often clear customers $1.00 monthly, winters. Farmers convert your cheap feed into dear eggs. Write Profitable Poultry, 19 North Fair Oaks, Pasadena.

S. C. White Leghorn Baby Chicks from heaviest laying (hoganized) stock. Safe delivery; live vigorous chicks guaranteed. No money in advance; pay on delivery. Price from May 15 to June 30 $3.50 per 25, $7.00 per 50, $12.50 per 100. Special prices 500 and 1,000 lots. Largest electric hatchery in the world. Established 1898. MUST HATCH INCUBATOR COMPANY, 438 Seventh St., Petaluma, California.

Fine Young King Pigeons $3 a pair. Guineas $5 a pair. Wyandotte, Partridge Rock and Leghorn eggs $3 a setting. Are disposing of some of our breeding geese; offering them at a bargain price. Yearlings $15 a pair, 2 year old birds $20 a pair. All bred from imported stock. Send for catalog. Paradise Valley Poultry Ranch, National City, California.

It's no wonder so many poultry raisers make a failure of the business. Without any knowledge of raising poultry people will branch out expecting to make a success. By putting in practice the valuable contents of POULTRY FOR PROFIT, $1.00 postpaid, success is assured in the poultry business. Cultivator Publishing Company, Los Angeles, California.

S. C. White Leghorn Baby Chicks from our own Bred to Lay Stock. We are now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, California.

Success in business is attained by experience and knowledge. The poultry business can be made to pay by following the teachings and information contained in POULTRY FOR PROFIT, $1.00 postpaid. Cultivator Publishing Company, Los Angeles, California.

Eggs from purebred Mammoth Bronze Turkeys, $1.00 each, or $10.00 per 11. Eggs from purebred Buff Orpingtons $3.00 per setting of 15. Incubator lots furnished reasonable. Mrs. M. L. Trewhitt, Route B, Box 47, Hanford, California.

Order Chicks Now for delivery any time after Aug. 1st. Broilers pay, pullets make good layers. R. I. Reds, White Leghorns, Barred Rocks. Safe arrival guaranteed. Write for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67, Palo Alto, California.

Baby Chicks from my carefully selected, heavy laying strain of purebred S. C. White Leghorns, June and July delivery, $12.00 per 100; special reductions on lots of 300 or more. J. R. Heinrich Poultry Yards, Arroyo Grande, California.

White Leghorn Chicks from Tancred's 300 egg strain. Write for 1921 price list on all breeds. Am installing electric incubators. Have a few Jubilee and Pioneer to sell at a bargain. Enoch Crews, Seabright, California.

Exhibition Quality Reds — Trapnested bred-to-lay breeders at half price; hens, cock, early hatched pullets and cockerels. Save money by ordering now. T. S. Caldwell, 335-B West Broadway, Glendale, California.

Barred Plymouth Rocks — "Wonderful Layers," champion prize winners. Nothing better in poultry. Choice stock and hatching eggs. Catalog free. Charles H. Vodden, Los Gatos, California.

White Leghorn Baby Chix from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. Pioneer Hatchery, 409 Sixth Street, Petaluma, California.

White Wyandotte Cockerels for Sale—Extra fine for the price. Write at once. J. W. Nicholson, Wasco, California.

CATTLE

Guernseys — Grape Wild Farms—Berkshires—Young bulls, from calf age up to 16 months old, of May Rose breeding and out of A. R. cows. Bred sows and gilts, service boars and pigs of both sexes for sale. Grape Wild Farms, Escalon, California. A. B. Humphrey, Proprietor.

Shorthorns bred for Range Purposes and of Pure Scotch Blood Lines. Show herd won highest honors in 1917. Visitors welcome. Information cheerfully given. T. T. Miller, Hollister, California.

Berylwood Stock Farm—Breeders of registered Holstein cattle and Duroc-Jersey swine. Every cow an A. R. O. and T. B. tested. Bulls and females for sale. J. W. Snodgrass, Hueneme, California.

Yearly Record Holsteins—Bulls from 500 to 1,000 pound dams and by World Record sires. A. W. Morris & Sons, Woodland, California.

Breeders of Registered Shorthorns—Milk strain; choice young stock for sale. John Lynch Ranch, Box 321, Petaluma.

Registered Holstein Bulls of various ages for sale. Millbrae Dairy, Millbrae, California.

Some Choice registered Holstein heifers and bulls of serviceable age for sale. J. W. Scudder, Escalon, California.

Winsor Ranch Jerseys—Bull calves with production behind them, at reasonable prices. BONITA, CALIFORNIA.

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For Sale—Farming equipment, 400 acres grain and bean land in Santa Ynez Valley; implements, stock, 160 acres summer fallow, feed, seed, 3 year lease, ¼ rent; 3 miles Santa Ynez. Price $2500. Address Box 113, Los Olivos, California.

Ship Your Hay to Us and receive cash when car is unloaded. Pacific Growers Exchange, Central Bldg., 6th & Main Sts., Los Angeles, Pico 3384. Alex. Thornton—Gordon Davidson.

Get Maximum Income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

Avoid Law Suits by having your property lines properly surveyed and established by the Engineering Service Company, 1316 Washington Building, Los Angeles, California.

For Sale—Feed and Grain Sacks. About 4000 sacks in first class condition, cheap. Burr Farm, 26th Street and Downey Road, Los Angeles.

MACHINERY

1 Victory Oil Engine, 12 H. P. New, with Friction Clutch Pulley; regular price $775.00; will sell for $656.00. 1 20 H. P. Victory Oil Engine, two-cylinder, used two years, in first class shape; cost new $1150.00; will sell for $500.00. 1 New Associated Engine, 12 H. P.; will burn coal oil or distillate; regular price $736.00; will sell for $455.00. Edwin A. O'Donnell, Livingston, California.

For Sale 40 rebuilt windmills, tanks, pumps, steel towers, cylinders, rods. Special new 1,000-gallon galv. tanks, $39.25; 2,000, $53.25; 3-in. irrigating pipe, $16.75; 4-in., $19.75; also used pipe. Why pay more? Demmitt, 120 N. Main, L. A.

For Sale—Spalding Deep Tilling Plow, new. Will plow 16-18 inches deep. Just right for team or small tractor. San Francisco or Los Angeles delivery. California Plow Company, 140 Polhemus St., San Jose.

For Sale — Samson Tractor and plow, nearly new, $950.00. Moline Tractor and Plow $400.00. Floyd Kime, Norwalk, California.

For Sale—24 inch Acme ensilage cutter, good condition, and 40 feet blower pipe. Arden Dairy, El Monte. Phone El Monte 42.

For Sale—Pomona pump, 28 head, nearly new. Clarence Wagner, Terra Bella, California.

For Sale—Vaughan Almond Huller used one season. First class condition. Wiggin Brothers, Arbuckle, California.

WANTED

Wanted To Lease To Dairyman; 1,040 acres; 300 plow land, 60 in alfalfa, spring water for 150 acres. Might consider partnership with real dairyman or sell part or all—price $55,000. Also can offer 480 acres at $4,000 cash. If a partnership is formed I have 1,500 acres. I am a widower with one small child and need cash to improve is my reason for leasing or selling. Anyone wishing to locate in a fine cool mountain climate, 1 mile from railroad and school, write me at once. J. B. McConaha, Lock Box No. 6, Tehachapi, Cal.

Wanted — Men, with rigs preferred, to work spare or all time among ranchers selling for established concern. Good pay and territory to right parties. A. F. Levitt, 5463 Huntington Drive, Los Angeles.

Herdsman—Position Wanted—Danish, 39 years of age; dairyman all my life; prefer a place where they do A. R. O. work. Married, no children. Give full particulars in first letter. Box "R," Cultivator, 112 Market, San Francisco, California.

Wanted—To buy in any quantity—baby turkeys, baby ducks. In writing give number, age and price. CALIFORNIA HOTEL FARM COMPANY, 15 North Euclid Ave., Pasadena, California.

Want To Hear from party having farm for sale. Give particulars and lowest price. John J. Black, 116th St., Chippewa Falls, Winconsin.

Agents Wanted — Benedict Nursery Co., 185 E 87th St., N. Portland, Oregon.

GOATS

For Sale—Purebred, Hornless, Shortcoated chocolate Toggenburg buck kids, 6 quart strain. Perfect conformation for milk production. Prices interesting. Pedigrees on application. High grade milk does, yearlings and kids. Carneta Goatery, Vista Street, Route 1, Box 81, East San Gabriel, Mrs. Harry Carnes.

For Sale—Pure Swiss Toggenburgs, does and bucks, from finest milk strains. La Corona Goatery, R. 1-416, El Monte, California.

TREES

CAROB Seeds	CAROB Plantations	CAROB Trees

$1.20 lb. — $450 per acre — 50c up

BURNS AND ASHTON

820 Story Building, Los Angeles, Calif.

Avocados—I have a limited number of fine trees nicely balled and well established from two to six feet in height which I am offering for from two to three and a half dollars each. Fuerte, Linda, Puebla, Sharpless, Ganter and No. 2. Yearling Valencia trees 75c balled and guaranteed. A. R. Rideout, Rideout Heights, Whittier, California.

Have You Gophered Orange Trees? You can save them by inarching. We have the orange seedlings for this purpose. Also 100,000 orange seed-bed trees, both sweet and sour stock. Valencia, Navel and Eureka lemon budded trees. SOUTHLAND NURSERIES, 1941 E. Colorado Street, Phone Colorado 6352, Pasadena.

For Sale—100,000 Sour Orange Seedbed Stock. 10,000 Avocado Seedlings eight inches and up in pots. Also Washington Navel, Valencia Late Orange, and Eureka Lemon Trees. T. J. Walker, First National Bank Building, San Fernando, California.

For Sale — Valencia, Navel, Eureka Lemon, Dancy Tangarine, Rangpur Lime; Supply Company and Tree Performance record buds. One and two years. Cyrus Wilhite Citrus Nurseries, Glendora, California. Phone 303.

For Sale—5000 A-1 Valencia Orange and Eureka Lemons; strong clean yearling buds on sour roots, prices right. Nursery at Montebello. A. R. Thurston, R. F. D. No. 6, Box 895, Los Angeles, California. Phone Boyle 3225.

For Sale—Grafted walnut trees, also citrus and deciduous trees. Order now for 1922 delivery. Get my prices. Ketscher's Nursery, 1101 E. 4th Street, Santa Ana, California. Phone 572-W.

For Sale: Capri figs for your Smyrna and Calimyrna trees, 30 cents per dozen. N. M. Jackson, Box 77 Route 9, Los Angeles, California.

Avocado Trees—Get your orders in now. Mathers Avocado Nursery, Ventura and Rose Streets, Pasadena, P. O. Box 585. Phone Colorado 6044.

Budded Avocado Trees. Write for special prices for orchard planting. S. & S. AVOCADO NURSERY CO., 15 North Raymond Ave., Room 6, Pasadena, Calif.

Citrus Nurseries, Murphy Oil Company, East Whittier California. Selected stock for sale; inspection invited.

California Sweet Seed Bed Stock, 6 inches and upwards. Kloeckner & Lee, 51 N. Chester, Pasadena, California.

DUROC-JERSEYS

Weanling Boars and Gilts by Pathfinder Wonder (Great Wonder I Am ex an 800 lb. Pathfinder sow) for $10 each. Bred sows and gilts. Derryfield Farm, Capital National Bank Bldg., Sacramento, California.

Greenwood Farm Durocs — Moderate prices on bred gilts and weanling boars. Select individuals. Most popular breeding. H. C. Witherow, Mgr., Live Oak, Sutter County, California.

Weaning Boars and Gilts by "Ace of Pathfinders" and "Diamond Sensation." These pigs are growing right. Reasonable prices. C. S. Voile, Arroyo Grande, California.

Boyanna Big Type Durocs — Breeding stock, priced right for sale. Inquiries invited. Satisfaction guaranteed. J. Boyd Harrold, Dixon, California.

High Class Durocs—Two fine early litters, 10 each. Dam 2nd in strong class, Owensmouth. See A. V. Austin, Van Nuys, California.

Winsor Ranch Durocs—The best of stock at reasonable prices. BONITA, CALIFORNIA.

BERKSHIRES

Lark Meadow Berkshires—Bred or open gilts. Bred sows. Prominent blood lines. Geo. A. Stingle, El Monte. BUY A BERKSHIRE BOAR.

Berkshire Gilts—Bred for late spring litters. Boar pigs of breeding age. Calac Orchards, Martinez, California.

POLAND-CHINAS

Lendorris Ranch Polands — Big type Poland Chinas of all ages for sale. The kind that makes weight quickly. Weanling boars and gilts sired by Lendorris Liberator out of Lendorris Liberty Bond sows. Now ready for delivery. W. L. Haag & Son, Hanford, California.

Registered Poland Chinas. 40 tried brood sows; 40 gilts. Some choice young boars all at reduced prices to move at once. These Polands are as good as can be had anywhere at any price. W. D. Trewhitt, Route B Box 47, Hanford, Calif.

Big Boned Poland Chinas—Bred gilts and young boars priced to sell at once. Young stock, either sex, for sale at all times. Bassett Bros., Hanford, California.

Bred Poland-China Gilts sired by California Gerstdale and bred to Some Price $75.00 and up. J. A. Crawshaw, Hanford, California.

Big Type Poland Chinas—Breeding stock of both sexes for sale at all times. Prices reasonable. J. N. Cook, Orland.

HAMPSHIRES

Buy Registered Hampshire Hogs for your breeding stock. Write the H. G. Ranch, Solvang, California, what you need and they will send prices.

TURKEYS

Large Number of Choice Bronze Toms and hens, also geese and herding Collie Dogs. Shipped from St. Helena and San Miguel. John G. Mee, San Miguel.

Bourbon Red Turkeys, Buff Orpingtons. The Ferris Ranch, Reservoir Street, Pomona, California.

Mammoth Bronze Turkey Eggs 20 cents. W. L. Duvall, Pomona, California.

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Irrigation plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

South America—Intend to start a colony in Chili. Remit one dollar to W. Fahrenkrog, Los Angeles, East 4th 2033, who will send you booklet of his experience as successful landseeker in Chili.

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SEEDS AND PLANTS

Reliable Seeds—Ask your dealer or write for our Reliable Seeds and instructive catalog. AGGELER & MUSSER SEED COMPANY, 620 S. Spring Street. Branch—767 S. Central Avenue, Los Angeles, Cal.

R*O*S*E*S—$1.50 per dozen. Ornamental and shade trees, shrubs, palms, vines, plants, etc. Write for catalogue KAVAN NURSERIES, San Bernardino, California.

10,000 Zante Currents, 2,000 Malaga rootings, some Tokays, Sultana; farm and garden seeds and plants. Box 501, Fowler, California.

Pumpkin Seed — Mixed Pumpkin Seed. Good germination. 25c per lb. Aurora Seed Mill, Stockton, California.

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Catalogues and Booklets, office forms and correspondence stationery for the nursery, seed and florist trade; half tone cuts of many standard plants. Correspondence invited. The Kruckeberg Press, 236 Court St., Los Angeles.

HARNESS

Chain Harness — Save money buying of Davis Saddlery Company, 427 J Street, Sacramento. Good horse collars, $5.00 and up.

LIVESTOCK

Shorthorns, Shropshires, Berkshires, Shetland Ponies, Bronze Turkeys. W. P. Rocks, Butte City Ranch, Box C, Butte City, Glenn County, California.

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WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, California. Established 50 years. Send for free book on patents.

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Pedigreed Flemish Giants — No fancy prices. Maud Beeching, 1578 W. 46th St., Los Angeles.

Guinea Pigs Wanted—Highest price paid. Smith, Route 1, Box 139, Pasadena.

HOGS

"Blue Hogs"—Large, growthy and prolific. Actually "BLUE" in color. Greatest show HOG in America. Write for booklet. Mention this paper. The Blue Hog Breeding Co., Wilmington, Mass.

TRACTORS

For Sale—Holt 75 with implements. Or exchange part for good dairy cows. C. E. Newman, Chowchilla.

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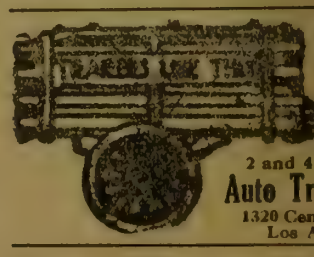
Installations can be made in wells 10 inch or larger. Produce 300 to 4,000 gallons per minute. Ask for Folder No. 4. American Well & Prospecting Co., 407 E. 3rd, Los Angeles



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FOR PROFIT

Growers netted this year $1000 per acre. April, May and June are absolutely the best months to plant for full crop next winter and spring. We can supply plants—all sorts for large fields. Write for price list. J. B. WAGNER

Rhubarb and Berry Specialist, Pasadena, Cal.

Los Angeles Markets

Los Angeles, June 22, 1921.

BUTTER

Butter: Creamery extras, Produce Exchange price 37 cents.

June 15	16	17	18	20	21
'21	37	..	37	..	37

CHEESE

Brokers' prices:
California flats, 16@18.

EGGS

Fresh extras (case included): Produce Exchange closing price 28 per dozen. Case count Produce Exchange closing price 27. Pullets, closing price 26 per doz.

June 15	16	17	18	20	21
'21	27	..	27	..	28

POULTRY

Price to producers: Hens, 17@23; colored, 29; broilers, 24@31; roasters, 40; old roosters, 12; fryers, 35; ducks, old, 23; ducklings, Pekin, 3½ up, 35; others, 35; geese, 25; turkeys, live, young tom, 50; dr., 55; old, live, 40; dr., 41; hens, live 40; dr., 44; squabs, 45@47.
Belgian hares, live, 12@16; old 8.

LIVESTOCK

Los Angeles, June 21, — Weighed and delivered off cars without food or water: Hogs (hard grain fed), 125 to 175 lbs., 9.00; 175 to 225 lbs., 9.50.
Cattle (on foot, gross weight): Steers, good, 8.00@8.50; medium, 7.50@8.00. Cows, good, 6.00@6.50; medium, 5.50@6.00. Calves, 125 to 150 lbs., 9.50; 175 to 225 lbs., 9.00.
Sheep: Ewes, 5.00@5.50; lambs, 8.50@9.00.

POTATOES AND ONIONS

These are the actual prices obtained between 7 and 8 o'clock June 21, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on walk. There may be slight fluctuations during the day's trading.
Potatoes: Supplies liberal, market weak. New stock: Wide range in prices, 60@75, few best 85, poorer 50 per lug. No. 1, sacked per cwt. mostly 1.50@1.75, few 2.00. Sales to jobbers: Sacked per cwt. No. 1, 1.25@1.35.
Onions: Supplies moderate, market steady on Bermudas, supplies light, market strong on Wax. Coachella and Imperial Valleys: Standard crates Wax 1.50@1.75, Yellow Bermudas 1.00@1.10. Jobbing: Bermudas 90@1.00, fair condition 80, Wax 1.50.

VEGETABLES

These are the actual prices obtained between 7 and 8 o'clock June 21, by wholesalers in their sales to retailers, peddlers, hotels, restaurants, cafeterias, etc. Terms: Cash on the walk.
Asparagus: Market firm; supplies moderate. Local: 16@18 per lb.; Northern mostly 10@12; poorer 6@8; fy. 15.
Beans: Supplies heavy, market steady Kentucky Wonders 4@5; Wax 6.
Beets: Doz., 35@40.
Cabbage: Field crate best mostly 1.75@2.00.
Carrots: Doz., 35@40.
Celery: Supplies moderate, market slightly stronger, mostly 6.00@6.50; few 6.75.
Corn: Supplies liberal, market weaker, local mostly 50 per doz.; 1.50 per lug.
Cucumbers: Supplies moderate, market weaker. Local: Lugs mostly 1.40@1.50. Signal Hill: Flats mostly 65@70. Hothouse: Per dozen 1.00@1.25.
Lettuce: Local field crate mostly 85@1.00; few 1.25@1.40.
Peppers: Supplies liberal, market firm. Imperial Valley: Bells best, 20@22; fair 15@18. Chilis, best 15@18 per lb.; fy. 20; poorer 12.
Radishes: 15 doz.
Rhubarb: Local strawberry, best 90@1.10; poorer 65@75 bx.
Squash: Supplies moderate, market steady. Summer squash: Local, 50@60 per lug; Italian, mostly 1.00.
Tomatoes: Supplies heavy, market weak, very little good stock arriving. Imperial Valley: Crates 1.40@1.50, best greens and pinks; poorer 1.25, fancy ripes 1.50@1.60. Jobbing: 1.40@1.50 on fancy ripes, mostly 1.25@1.35 on greens and pinks; poorer 1.00. Local: Supplies moderate, market steady, crates best 1.90@2.00.
Turnips: Doz., mostly 40@45.

FRESH FRUITS

Apples: New lb., 5@6.
Apricots: Supplies heavy, market weak, 4@5 per lb., few fancy 5½, poorer 3½. Jobbing: 3@4 per lb.
Blackberries: Supplies moderate, market weaker. Best 3.25@3.75; few 4.00.
Cantaloupes: Supplies heavy, market firm. Ponys mostly 1.75, few 2.00, standards mostly 2.00@2.25, few fancy 2.50, flats 90@1.00. Jobbing: Standards mostly 1.90@2.00, few fancy 2.25, ponys mostly 1.65@1.75, flats 75@90.
Cherries: Supplies light, market firm on good stock. White, various varieties mostly 12@14 lb.; few 15; Bings, supplies light, market stronger 20@25; other blacks 10@12.
Loganberries: Supplies moderate, market steady; 30 pint crates 2.75@3.00; few 3.25.
Peaches: Supplies moderate, movement good, market firm. Wide range in quality and condition. Lugs, best 1.75@2.00, poorer 1.25@1.50, best mostly 6@8 per lb.
Plums: Supplies moderate, market firm. Santa Rosas, best 9@10, various varieties mostly 6@8 per lb.
Raspberries: Supplies moderate; mostly 2.75@3.00 per 30 pint crate; few fancy 3.25.
Strawberries: Supplies moderate, market stronger. Per crate, 30 pints best mostly 4.00@5.00.
Watermelons: Supplies liberal, market steady, mostly 2@2½ per lb., few fancy 3 on Klondikes. Jobbing: Klondikes 2@2½, other varieties 1½@2 per lb.

CITRUS FRUITS

Grapefruit: Supplies liberal, market steady on good stock. Local: per box, market pack 2.00@2.50, special packed brands 3.00@3.25; ordinary 1.75.
Lemons: Supplies moderate, market steady, wide range in prices. Local: packed box 4.50@5.00; few fy. high as 7.00; loose 1.25@1.75 per box; few fy., 2.00@2.25; per lug mostly 50@75.
Oranges: Supplies liberal, market steady. Valencias, best brands, all sizes, 3.50@4.00, few 4.50; ordinary 3.00@3.25; packing house culls 50@75, few best 1.00@1.75 per box.

HONEY

As reported by the Bureau of Markets: Supplies of White Sage, Light Amber and White Orange light, other varieties heavy. Light wire inquiry. Movement very slow, market dull, little change in prices. Carloads f. o. b. usual terms at loading points: White Orange, new crop 12@12½; old crop, no sales reported. Light Amber Alfalfa, old crop 5½@6, new 6@6½; White Sage best 12@12½; Light Amber Sage, no sales reported. Hawaiian White 6, Light Amber 5½.
Beeswax in less than carlots light 30@33, dark 26@28 per lb. Alfalfa crop is now estimated normal, orange 25 per cent and Sage at 30 per cent of normal.

GRAIN AND FEEDS

Grain Exch. price bid June 21:
Corn: Bulk No. 2, Yellow 1.60.
Bran: Kansas, 26.75.
Milo: No. 2 Eastern bulk, 1.85.
Barley: Carloads, 1.16.

HAY

Alfalfa Growers of California report prevailing prices f. o. b., Los Angeles:
No. 1 Dairy 19.00
Standard 16.00
Prices at ranch are—No. 1 Dairy: Antelope Valley, 18.00; San Fernando Valley, 17.00; Hemet and Perris, 20.00; Chino, 21.00
Quotations by Nichols-Loomis Company. Following are prices to growers f. o. b. Los Angeles in carload lots; handling and commission must be added to obtain retail prices on new hay:
Tame Oats .....18.00@26.00
Barley .....16.00@24.00
Alfalfa, No. 1 Dairy 18.00
Standard 16.00
Straw .....10.00@13.00

San Francisco Markets

San Francisco, June 21, 1921.

Quotations made daily by San Francisco Wholesale Dairy Produce Exchange. These are the prices paid by retail grocers to wholesalers. The prices paid by the wholesalers to producers are eight per cent less.

BUTTER

Dairy Exchange quotations:
Extras 37
Dairy Exchange prices extras this week and year ago:

June	14	15	16	17	18	20
'21 ...	37	37	37	37	..	37
'20 ...	..	57½	58¼	58½	..	..

Rcts. wk. ending June 20, 13,993 centals.

CHEESE

Dairy Exchange quotations:
Jack, full cream, street prices....14½@16
Oregon Trips 20
Cal. Y. A.....23
Cal. Flats 18½

EGGS

The prices paid by wholesalers to producers are eight per cent less.
Dairy Exchange quotations, dozen including cases:
Extras 28
Extra Firsts 27
Dirties No. 1.....26½
Extra Pullets 25½
Undersized 22½

June	14	15	16	17	18	20
'21 ...	28	27	27½	28	..	28
'20 ...	..	49½	48½	47½	..	..

Rcts. wk. ending June 20, 614,163 doz.

POULTRY

Wholesale prices are:
Young chickens, Leghorns, 1 to 1¼ lbs., 25@27; 1½ to 1¾ lbs., 30; 2 lbs. up, 35; heavy breeds, 1½ to 1¾ lbs., 35; 2 lbs. and up 50; old roosters, Leghorns, 13; do, heavy breeds, 18. Hens, Leghorns, large, 23; do, small to medium, 17@20; heavy breeds, 30@32.
Ducks: Young, 35 per lb., old 25.
Geese: 25 per lb.
Turkeys: Live, 35 per lb., do, dressed, 45@50 per lb.
Squabs: Fy. 45@48 lb., common, 3.50 per doz.
Belgian Hares: 13@14 per lb., do, dr., 18@20.
Pigeons: Old 3.00 per doz.

LIVESTOCK

Western Meat Company prices are:
Cattle: Steers, No. 1, 6½@7; do, second quality, 6@6½.
Cows and Heifers: No. 1, 5@5½; do, second quality, 4½@5.
Calves: Light weight, 6½@7; medium, 5½@6; heavy, 4½@5½.
Sheep: Wethers, 3½@4; ewes, 2½@3; Lambs: Milk, 6@6½.
Hogs: Hard, fat, grain-fed, weighing 125 to 200 lbs., 10; do, 200 to 250 lbs., 9; do, 250 to 350 lbs., 8; light sows, 8; heavy sows, 7.
California Farm Bureau Market Association reports sales:

No. Hogs	Ave. Wt.	Dock	Price
Turlock, June 14			
68	172	...	8.85
20	251	...	7.85
1	320	...	6.00

Total one car, 19 consignors, $1,454.28.

Fresno, June 17			
33	196	...	9.25
17	244	...	8.25
4	143	...	8.25
4	360	60	6.25

Total one car, 12 consignors, $1,089.58.
Total for the week, two cars, 31 consignors, $2,543.86.

POTATOES AND ONIONS

Wholesale prices:
Potatoes: Street prices: River, nominal; do, Oregon Burbanks, 2.00@2.25; Nancy Hall, 5.00@6.00 per 100 pounds; Idaho Gems, 2.30@2.60.
New: Garnets, 1.75@2.00 per 100 lbs. do, White, 1.50@1.75.
Onions: Australian brown, 35@50 per bag; new red, 75@1.00 bag; green, 1.50@1.75.
Garlic: New, 6@8 lb.

VEGETABLES

Wholesale selling price:
Artichokes: Crate, 3.00@12.00.
Asparagus: Culls, 2½@3 per lb.; field run, 4@5; fancy graded, 7@10; green, 3@5.
Beets: 1.75@2.00 per sack.
Beans: String, 4@5.
Celery: New, 8.00@9.00 cr.
Corn: Brentwood, doz., 65@75.
Cucumbers: 75@1.25; hothouse, 1.00@1.25 box of 2½ dozen; English, 1.00 per dozen; Signal Hill, 1.00@1.25.
Eggplant: Lb., 10@12½.
Okra: 8@12½ lb.
Onions: Green, per lug, 1.50@1.75.
Peas: 4@5 lb.
Parsnips: Sk., 2.00@2.25.
Peppers: Bells, 10@30; Chili, 15@20.
Squash: Imperial Valley Summer, 75@1.00 cr., do lug, 1.25; Italian, do 75@1.25.
Spinach: Lb., 2@4.
Tomatoes: Imperial, green, 1.00@1.75; ripe, 1.75@2.00.

FRESH FRUITS

Apples: New crop White Astrakhans, 1.00@1.25 per small lug; do, Reds, 75@1.50 lug box.
Apricots: 1.00@1.25 per 4-basket crate; 60@1.00 per lug box.
Avocados: California, doz., 3.00@6.00.
Bananas: Lb., 8½@10.
Blackberries: 40@45.
Cantaloupes: Standard, 1.50@2.00; ponies, 1.00@1.50; flats, 50@75; Honey Dew, 1.50@2.00 per crate; flats, 75@1.00; Casabas, 2.50@3.00.
Cherries: Tartarian, bulk, 5@7 per lb., 1.00@1.25 per drawer; Bings, 12½ per lb.; Santa Cruz, 9@10; Royal Anne, 5@8 per lb., 75@1.25 per drawer.
Currants: 85@1.00 per drawer; 8.00@9.00 per chest.
Figs: Black, 90@1.15.
Grapes: 3.00@4.00 small lug.
Gooseberries: 7@8 lb.; English, 15 lb.
Loganberries: Red, chest, 8.00@9.00; do, blacks, 7.00@8.00; 35@45 per drawer.
Loquats: 6@7.
Peaches: Cr., 1.00@1.75; lug, 2.00@2.25.
Plums: Apex, 1.50@2.50 per lug box; 1.50@2.50 per crate; Santa Rosa, 2.50@3.00 per lug.
Raspberries: 90@1.10 per drawer.
Strawberries: Peninsula and Watsonville, 50@60, some higher; Salinas, 1.10@1.35 per crate; Watsonville, 1.00@1.25 per crate, according to quality.
Watermelons: Lb., 2½@3.

CITRUS

Navel oranges, 4.00@5.20; Valencias, 3.00@4.00. Lemons, 5.00@7.00 per box; lemonettes, 3.00@4.25; grapefruit, 2.50@4.00.

BEANS

Below California Bean Growers Association shippers prices choice recleaned:
Large Whites 3.60
Small Whites 3.45
Pinks 6.15
Mexican Reds 8.00
Red Kidney 9.75
Henderson Bush 4.95
Cranberries 6.75
Bayos 10.35
Blackeyes 8.00

HAY AND FEED

Alfalfa Growers of California state that prevailing prices f. o. b. S. F. are:
No. 1 Dairy 17.00
Standard 15.00
Assoc. prices at producing centers for No. 1 Dairy:
Fresno 17.00
Tulare 17.00
Under date of June 17, A. W. Scott Co. says:
We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market in San Francisco (for prices to consumers charges of switching, cartage, commission and handling expenses must be added according to conditions).
Wheat Hay, fancy.....18.00@20.00
Wheat Hay, light 5-wire bales 15.00@18.00
Wheat Hay, new crop.....14.00@17.00
Tame Oat Hay.....14.00@17.00
Wild Oat Hay, new crop.....10.00@12.00
Barley Hay .....10.00@12.00
Alfalfa Hay, new 2nd cutting 12.00@14.00
Alfalfa Hay, new first cutting 9.00@11.00
Stock Hay ..... 9.00@11.00
Barley, Ground .....30.00@33.00
Barley, Rolled .....27.00@29.00
Oats, Rolled Feed .....35.00@37.00
Bran, Red .....33.00@36.00
Bran, White .....37.00@39.00
Millrun .....36.00@40.00
Middlings .....46.00@48.00
Linseed Meal .....35.50@37.50
Coco Meal .....23.00@27.00
Alfalfa Meal, old crop.....24.00@26.00
Alfalfa Meal, new first cutting 22.00@23.00
Cottonseed Meal .....35.00@40.00
Sugar Beet Pulp..... 32.00
Molasses, Tanks 21.00
Molasses, Bbl. 25.00
Milo .....44.00@46.00
Corn Meal .....45.00@47.00

GRAIN

Wheat: Milling, 2.40@2.50; feed, 2.30@2.50.
Barley: Feed, 1.10@1.15; shipping, 1.25@1.30.
Corn: California yellow, 1.55@1.60; white Egyptian, 2.35@2.40 per cental; California red milo, 2.15@2.20; Eastern red milo, 1.95@2.00; Eastern kafir, 1.75@1.80.

C. C. A. MARKET REPORT

Since our report of May 30 there has been a decided improvement not only in the tone of the market but in the actual sales which have been reported. San Francisco newspaper quotations have been advanced for the first time in several weeks, but they are still far below the actual sales being made in the country. One sale of prime steers was reported last week at 8c f. o. b. ranch. Other sales have been reported from 7c to 7½c f. o. b. ranch. Reports reach us of sales of prime cows and heifers as high as 6¼c f. o. b. ranch. Los Angeles packers are buying freely in Central California and as far north as Stockton. The severe drouth condition continues in Arizona and no beef cattle can be expected from that state or from New Mexico. The shortage of beef cattle in Southern California and south San Joaquin Valley is very pronounced. The shortage in the latter district alone is estimated, by competent authority, to be 40,000 head. Some California cattle have arrived at the Portland market and a train of 40 cars is expected to arrive there today. It is evident that the crisis for California cattle has passed for this season, and that from now on steady improvement can be expected. It is gratifying to know that no commission cattle are being sent to market. Under no circumstances offer cattle for sale until they are well finished.—Fred H. Bixby, chairman; James Barry, C. N. Hawkins, A. S. Goode, Owen Duffy.

Citrus Markets

Los Angeles, June 22, 1921.

Shipments

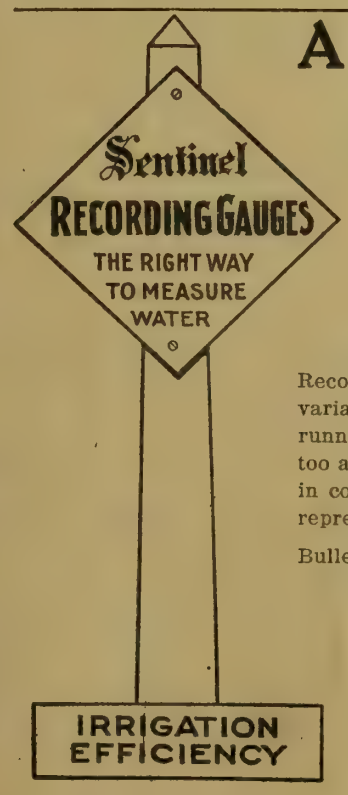
Shipments of citrus fruits to date since November 1, 1920, Southern California: Oranges, 27,973 cars; lemons, 6,965; total, 34,938. To same date last season: Oranges, 22,262; lemons, 5,496; total, 27,758. From Central California to date this season: Oranges, 6,603; lemons, 184; total, 6,787. To same date last season: Oranges, 5,368; lemons, 289; total, 5,657. From Northern California to date this season: Oranges, 305; lemons, 5; total, 310. To same date last season: Oranges, 261; lemons, 22; total 283.

WEATHER REPORT

San Francisco, Cal., June 18, 1921.

Stations	Rainfall Wk.	Season	Norm	Temp. Min.	Max.
Eureka	.70	48.29	45.81	64	50
Red Bluff	.06	27.92	24.93	92	48
Sacramento	.01	16.79	20.09	86	50
San Francisco	.00	23.16	22.27	77	50
San Jose	.00	15.01	16.79	78	44
Fresno	T	8.18	9.68	100	50
San Luis Obispo	.00	19.27	20.51	82	44
Los Angeles	.00	13.64	15.64	80	54
San Diego	T	7.08	10.01	70	55

The Contra Costa County alfalfa producers, especially those in the Byron-Brentwood irrigation district, have investigated as to costs of alfalfa production and find it $14.75 per acre, or about $10 per ton.



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New Agricultural Legislation

By R. N. Wilson

ALTHOUGH grains are among the important crops of California, this state producing more barley than any other, the grain growers as such have had little voice in the agricultural legislation enacted in the past. This was due to the fact that the grain growers were not organized either as a marketing or a general organization and therefore had no common clearing house for the problems of the industry.

During the recent session of the legislature two important measures affecting the grain interests were passed, the California warehouse act and the grain standards act, the first being sponsored by the California Farm Federation, the second by the Federation of American Farmers.

A measure dealing with gambling in futures was also sponsored by grain growers but was later withdrawn as being impractical.

The Warehouse Bill

The California warehouse act is very similar to the federal warehouse act and like the federal act permits goods to be stored according to grade, thereby establishing a greater degree of security for warehouse receipts. It is also worded to expedite bulk handling of grain. Under the laws formerly existing, if 1,000 bags of grain were stored in a warehouse and later sold these exact bags must be delivered to the purchaser. Through bulk handling the grades are pooled and when the 1,000 bags of grain are sold this quantity of a certain grade of grain is delivered regardless of who was the original grower.

The warehouse bill traveled a precarious route, its proponents several times despairing of its passage. Upon the original hearing of the measure in the agricultural committee of the assembly everything looked rosy as the committee unanimously voted it out with a favorable recommendation to the ways and means committee, which must necessarily consider it because of the appropriation of $25,000.

At the hearing of the ways and means committee a surprise was sprung by the then state superintendent of weights and measures, who maintained that the appropriation was too great and that the law should be administered by his department instead of by the department of agriculture. This attack confused the ways and means committee, which insisted that the bill go back to the agricultural committee for further consideration. Following a similar attack at a second hearing in the agricultural committee the measure was again sent to the ways and means committee with a favorable recommendation and had no difficulty in passing on through the assembly.

In the finance committee of the senate the bill was again almost stranded by one of the periodical waves of economy, and it was only through a maneuver by Senator Boggs, changing the outright appropriation to a revolving one, that it was kept afloat.

The measure was reached on the senate files on the last official day of the session, the senate clock proclaiming it April 29 but the calendar April 30. Proponents were certain of its passage, since no open opposition had developed, but without their knowledge an unsigned statement violently attacking the measure had been laid upon certain senators' desks. When the matter came up for consideration opposition sprang from many parts of the floor, and it was saved only by delaying the vote. During the next few hours the details of the bill were explained to the overworked senators, and unexpectedly the administration came to its rescue, so when the final vote was taken on Sunday, May 1, the measure pulled through by a fair majority.

Grain Standards

The grain standards act gives the director of agriculture authority to establish uniform grades for grains which are defined as including corn, wheat, rye, oats, barley, grain sorghums and beans. Any standards for grains now or hereafter established by the federal authorities shall be the official standards of this state. The act is permissive, but upon the demand of either buyer or seller of grains the transaction must be made on the basis of the grades established.

The only federal grades now available which would apply to this act are on wheat, oats and shelled corn, but considerable work has been done by federal agents on California barley grades, and it is probable that the tentative grades will be accepted until more data can be accumulated. Arrangements have already been made to place a competent and experienced grain man in charge of the grain work of the state department of agriculture, which must administer both the warehouse act and the grain standards act.

General Agricultural Laws

Besides the measures passed which affect individual industries there were a number of general agricultural interest. One of the most important appropriated $200,000 to provide for the investigation of the possibilities of the storage, control and diversion of water for public use and public protection. The plan as originally presented was known as the Marshall Plan, but a number of changes were made and the appropriation reduced from $500,000. The results of the investigation are to be presented to the legislature in 1923.

Agricultural College Investigation

The controversy, which at times waxed warm, concerning the location and methods of our college of agriculture, promises to be cleared up through the report of a committee which will have $10,000 at its disposal to study the agricultural education situation in this and other states. The committee will be composed of three farmers, one senator, one assemblyman, the controller of the state university, and one member from the faculty of the college of agriculture. The effectiveness of this committee will depend largely upon the personnel of the farmers appointed, since no opinions will be accepted from men who do not hold the confidence of the farmers throughout the state.

Another committee will select a site for a junior college of agriculture in Southern California. Approximately $160,000 has been paid for the land and water at the Riverside site, but there are other strong contenders for the location in Southern California.

Poison and Weeds

The economic poison law will require the labeling of all poisons sold as insecticides, fungicides, rodent remedies, etc. Serious financial loss has resulted where poisons were used concerning which few of the facts could be obtained, and such losses should be obviated by this act.

A law providing that weed free areas may be promulgated by the director of agriculture will do much to keep present free areas from becoming overrun by noxious weeds.

Largely as an experiment, $10,000 has been appropriated for the schooling of children of migratory laborers. Many of these children have been going to school only two or three months a year because their families moved from place to place where school facilities were not available. It is believed that where schools are provided for such children the tendency will be for labor to become more stabilized.

NEW OAKLAND ELEVATOR

The giant new concrete elevator of the Western Milling Company, which has been leased by the farm bureau, has begun operations and a rancher in Stanislaus County has initiated it with an initial shipment of approximately 14,000 bushels of grain.

While it is the intention of the farm bureau to operate the elevator as a terminal for bulk grain shipments, it is stated that grain will continue to be received in sacks until the farmers have had time to install equipment which will enable them to abolish the costly method of shipping grain in sacks.

W. H. Heileman, secretary of the California Farm Bureau Federation, declares that farmers should consider the use of loading stations at railroad sidings in sections not yet supplied with elevators. He declares that only by such methods will they be able to ship grain in bulk this year.

More than 2,000 tourists registered for the opening week end at General Grant Park. The roads to the park are reported to be in excellent condition. More accommodations are available than in previous years, and the park authorities anticipate a record season.

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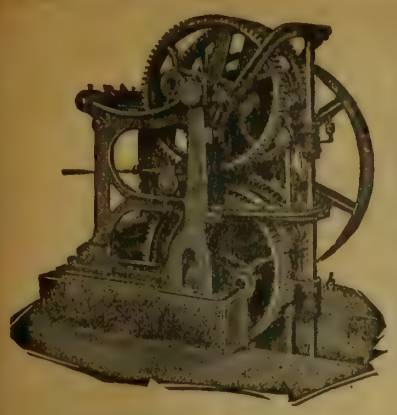

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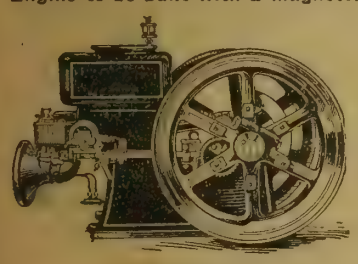
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A Model Brooder House

By Jean A. Koethen

ONE of the most comfortable and carefully arranged brooder houses I have seen was found at the McAllister Ranch just out of Inglewood. It is about 50 feet long and equipped with a hot air brooding system. The cut shows the southern exposure. Each window outside corresponds to a run inside which holds from 100 to 150 baby chicks. In order to keep too much direct sunshine from the runs every other window is painted white. Every run has its own brooder, sour milk fountain and dry mash trough as well as its own outside run. An alley at the rear of the brooders makes attendance easy.

Long Brooder House on McAllister Ranch

W. H. Brannan, the new manager of the ranch, has had wide experience with large flocks in northern California and is putting his knowledge of little chicks and their needs into immediate action. The day I saw them there were 2,000 chicks in this brooder house, all just three days old, and 3,000 older chicks in the two other houses around big brooder stoves.

Out of these 5,000 chicks Mr. Brennan expects to raise at least 4,600. Last year he raised 1,150 out of 1,200, and he believes that proper care will raise 95 per cent of every hatch.

Simple Feed

When chicks are raised on such a large scale no fancy feeds can be used. Simplicity in feeding is the first essential. Semi-solid buttermilk diluted 20 to 1 is given in fountains as soon as the chicks are put in the brooder and fine chick grit is placed before them in trays but nothing else is given till they are at least 36 hours old. The nursery feed is commercial chick feed which is fed in troughs at 6 a. m. and then at 9, 12, 3 and 5 o'clock. As soon as they have learned to eat, and from that time on, the chick feed is scattered in the rice husks which are used instead of straw for litter. Under the rice husks is coarse sand.

On the third day from 9 to 11 and 1 to 3 a commercial chick mash is placed before the chicks in troughs. After the first week it is left before them all day. No greens are given the first week. Beginning the sixth or seventh day cut clover is fed at 1 o'clock.

Brooding With Gas

All the heat in these brooder houses is supplied by gas which is found to be less economical than oil but satisfactory in other respects. To keep the little chicks around the stoves from getting too close at first the stove is surrounded by a wire fence, but this is needed only a day or so for the chicks quickly learn to stay where they are comfortable.

When Mr. Brannan took charge of the ranch on March 21 there were 2,500 hens with a daily egg yield of about 1,000 eggs. He culled them by the Hogan system to 1,500 and still got the same number of eggs as before. The number of layers is to be increased another season to 5,000, Oregon agricultural college stock being used as the foundation.

Poultry Queries Conducted by J. A. Koethen

Lack of Moisture

I wonder if you can tell me why my turkey eggs hatched so badly. I set 11 eggs under a chicken hen, and only one poult was able to get out without help. Those we helped out were weak and crippled. The hen was sitting in the barn, and the weather was hot part of the time. I was told the trouble was lack of moisture.—Subscriber, Pond.

It is customary to set turkey eggs on the ground and to moisten them occasionally toward the end of the hatch by sprinkling with warm water or by sprinkling the ground around the nest. In dry weather this is quite important because the turkey egg has a tough inner lining. Undoubtedly lack of moisture had much to do with your poor hatch.

Why Turkeys Die

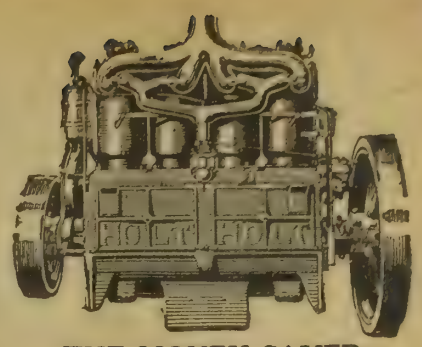
Please tell me why my turkeys die. I feed dry curd, cracked wheat, corn and oats. They have green range and have never been wet. I found yellow spots on the livers of the dead ones.—Subscriber, Ukiah.

Little turkeys should have no corn and very little grain of any kind. The most successful breeders feed a mixture of hard boiled egg, stale bread or rolled oats and greens till the poults are about two months old. You could use the curd instead of egg if more convenient. A little steel cut oats might be used instead of the rolled oats, but it is better to omit other grain. Feed three or four times a day what the poults will clean up in a few minutes and never let their crops get stuffed full. Feed barley, wheat and bran after two months, and never corn till fattening time. Be sure they have grit or shell before them. If you have it give them a pan of clabbered milk every day. This is one of the best preventives of blackhead.

Intestinal Worms

Please tell me what can be done for intestinal worms.—Subscriber, Los Angeles.

A pound of tobacco powder to 50 pounds of dry mash is the prescription of Dr. Beach of the poultry division. Keep the mixture before the birds three weeks, then take away three weeks and return for another three weeks. This treatment may be kept up till all signs of worms have disappeared.



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INDEX
California Cultivator
Vol. LVI
January-June, 1921
Inclusive

Abortion, Infections, 788
Administration, New, 349
Agricultural College Appropriation, 674
Alfalfa, Nurse Crop With, 46
—Too Much, 225
—for Fertilizer, 272, 755
—Weevil Warning, 800, 770, 789
—Growers Organize, 691
—with Beet Pulp, 755
Almond, Cultural Methods, 38
—Good Culture Shows, 135
—Bitter, 354
—Pollinating, 390
—Not Fruiting, 422
—Pruning, 778
Annuals, Growing, 567
—U. S. Bulletin, 571
Ants, Exasperating, 640
—Bluestone for, 781
Aphis, Woolly, 278
—On Peas, 391
—Mealy Plum, 763, 777
Aphycus Lounsburyi, 276
Apples Produced in Cal., 33
—Storage, 42
—Market at Home, 136
—Watsonville Crop, 43
—Wrapping in Oiled Paper, 136
—Thriving Section, 205
—Unknown, 244
—Spraying, 517
—Loss in Exporting, 763
Apricots, Brown Rot of, 138
—Scale on, 272
—Correspondence Course in, 314
—Budding, 390
Arizona Reconstruction, 584
Artichokes, 779
Asparagus, Fertilizing, 277
—Grading and Packing, 580
—Culture, 586, 746
Asparagus Plumosus, 456
Associations, Peach and Fig, 69
—Prune and Apricot, 69
—Raisin Crisis, 74
—Dehydrators League of California, 416
Autos, Buying Second Hand, 291
—New Law, 270, 370
—Farmers Own Half, 695
Avocados from Columbia, 43
—Pruning, 46
—Lure of, 102
—Director Resigns, 107
—not a Pear, 110
—Tree Records, 235
—Hardy, 276
—Directors Meet, 312
—Budding, 354, 586
—Not Bearing, 454, 391
—Ripening, 407
—Nutritive Value, 416, 638
—Preferred, 418
—Importations, 423
—Orange, Co., 452
—Newer, 452
—Seedling, 453
—Windbreaks, 486
—Seeds, 488
—Assoc. Meeting, 517, 581
—Queen, 612
—Convention, 639
—Girdling, 639
—Ripe, 650
—and Loquats, 651
—Oil Content, 677
—Registration Committee Report, 705
—California's Scout, 713
—Vagaries of, 739
—New Officials, 759

Bamboo for America, 423
Banks, 15
Barley Varieties, 108, 225
—230
—Mariout in Butte, 300
—Tennessee Winter, 547
—Mariout, 829
Barranca, Terrace, 315
Barrenness, 175
Beans, Soy, 108
—Jack Again, 109
—Situation in Cal., 388
—Lima Situation, 388
—Kentucky Wonders, 391
—Horse, 424
—Protein in, 489
—Weevil, 571
—Irrigating, 648
—And Tariff, 695
—Rhizoctonia, 806
Bean Weevil, 15
Beef vs. Steer Prices, 495, 561
Bees, What Strain of, 125
—60 Years in Cal., 133
—How to Learn Beekeeping, 424
—Comb Honey, 438
—Queen, 571
—Nevada Beekeepers, 571
—Hives, Transferring, 715
—Efficient Production, 715
Bergtholdt Plan, 482, 574, 718, 775
Berkshires at Italian Vineyard, 22
—S. W. Congress, 187
Bermuda, Eradicating, 278
Berries, Propagating Cane, 278
—Containers for, 583
—Cane, 650
Birds, Economic, 577
Blackberries, Thornless, 278, 422
—354
—Cory, 763
Black Scale Parasite Established, 10
—Control, 10
Blasting, Dynamite Needed, 713
Blue Andalusians, 229
Boll Weevil in Ariz., 5
—as Handled in Ariz., 9
Bonds Discounted, 98
Bookkeeping, Farm Inventory, 59
Book Reviews
—Pastoral and Agricultural Botany, 63
—Rabbit Book, 230
—Sweet Potatoes, 395
—Soils and Agriculture of Southern States, 437
—Corn Book, 495
—Standard Squab Book, 695
—Manual of Subtropical Fruits, 826
Boys and Girls Clubs—1920 Farmers, 120
Breeding Raises Standard, 52
—Essentials of, 558, 592, 656, 689
—Purebred not a Purebred, 725
—Better Sires Army Aids, 756
Brown Rot, Preventing, 43
—In Deciduous Nursery, 711
Bud Selection in Citrus, 35
Buffalo, Increase of, 53
Bulls of Highest Quality, 469
—Associations for, 812
Burroughs, John, 450
Butter, Better Cream, Better, 561

Calf, How to Raise, 86
—Jersey Club Prizes, 86
—Feed Grain Early, 691
California, 674
Cal. Col of Ag., 238
—Appropriation for, 514
Cal. Dept of Ag., Annual Report, 237
—Publications, 419
—Ian Chemistry Bulletin, 567
—Whittier Insectary, 571
Calla Stains, 588, 621
Canned Fruit, 259
Canner, Home, 674
Canning the Wastes, 511
Carpenter, D. Sc., 822
Carob Planting, 450
—Variable, 567
Castor Beans, 584
Cattle, Prospects Better, 20
—Situation, 84
—How Selling, 267
—Arizona, 326
—Pure Breds Pay, 434
—Daughters of Pure Breds, 435
—Kind to Buy, 754
Cauliflower, 813
Celery, 312
Census Returns Honor Calif. Counties, 445
—Price of Plowland, 450
—Gen. Crops for U. S., 509
—Cal. Crops and Animals, 1920, 797
Cereals, Planting at Univ., 19
Chamber Lye, 791
Chestnuts, Italian, 354
Chicks, For Growing, 335
—Going on the Roost, 536
—Troubles of, 537
—Brooding by Thousands, 600
Chrysanthemum Propagation, 200
Citric Acid Imported, 141
Citron, Processing, 204
Citrus, Bud Selection in, 35
—Decay in Transit, 168
—Freezing Pests, 169
—Crop for 1921, 170
—Crop in Sicily, 197
—Black Fly, 205
—Mottle Leaf, 240
—Rebudding, 245
—Number in Box, 480
—Pruning, 515
—Topworking, 516, 549
—History and Botany of Tree, 673
Citrus Institute, 168, 312, 619, 751
Coins, Value of, 422
Coming Events, 623
Concrete Pipe Tests, 731
Contributors
—Atkeson, T. C., 767
—Braunton, E., 3, 85, 99, 102, 104, 172, 280, 320, 449, 516, 612, 619, 639, 676, 703, 743, 775, 799, 825
—Bemis, M. E., 13, 15, 288, 319, 454, 584, 740
—Bennett, J. P., 18, 121
—Britt, Jas. P., 42, 355
—Bercaw, G. W., 125, 428, 571, 715
—Burger, O. F., 168
—Berglund, H. M., 216
—Butler, C. L., 481
—Barss, H. P., 578
—Boland, E. M., 735
—Bioletti, F. T., 740
—Belford, H. H., 747
—Compere, Harold, 276
—Crossman, L. C., 451
—Condit, I. J., 547, 646
—Castle, C. V., 560, 626
—Coit, J. E., 639
—Christie, Arthur W., 718
—Carpenter, F. A., 823
—Cruess, W. V., 830
—Dougherty, J. E., 61, 188
—Daysh, N. J., 116
—Dickson, H. K., 120
—Dahl, A. L., 165, 413, 575, 602, 825
—Douglas, W. W., 388
—Darmon, J. E., 687
—de Ong, E. R., 705
—Davison, J. M., 712
—DeLangle, C. P., 720
—Farrar, W. T., 735
—Gould, A. R., 13, 14, 208, 307, 320, 449, 609, 619, 742
—Ghormley, A. M., 51
—Graham, Earl, 575
—Giffen, W. M., 774
—Hendry, G. W., 18, 108, 479, 545, 610
—Howard, F. K., 67, 163, 377, 516, 671
—Hodgson, R. W., 99, 313, 447, 515, 769
—Hughes, C. L., 267, 287
—Hecke, G. E., 688
—Iverson, J. P., 291
—Jumper, M. A., 76
—Jaffa, M. E., 105, 607, 647, 676
—Klein, Jack, 23, 187, 290
—Koethen, J. A., 28, 60, 88, 92, 228, 301, 472, 504, 596, 600, 609, 632, 664, 696, 728, 760, 769, 841
—Koethen, E. L., 76, 86, 564
—Knight, Hugh, 381
—Kauffman, E. E., 802
—Morrill, A. W., 5
—Musser, H. L., 140
—Messenger, C. B., 165, 307, 311, 445, 477, 673, 727
—Mills, J., Jr., 197
—McLean, R. R., 240, 568
—Mead, Dr. Elwood, 343
—Mackie, D. B., 345
—Morris, F. L., 866
—Milliken, C. E., 379
—Mathews, J. L., 413
—Marlatt, C. L., 513
—Nougaret, R. L., 770
—Pleasants, J. E., 133
—Phillips, D., 136
—Popenoe, Paul, 237, 548
—Packard, C. M., 296
—Perkins, H., 424, 571, 715
—Quayle, H. J., 381
—Ryan, H. J., 10
—Robertson, C. E., 8
—Reichard, D. F., 12, 208, 454, 609, 742
—Royce, R. P., 101, 114, 148, 195, 309, 462, 526, 590, 671, 725, 798, 836
—Rommel, G. M., 558, 592, 656, 689
—Reynolds, B. A., 827
—Spellmeyer, A. L., 21, 84, 216, 528
—Shamel, A. D., 35, 235
—Snowden, R. R., 240, 343, 801
—Shinn, C. H., 516
—Simonds, F., 643
—Sparling, R. W., 791
—Schneider, W. E., 816
—Thomas, J. M., 104
—Tucker, T. C., 135
—Tomson, F. B., 181, 434, 628
—Thompson, B. G., 296
—Temple, H. C., 315, 426
—Tyler, J. W., 577
—Truax, H. E., 613
—Tucker, E. H., 737
—Vorhies, C. T., 131
—Wood, W. R., 3, 673
—Whitney, D. J., 40, 451
—Wilson, F., 68
—Woll, F. W., 395, 396, 430, 624, 724, 784
—Wing, L. W., 468
—Warner, H. H., 552
—Weishaar, L. J., 580
—Wilson, C. E., 642
—Wallace, Henry C., 680
—Wilson, R. N., 710, 767, 840
—Walker, W. H., 745
Convention, Fruit Marketing, 418
—National Dairy Marketing Conference, 546
—Claremont Pomological, 549, 641
Cooperation—Antelope Organizes, 8
—Make It a Slogan, 76
—Holdover, 98
—Orange Growers Restive, 311
—More, 382
—Closer, 546
—Courses in, 546
—in Oregon, 642, 805
—Individuality in, 827
Corn, Green, Arsenate on, 490
Correspondence School, 210
Cotton—Boll Weevil in Ariz., 5, 184, 345
—for Intercropping, 300
—World's Conference, 349
—Imperial, 486, 574
—Volunteer, 567
—Controlling Diseases of, 744
—Single Stalk Method, 750
—Bollworm Conference, 827
Cottonseed Meal, 52
—for Mules, 110
—Feed Value, 221
—for Beef, 362
—for Feed, 389
Cottony Cushion Scale, 739
Cover Crops at Humphreys, 40
—Peas for, 852
Cow and the Man, 116
—**Fails to Breed,** 175
—Beefing, 278
—Best Family, 390
—Congestion of Udder, 453
—Care of Fresh, 458
—Ration for, 459, 522
—Milk Determines Worth, 485
—Better, Bigger Profits, 561
—Barley for, 618
—Grain Feed, 626
—Lame, 829
Cow Peas for Pasture, 220
Cow Testing, State Register for, 395
—Ferndale, 499, 626
—Community Builder, 529
—Association News, 561
—Petaluma, 623
—Prove Valuable, 654
—Pays, 789
—Valuable, 816
Cranberries, in Finland, 430
Crane Fly, 245
—or Meadow Maggots, 296
Crates, Care in Making, 745
Cream, Richer, 57
Crop Report, Cal. 1920, 70, 290, 562, 615, 679, 744, 775
—Cal. Finals, 97
—Fruit, 511, 543, 555, 802
Cucumber Beetle, 778, 779
Currants, Black, 46, 370
—Fruitless, 779
Cutworms, 422, 490
—Poison for, 453
Cypress, Growing from Seed, 358

Dahlias, 791
Dairy Cows, Citron for, 15
—Short Course, 20
—Cost of Raising Heifers, 22
—Crops for, 85
—Marin Co. Awake, 180
—Cal. Products, 364
—Orchard and Small, 564
—Building High Producing, 575
Dairy Cow Competition, 54
—Dec., 147
—Dec. Record of 20 Best, 180
—Jan., 367
—State, 1920-22, 396, 624
—Feb., 464
—March, 546
—Cult. Prize Winners, 147, 255, 428, 625, 724, 832
—April, 784
Dairying in Arizona, 252
—Problems in Coast Region, 468
—Humboldt Co., 496
—L. A. County Meeting, 532
—Marketing Plan, 720
—Care of Milk and Utensils, 721
Dairymen, L. A. Co., Meet, 591
—Future for, 687
—Opportunity for, 691
—Fight on, 706
Dairy Products, Reduction in, 629
Dates in San Joaquin, 3
—in Alkali, 111
—Foreign Competition in, 237
—New Palm for America, 350
—Keeping, 453
—More Complete Organization, 542
—Distribution by Nutting, 826
De Camp, Jas., 734
Dehorning with Caustic, 458
Dehydration, Pacific League, 718
Dodder, 302, 564
Do Politics, 450
Dress Form, 716
Ducks, Moistening Eggs, 302
—Hatching, 404
Duroc-Jerseys—Cherry Pathfinder, 119
—Sells, 723

Egg Laying Contest, Sonoma, 28
—Storrs, 124, 260, 405, 536, 664, 817
—Cal. Farm Bureau, 61, 157, 188, 303, 697, 769
—Nat., 157, 261, 817
—and Chicken Pox, 188
—L. A. Co., 793
Eggs, Hatching, 28
—Consignments, 124
—Protection Needed, 375
—Soft Shelled, 375
—Breakage, 633
—Economical Handling of, 664
—Better Packing Needed, 665
Estrays, 352
Eucalyptus, Killing, 278, 554, 585
—Planting, 353
—Predatory, 574
—Killing Stumps, 806
Experiment Station, Citrus, 775

Fairs and Shows—Nat. Orange, 43, 74, 271, 308
—State Dates, 296
—583
—Int. Fruit, 606
—Nurserymen's Horticultural, 612
—Pacific International, 693
—Anaheim Valencia, 703
—San Fernando, 731
—S. F. Livestock, 795
Farm Bureau—Howard's Address, 37
—Tehama Dates, 43
—Glenn Dates, 169
—Fruit Growers Conference, 237
—Recommendations, 308
—Wage Scale, 452
—in Ariz., 484
—Millinery Meetings, 491
—What Do They Mean, 514
—L. A. Co. Fruit Meetings, 614
—Annual Conference, 619, 769
—Legislative Program of, 649
—County and State, 805
—Utilities Work, 745
Farm Bureau Bulletin, 565
Farm Equipment, Tabulated Information on, 29
Farmers Club Birthday, 641
Farm Implements, Price Reduced, 674
Farm Lease, 437
Farm Loan Constitutional, 305, 308
—316, 618, 779
—Raise Limit, 665
—Buy the Bonds, 766
—for Soldiers, 778
Feeds, Cheap Protein, 52
—for Advanced Registry, 430
—Roots for, 722
—Arizona Tests With, 816
Fence Posts, Charring not Stopping Decay, 108
Fertilizer, Liquid, 142
—New Discovery, 297
—Phosphate Rock, 438
Fig Institute, 123
—not Bearing, 490
—Frost Injury, 547
—Traveling Institute, 581, 735
—Top Working, 646
—Caprifigs, 651
—Cleaning Moss from, 763
—Caprify Now, 791
Fireless Cooker, Home made, 282
Fire Prevention Week, Governor's Proclamation, 606
—674
—in Field and Forest, 719
—in Forest Reserves, 747
—Airplanes for, 793
Flag, The, 766
Fleas, 391
Flies, Prevent from Breeding, 778
—Repellent Spray for, 812
Food, Grow More, 750
Forests, Protect, 62, 606
—Idle Lands Increase, 567
—Lightning Zone, 713
—Importance of, 746
—Petrified, 759
Freight Rates, 238
—on Citrus, 313
Fresno Agricultural Society, 276
Frost Over Middle West, 450
Frost Protectors, 15
Fruit, Quality, 309
—Eat More, 482, 574, 718, 775
—Advertising, 606
—Nutrition Study, 607
—Freezing Prevents Spoiling, 616
—Processing for Exhibition, 678
—Value in Hot Weather, 827
Fuller's Rose Beetle, 47, 150
Fungi, Growth of, 828
Fruit Growers Supply Mill, 642
Fumigation, 8, 826
—Temperature for, 135
—Gas Tight Covers, 381, 770
Fur, Moth Infested, 682
"Futures," Trading in, 412

Garden, Harmonious Planting, 490
—Planting of, 825
Garden Ornamental Calendar, 14, 51, 172, 320, 449, 619, 743
Garden Veg. Calendar, 12, 13, 208, 307, 319, 454, 609, 742
Gardner, H. O., 734
Garget, 778
Gasoline, Price of, 667
Geese, Growing for Christmas, 28
Gift Corn, 719
Gilmore to South America, 482
Girdling to Induce Bearing, 453, 462
Gladiolus Culture, 583
Gnats, 682
Goats, Plea for Family, 88
—Careful Breeding, 180
—An Appreciation, 224
—World Record, 382
—Cottonseed Hulls for, 565
—Milk, 596
—Tuberculosis in, 629
—and Goats, 720
—Number of, 721
—in the West, 813
—Industry in U. S., 825
—Dehorning, 829
Gopher, Pocket, 76
—Neville on, 95
—Cooperate in Control, 563
—Demonstration with Tame, 744
Grain, 98
Grain Marketing Com., 45
—Bulk Handling, 520, 667, 682, 744, 840
—Growers Conference, 613
—Loading Stations, 792
Grapefruit, Infected, from Fla., 137
—Culture in Imperial, 447
Grapes, Planting, 67, 174, 143
—Queen Victoria, 316
—Sugar from Soil, 391
—Interstate Ruling, 416
—Thompson Seedless, 650
—Nicotine Spray for Hopper, 671
—Culture in Ariz., 740
—in San Fernando Valley, 740
—Fresh from France, 778
—Pruning, 806
Grape Syrup, 15
Grass, Napier, 140
—Salt, 143
—New, 244
—Johnson, 459
Grasshoppers, Combining to Fight, 438
Guavas, Paraguay, 387
—Selection of, 416
Guernsey, Countess Prue, 54
—10,000 Advanced Registry, 220
—Humboldt Breeders Organize, 397
—Rose of the Rancho, 501
—19 Year Old Cow, 533
—Escalon Princess, 563
—Sold, 597
Gum Disease, 422
—of Citrus, 778
Gypsum, 343
—Application of, 490
—Output of, 792

Hampshire, Assoc. Grows, 118
Harness, Save, 433
Hay, Measuring, 618
Heifers, Raising Good, 560
Herd, Developing High Producing, 366
Herefords to California, 25
Hides and Skins, Removing, 23
Hog Auction, 22
Hog Cholera and Insects, 181
Hogs, Good Prospect for, 18
—Get Into the Business, 23
—Yearly Registration of, 55
—T. B. Tested, 118
—Farmers Want, 119
—Cash Barley, 121
—Breeding, 181
—Market Barley, 216
—Care of Sows, 220
—Supply with Fresh Air, 468
—Importance of Minerals for, 496
—Value of Barley for, 500
—Swine Record Assoc., 529
—More, 565
—Reds, 585
—Control of Mange, 597
—Failure to Reproduce, 688
—Well Bred, 757
—Shipping in Hot Weather, 788
Hogs and Diamonds, 34
Hog Wallows, 40, 127, 451
Holes in Tree Trunks, 47
Hollyhock Rust, 315
Holsteins, Records in Gibson Herd, 21
—Frampton's King Korndyke, 21
—Hartsook's Prince Aaggie Mead, 24
—Segis Pietertje Prospect, 51
—Miss Aaggie Acme Burke, 51, 119, 150
—State Record at Santa Anita, 55
—States to Spend $85,000, 119
—One of World's Great Dams, 287
—Another Great Record, 327
—World Record Broken, 362
—Owned by Girl Makes Record, 394
—Great Producer, 467
—Hartsook and Morris Buy Bull, 563
—New Herd, 596
—Live Oak Farm, 628
—Annual Meeting, 655
—Champion of Arizona, 723
—Distribution in U. S., 756
—Tilly's Eighth Record, 783
—Almost a Million, 837
Honey Market Situation, 737
Horse Power Computing, 554
Horses—Nail Puncture, 19
—Increasing, 53
—Origin, 433
Horticultural Commission, 738
Housing Problem, 307
Hunt in Rome, 270

Illustrations
—W. R. Nutting, 3
—Cotton Boll Weevil, 5
—Thurberia, 5
—Pearmain Apples, 33
—Bud Selection of Lemons and Oranges, 35
—Blackberries, 65
—Vineyard Growth, 67
—Black and Whites in Pasture, 101
—Hereford, 101
—Fuerte Avocado, 102
—Cherry Pathfinder, 119
—High School Pig Raisers, 120
—Tulare Irrig. Canal, 129
—Napier Grass, 140
—Miss Aaggie Acme Burke, 150
—Phylloxera Infested Vines, 163
—Great Orion Sensation Jr., 183
—Orange Show, 193
—Avocado Orchard, 233
—Avocado Trees, 235
—Cavy, 246
—Coat of Cavy Skins, 250
—Dairy Cows in Pasture, 265
—Beef in Wooded Pasture, 267
—Gerben Abbekerk Maid, 287
—Ontario Cannery, 305
—San Dimas Workers Housing, 307
—N. J. Daysh, 326
—Adirondack Wietske Dairy Maid, 327
—Pure Bred Bulls, 341
—Guaranty Sale Offerings, 364
—Planning and Planting a Vineyard, 377
—Gas Tight Tent Schedule, 381
—Pruning Pears, 384
—Blossoms in Santa Clara Valley, 409
—Humboldt Guernsey Breeders, 429
—L. A. Co. Farm, 477
—Milo Heads, 479
—Imperial Valley Cotton, 486
—Rose of the Rancho, 501
—Bulk Grain Handling, 520
—Raisins, 541
—Milo Growing and Drying, 545
—Pollinating Dates, 548
—Government Expenditure Charts, 573
—Princess Maida Veeman, 575
—Graham Ranch, 575
—Onion Irrigation, 575
—Droth Spots on Fruit, 578
—Hen and Chicks, 605
—Silos, 625
—Live Oak Stock Farm, 628
—Spinks Orchard, 637
—Claremont Club Picnic, 641
—D. M. S. Quarries, 647
—Aberdeen-Angus Proud Eric, 656
—History of a Citrus Tree, 665
—Dusting Grapevines, 678
—U. S. Grain Growers, 683
—Main Points of Pedigree, 689
—Chattanooga National Cemetery, 701
—Anaheim Valencia Show, 702
—Red Spider on Almonds, 705
—R. N. Wilson, 710
—Dress Form, 716
—Gold of Ophir, 733
—Linda Avocado, 738
—Cherimoya, 759
—Rose Bower, 759
—Cal. Poultry House Types, 760, 761
—Cal. Gretel, 763
—Lytle Creek Canyon, 765
—Cal. Egg Laying Contest, 769
—Tractor on Trailer, 792
—Potato Institute in Field, 799
—Dynamometer Test, 807
—Angora Goats, 821
—Long Brooder House, 841
—Meteorological Charts and Potato Fields, 823
Implement Repair Week, 166
Income Tax, Make Returns, 106
—Primer Ready, 293
Index, 6
Insecticides, Chem. Study of, 613
Insects, Kill, 695
International Institute of Ag., New Delegate, 719
Invitation Day, 238
Irrigation, Wet Subsoil, 99
—Marshall Plan, 134
—Increase Duty of Water, 264
—Second Foot, 297
—Storage Dam in Arizona, 337
—California's Wealth of Water, 413
—Lowering Cost of, 791

Jerseys, Highest Producing in Cal., 293
—State Association Meets, 401
—Advanced Breeding of, 654
—Jubilee, 810

Kellogg, Geo. D., 348
King to Europe, 775

Labor, from University, 574
—Schedules, 643
Laboratory Activities Increased, 772
Lacquer Tree, 407
Lake County Planting, 486
Lambs, Docking, 55
—Fewer, 788
Lard, Cheaper, 574
Leasing to Japanese, 110
—Safety Valve Contract, 750
Legal
—Oil Lease, 27
—Contract of Employment, 27
—Renewing Note, 27
—Riparian Right, 27
—Pipe Line Right of Way, 27
—Line Fence, 27, 651, 683
—Renewal of Lease, 47
—Alkali Land, 47
—Will, 47, 617
—Leasing to Japanese, 47
—Changing Contract, 78
—Boy Not Adopted, 79
—Leaving Property to Wife, 79
—Paying for Fence, 79
—Blue Sky Law, 146
—Ditch Right, 146
—Irrigation District, 146
—Transportation of School Children, 146
—Three Owners, 179
—Will Made in Canada, 179
—Horse on Highway, 179
—Manure on Leased Land, 179
—Company Trespassing, 179
—Burglary Laws, 225
—Right of Way, 225, 286
—No City Benefits, 225
—Water Polluted, 225
—Minor Married, 225, 403, 617
—Net Weight of Grain, 225
—Maintenance of Bridges, 244
—Estray Act, 279
—Trespass, 279, 333
—Title to Land in Oil District, 279
—Cattle Guard, 279
—Veterans Tax Exemption, 286
—Trees Obstructing View, 286
—Compulsory School Attendance, 179, 339, 328
—Note Outlawing, 286
—Naturalization, 286
—Water Rate, 286
—Easement, 333
—Telephone Line, 333
—Damages from Runaway Team, 333
—Buying on Contract, 339
—Fig Trees Over Line, 339
—Water Right, 339
—Copyright, 339
—Collecting Wages, 370
—Employer's Liability, 370
—Taxes on Orchard, 371
—Husband Incapacitated, 371
—Retailing Beef, 399
—Fence Law in Oregon, 399
—President's Salary, 399
—Corporation Funds, 399
—Partnership, 399
—Laws of California, 399
—Foreclosing Trust Deed, 399
—Terminating Contract, 399
—Trial Postponed, 399
—Joint Homestead, 420
—Deed to Avoid Probate, 420
—Wife's Property, 420
—Employer's Liability, 420
—Fence Misplaced, 420
—Easement Demanded, 420
—Diverting Runoff, 420
—Wife's Signature, 421
—Cow Recovers from T. B., 421
—Nursery in Orchard, 459
—Veterans Exemption, 471, 535
—Wife Refuses to Sign Deed, 471
—Division of Estate, 471
—Trespassing Cattle, 471
—Contract for Cutting Wood, 471
—Trees in Road, 471
—Collecting Note, 471
—Joint Deed, 491
—Collecting Wages, 491
—Contract with Agent, 491
—Property of Second Wife, 491
—Wife's Interest, 491
—Distribution of Estate, 491
—Home Butchering, 491
—Settling Small Estate, 491
—Juvenile Court, 593
—Settlement on Partner's Death, 535
—Private Telephone, 535
—Road Right, 553
—Community Property, 553
—Deed to Husband and Wife, 553
—Selling Water to Neighbor, 553
—Check not Cashed, 553
—Deferred Payments, 616
—Wages Docked, 616
—Homestead—Mineral Claim, 616
—Liberty Bond, 616
—Pasture Bill, 616
—Age of Majority, 616
—Exempt from Execution, 616
—Resurveyed Line, 616
—Wife's Property, 616
—Land Bought on Contract, 617
—Wife and Son Share, 617
—Minor's Marriage, 617
—Collecting Note, 651
—Recover Tools, 651
—Real Estate License, 651
—Patented Article, 651

—Diverting Water, 651
—Taking Sand, 651
—Closing Road, 651
—Garbage Collection, 657
—Water from Private Company, 657
—Right of Survivorship, 682, 828
—Pay for Services, 682
—Auto Contract, 683
—Torrens Title, 683
—Realty to Husband, 683
—Inheritance, 683
—Fictitious Name of Firm, 683
—Loan to Soldiers, 714
—Tax Exemption, 714
—Trees on Line, 714
—Windbreak, 714
—Orphans Fund, 714
—Avoiding Probate, 776
—Water Contract, 776
—Trust Deed, 776
—Homestead, 776, 807
—Community, Separate Property, 776
—Inheritance Tax, 776
—Escrow, 776
—Foreclosure, 807
—Wandering Goats, 807
—Lease to Chinaman, 828
—Partition of Estate, 828
Legislation at Wash., 33, 388
—Sacramento Notes, 70, 114
—State, 308, 767, 840
—Nullify Oleo Laws, 331
—Working for the Farmer, 412
—Agriculture Wins, 671
—Agricultural Committee, 710
—Reasoning Sound, 712
—Dowell Roads Bill, 731
—at Washington, 767
—Great Record, 798
—Fool Law, 798
Lemons, Preventing Brown Rot, 48
—Rebudding, 316
—Uses for, 358, 426
—Topworking, 379
—Tragedy of, 382
—Tariff, 411
—and Orange Crops of Italy, 549
—Lower Rate, 606
—Better Outlook, 612
—Barren, 806
Lettuce, 313
—Strong Demand for Imperial, 552
—Seed for, 650
—Rot of Leaves, 779
Lilacs, Mountain, 390, 439
Lime, Nature and Functions of, 242
—Testing, 317
—New Tricks, 638
—at Torrance, 648
—695
—Prehistoric Life, 727
—for Orchards, 738
—and Limng (Snowden), 801
Lincoln's Gettysburg Address, 701
Livestock, Canada's Exhibit, 19
—Pure Breds for South America, 21
—and Safety, 101
—Hope of Breeders, 181
—Economics, 195
—Turn of Tide, 216
—Assoc. Which Pays, 343
—Pure Breds on Range, 401
—Scrubs Teach Him a Lesson, 429
—Pure Breds, 501
—Exporting, 532
—Values Decrease, 593
—How About It, 597
—Stability of Pure Bred, 628
—Protect from Poisonous Plants, 661
—More, 688
—Pure Bred Statistics, 751
—Increase, 753
—Prices Lowest, 757
—Importing Better, 788
—Low Mortality Rate, 813
Lobby, 134, 238
Lookingbill, W. C., 798
L. A. Co. Farm, 477

Mangos in Cal., 102
—Porto Rico, 615
Manure from Poultry, 504
—Value, 586, 739
—Proper Care of, 832
Margarine, 752
Marketing of Grain, 45, 449
—Exchange, 263
—National Plan for Grain, 338
—This Year and Last, 451
—Data for, 568
—C. C. A. Plan, 720
—Farm Bureau Corporation, 792
May Beetle, 682
Meat, Tubercular, 78
—Smoking, 111
—War's Effect on, 464
—1920 Situation, 529
—Boar, 554
Mesquite, Budding of, 46
Meyer, J. H., 655
Mildew, Powdery, 829
Milk, Lunches in Schools, 54
—Bitter, 153, 174
—L. A. Ratings, 152
—Cost of Producing, 224, 434, 812
—Keep it Cold, 500
—Ropy, 618
—California's Supply, 757
—Cause of High Count, 788
—Value of Skim, 884
Milking, Keep Records, 23
—When Unpopular, 25
—86
—Modern Way of, 116
—Better, 326
—Machine vs. Hand, 565
Milking Machines are Profitable, 692
Milk Producers, 535
Milo for Dairy, 142
Misrepresentation, 142
Mistletoe, 488
Mottle Leaf, 240
Municipal Camps, 755
Mushrooms, 457

National Orange Show, 43
Nectarines, 174
Nuisance, Maintaining, 317
Nursery, Citrus, 673
Nurserymen, House Organ, 314
—Will Hold Show, 450, 612
Nutrition Studies in Fruits and Nuts, 607, 647, 676

Official Organ, 753
Olive Day, 98, 255
Olive Oil Imported, 643
—Flood of, 638
Olives not Bearing, 46
—Nutritional Worth of Ripe, 165
—Eat, 184
—Moving Old Trees, 174
—Boiling, 241
—Home Curing, 314
—Use for Ripe, 338
—Ruling on, 351
—Varieties, 354
—More About Bulk, 387
—Selling, 488
—Tariff, 545
—Association Meets, 709
—1920 Pack, 738
Onions, Wealth in, 42
—U. S. Grades for, 485
—Thousand Feet of, 575
Orange Testing, 7
—Navel Bud Variation, 137
—Rebudding, 211
—for Fertilizer, 211
—Eat Plenty, 313
—Yellow Leaves on, 391
—Pruning, 488
—Valencia Week, 674
—New Culture, 695
Orange Blossoms, Mailing, 653, 781
Orchard, Home, 277

Packer Agitation, Settle, 528
Paint—Floor Finish, 806, 809
Panama Saves the Day, 344
Papayas, Panama, 416
Paper, Paying for, 422
Para-dichlorobenzine, 46, 174
Parker, D. S., 766
Patch, Easy Way, 653
Payne, E. L., 734
Peach, Spray for, 46
—Non-Bearing, 110
—Leaf Curl, 554
—Defective Growth, 746
Pear Leaf Blister Mite, 554
Pear Blight, 174
—Control, 197
Pears, Winter Nelis, 15
—Pollinating, 46
—Blight of, 110
—Growers Meet in Antelope Valley, 170
—Spray, 237, 311
—in Antelope Valley, 384
—not Bearing, 489
—Outlook for 1921, 517
Pear Thrips, 138
Pecans, Grafting, 142
Persimmons, 78
Pests, Cost of Fighting, 490
Phylloxera, 7, 316, 677
Pigeons—Squab Book, 335, 443
Pigs—Thumps, 15
—Feeding, 721
Plant Growth Aided by Light, 280
Plumbing, Best is None too Good, 481
Plums, Non-bearing, 354
—Pollinating Satsumas, 422
Poison Oak Remedy, 18
Pomegranates, Buried, 456
Pomelos from Isle of Pines, 513
Poland Chinas—Yates Sale, 86
—Breed Promotion, 360
Poor Ethics, 98
Potatoes, Buy Seed Now, 31
—Mosaic Disease, 44
—Dip for, 46,650
—Certified Seed, 108
—Planting, 407
—Fertilizer for, 422
—U. S. Standards, 613
—Winter, 618
—Bordeaux for, 681
—Disease Control, 648
—Frosted, 648, 746
—Improvement, 747
—Sizer for, 759
—Cost of, 763
—In Field and Forum, 799
Potato Planting, Meteorology of, 823
Poultry—Way to Begin, 60
—Adventuring with, 92, 228, 511
—Fryers or Broilers, 93
—Closer Cooperation, 124
—House Plans, 189
—Hoganizing, 229
—To Hatch Pullets, 229
—Best Incubator, 229
—Hatching With Hens, 301
—Wyandotte Weights, 302
—Cement Floor in House, 302
—Trapnest Door, 334
—Hemet Club, 335
—Producers Want Members, 335
—Egg Prices, 374
—Facts from Pres. Davison, 374
—English Red Caps., 404
—Marketing Game, 405
—Suggestions to Shippers, 411
—Literature, 443
—No Yard House, 443
—Meeting at Pomona, 473
—Case for the Capon, 504
—Does Germ Show, 504
—Precocious, 537
—Slacker Hens, 537
—Fertility After Mating, 569
—Laying Hens Need Exercise, 569
—Breed from the Best, 633
—Weaning Coop, 664
—Hurry Cockerels Off, 696
—Principles of Culling, 728
—Farms for Ex-Service Men, 728
—Postpone Laying, 728
—Good Records, 728
—Houses for, 760
—Model Brooder House, 841
Poultry Diseases—Sudden Deaths, 60
—Enlarged Liver, 60
—Danger from Sprays, 60
—Pepper Pills, 95
—Pork, a Poison, 95
—Chicken Pox, 189, 334, 443
—Ticks, 229
—Cleaning Out Windpipe, 229
—Liver Trouble, 260
—Roup, 302, 334, 697
—Vent Gleet, 302, 443
—Venetian Red, 302
—Swellhead, 334
—Indigestion, 334
—Bloody Shells, 334
—Purple Combs, 375
—Nodular Taeniasis, 404
—Brown Droppings, 404
—Worms, 404
—Cripples, 404, 505
—Red Lice, 473
—Fiber in Feed, 473
—White Comb, 504
—Paralysis, 504
—Limberneck, 505
—Doctor Book, 537
—Rheumatism, 569
—Roup Preventable, 600
—Corns—Bumblefoot, 633
—Leg Weakness, 633
—Cholera, 665
—Mites and Ticks, 697
—Blood Streaks, 729
—Swollen Abdomen, 729
—Depluming Scabies, 729
—Head Louse, 761
—Enlarged Crop, 817
—Intestinal Worms, 841
Poultry Feeds—Ration for Layer, 156
—Rice Meal, 156
—Grain at Night, 157
—Melons for, 189
—Feeding Milk, 229
—for Hens, 260
—Skimmilk, 261
—Cottonseed Meal for, 302
—Economical, 569
—Rolled Barley, 632
—Broken Rice for, 728
—Mash Formulas, 819
Powdery Mildew, 585
Power, More, 734
—Electric and Raisin Industry, 774
President's Message, 514
Price Reduction, 706
Production, Greatest Year, 1
Protective Tariff, 161, 166
—a National Duty, 338
Prunes, 38
—Plant in New York, 311
—Prices, 349
—Oregon Market, 441
—Diseases of, 578
Pruning, Long (Whitten), 104, 773
Public Sales—Throckmorton Berks, 20
—Sacramento Holsteins, 24
—Glenn Co. Duroc-Jersey, 51
—Diamond Bar, 54, 153, 290
—Falfadale, 55, 183
—Yates Poland, 86
—Ortega Hampshires, 86
—Shorthorn at U. F., 89, 153, 220, 252, 329
—Bassett, etc., 118
—Ellis Durocs, 118, 183
—In Rhoades Pavilion, 119
—Revada Guernsey, 147
—Les McCracken, 183
—Italian Vineyard, 187, 215
—Jeffries, 215, 292
—Thompson, 215, 292
—Berglund and Harrold, 218
—Shorthorn, 220
—Grapewild Berkshire, 223
—Cal. Duroc Breeders, 223
—Guerin Herd, 246, 563
—Santa Anita, 255
—Fat Hog, 255
—Andrews, 255, 290, 360
—Poland China, 255, 330
—Falfadale, 290
—Bassett-Ross, 290
—Hugh Shinn, 290, 360
—Glenn Co. Duroc, 291
—O. U. R., 330
—Western Berkshire, 330
—Washington Berkshire, 330
—Coast Hereford Breeders, 400
—Holsteins Average $845, 432
—Jane Garden Average, 526
—Kelly Holstein, 559
—Toyon, 594
—Hollow-Hill, 660
—Santa Anita, 660
—Victory, 686
—Beef Cattle, 686
—Willowmead, 724
—Elwood Ranch, 751
—Caledonia, 752
—Vaughn, 753
—Berks at Riverside, 756
—Burr and Agee, 815
—De Wolf, 833
—Annual Ram, 833
—Jerseys Record Prices, 833
Pure Bred Bulls Pay, 341
Pure Bred—Thoroughbred, 456

Quarantine, 240, 482
—on Grapefruit, 314
—Interstate Grapevine, 416
—Federal No. 37, 419
—on Citrus, 486
—Federal, 513
—Western Plant Board, 546, 804
—Citrus Black Fly, 549

Rabbits, Liver Trouble of, 174
—Salt for, 245
—Eat Wood, 353
—Does Have Abscesses, 390
—Sneezing, 490
—Sore Feet, 682
Race Problems, 514
Rain, 382
Raisin Assoc. Case, 34
—Mass Meeting, 206
—Endorsed by Growers, 246
—Contract Campaign, 272
—Campaign a Success, 482
—Day, 541, 546, 548
Raisins—Market Sluggish, 514
—Well Advertised, 606
Raspberries, 142
—Shaffer, 353
Recipes
—Red Cabbage, 17
—Good Fruit Cake, 17
—Glazed Apples, 17
—Uncooked Apple Candy, 17
—Butter Coloring, 17
—Spice Cake, 17
—Good Raisin Pie, 18
—Sweet Potato Pie, 18
—Cheap Fruit Cake, 18
—Hominy, 49
—Beans, 50
—Rancid Lard, 213, 283
—Home Made Yeast, 213, 283
—Potato Pancakes, 248, 322
—Nut Bread, 282, 322, 393
—Hot Cross Buns, 393
—India Relish, 393, 426, 461, 492, 557
—Kumquat Marmalade, 426
—Loquat Jelly Sugars, 427, 557
—Doughnuts, 427
—Boiled Ham, 427, 461
—Old Time Dyes, 460
—Butterscotch Pie, 492
—Angel Food, 492
—Puff Paste, 492
—Pimentos, 493
—Sugar Pie, 524, 557, 588
—Prune, 589
—Jelly Making, 588, 589
—Nuttose, 621
—Raisin, 653
—Egg Breads, 717
—Lamb, 749
—Candying Fruit, 780
—Drying Prunes and Figs, 780
—Canning Beans, 780
—Muffin-Fig Cookies, 782, 803, 831
—Honey, 831
—Peanut Taffy, 831
—Rice Day, 782
—Preserves (Cruess), 830
Reclamation, Work of Last Year, 77
Red Caps, 230
Red Spider, 705
Redwood Shavings, 829
Registration of Dairy Bull, 788
Rhubarb from Seed, 778
Rice, Eat, 739
—Caloro, 759
Roads in Cal., 348
—Work Delayed, 522
—Unfortunate Attack, 822
Root Knot, 457
Roses in Gravelly Soil, 353
—Rooting, 650
—Mildew on, 651
Rotation, 488

Safety Pin, 111
Salt Spools, 651
Sapote, White, 384, 458
Sausage Making, Books on, 248
Scale, Breeding of, 110
—Purple, 111
—Asparagus, 210
Scaly Bark, 59
Secretary of Ag. Recommendation, 7
Seedlings, 522
Self Feeders, 327
Sequoias, Saving, 514
Sheep—Flavor of Mutton, 181
—in Orange Grove, 245
—Parasites, 256
—Scabies Control, 532
Shoes, Care of, 588
Shorthorns, Entry Rules, 22
—Sale at U. F., 89
—Prize Appropriations, 256
—From East, 721
—At Blackhawk Ranch, 836
Silage, Cabbage for, 352
—Tonnage per Acre, 625
—and Forage, 651
Silo Economical, 625
—Reasons for, 837
Siphon, 489
Slaughtering, Farm, 55
Slugs and Snails, 78, 772
Soil, Beneficial Organisms, 11
—Increased Acre Yield, 91
—Blasting Heavy, 111
—Sour Pot, 211
Soldering, 326
Sorghum, Value of, 439
—Planting and Culture, 479, 610
—Grain, 545
—Saccharine, 610
Sour Sap, 772
Sow Bugs, 565
Sprays, 46
—No Alkaline Waters for, 59
—for Spring, 272
—Bordeaux Emulsion for Citrus, 416
—Nicotine Sulphate in Dust Carrier, 441
—Nicotine for Grape Hopper, 671
—for Red Spider, 705
Squash and Melons Mixing, 458
Standardization—Cal. Vegetable, 552
—of Containers, 713
—Shipping Point Inspection, 774
Stockmen's Week, 180, 309
—Program, 217
Strawberry, Root Weevil of, 67, 170, 650
—Dried, 141
—Spray Plants, 416
—Red Spot, 585, 650
Stumps, Saltpeter in, 142
Sugar Beets—By-Products, 44
—Growers Organizing, 77, 300
—Production in States, 155
—Growers Organized, 355
—Growing Seed, 712, 744
—and Livestock, 757
—New Variety, 829
Sunburned Tree, 174
Supreme Court Delay, 166
Sweet Potatoes in Jersey, 141
—How to Grow, 244
—352, 779

Tamarix, 371, 617, 714
Tanning Rattlesnake Skin, 806
Taxes, Who Pays, 134, 238, 270, 271, 344
—Sales, 706, 822
Taylor Resigns, 613
Telegony, 629
Thank You, 766
Telephone, Mutual, 606
Tenant Difficulties, 617
Threshing, 746
—First Machine, 777
Thrips, 585
Toads, 78
Tomatoes from Canarys, 355
—Canners' Bureau of Research, 552
—Seed Waste, 747
—Blight, 778, 806
Tractor Association, 649
Tractors in Rice Fields, 413
—Community Ownership of, 447
—Farmer Needs, 481
—Garden, 490
—763
Tractor Show, National, 117
—More Efficiency, 412
—Demonstration, 649
Trademark, State, 522
Trailers, 792
Transportation via Panama, 344, 574, 679
—Freight Rate on Prunes, 348
—More Than the Traffic Will Bear, 379
—Colossal Blunder, 574
—Interstate Commission Hearing, 606
—Tariff Endangers Industry, 615
—Tonnage by Water, 645
—Freights Reduced, 706
—Pays the Freight, 734
—Save the West, 735
—By Water, 766
—Railroad Bunk, 766
—of Citrus, 774
—Discouraging Water, 798
Trapping Small Fur Bearers, 747
Trees, Planting, 3, 110
—Slitting Bark of, 42
—Pruning Shade, 175
—from Seed, 314
—Higher Prducing, 314
—Planting in Woodlot, 390
—Tree Babies, 516
—Near Line, 618
—Gopher Injured, 738
—Killing by Poison, 739
—Braces, 774
Trespass Law, 111
Tropical Trees, 102
Trucks and Transportation, 165
Truth in Fabric, 327, 691
Tuberculosis Legislation, 291, 401, 462
—Test, 462, 463, 532
Tulips Don't Grow, 245
Turkeys—Ration for Breeders, 95
—Scaly Leg on, 125
—Weak Legs in Poults, 156
—Feed for, 260, 404
—Swellhead, 337
—Rheumatic, 442
—Book for, 442
—Filth Kills, 472
—Mating, 504
—Prevent Blackhead, 568
—White Holland, 569
—Chicken Pox, 569
—Diseased, 601
—Care of Poults, 601
—How to Raise, 632
—Spread Gape Worms, 696
—Roupy, 729
—Droopy, 763
—Success with, 793
—Moisture for Eggs, 841
—Why They Die, 841
Twelve Spotted Pest, 618
Twig Borer, 682
Twins Barren, 585
—Freemartin, 655

U. S. Dept. of Ag.—Markets and Crop Estimates Combined, 549
University Farm Picnic, 546, 590

Vetch, Purple in Humboldt, 8, 104
Veterinary Questions
—Calf Poisoned, 119
—Pigs with Cough, 224
—Splint or Spavin, 246
—Punctured Teat, 295
—Warts, 295
—Quittor, 295
—Diseased Ovaries, 337
—Horse Rubbing Tail, 337
—Sick Hogs, 337
—Period of Gestation, 337
—Sweeny, 337
—Necrotic Stomatitis, 361
—Cold Abscesses, 361
—Congestion of Udder, 361
—Indigestion, 398
—Heifer Fails to Breed, 398
—Lump on Jaw, 398
—Cow Fails to Breed, 421
—Cow Pox, 421
—Tapeworm in Dog, 421
—Ringbone, 467
—Kittens Die, 467
—Dog Distemper, 467
—Lump Jaw, 467
—Lame Pig, 467
—Twin Calves, 533
—Rabbits Ailing, 533
—Shedding Wool, 533
—Barley Beards, 533
—Afterbirth Retained, 533
—Month Old Calf, 655
—Depraved Appetite, 655
—Freemartin, 655
—Lame Goat, 690
—Worms in Horse, 690
—Swelling on Horse, 690
Veterinary Week, 22
Vines, Pruning Thompsons, 316
—Sulphur Time, 516
—Cuttings Dying, 667
Vineyard, Planning and Planting, 67, 163, 377

Walnut Institute, 43, 99
—Better Seed., 168
—Seedling, 174
—Up, 314
—Fertilizer for, 317
—Grafting, 354, 522
—70,000,000 Pounds Next Year, 482
—Selling Campaign, 44
—on Thin Soil, 522
—Offices and Packing House, 580
—Budding, 791
Walnut Lumber, 807
Warbles, 111
—Economic Losses from, 834
Water, Duty of, 31
—not Wasted, 270
—Conservation, 577
Water Rights, 118
Water Storage for Power, 23
Weather, Freak, 432, 706
Weed Killers, 316, 384
—for Paths, 738
Weed Pests, 778
Weevil, Strawberry, 67, 170, 650
Whitewash for Trees, 174, 211
Wild Justice, 6
Windbreak for Desert, 371
Wireworms, 746
Wool, Weaving Their Own, 431
—Market Notes, 435
—Refund for, 687
—Situation, 812

Yosemite, Nature Guides in, 713

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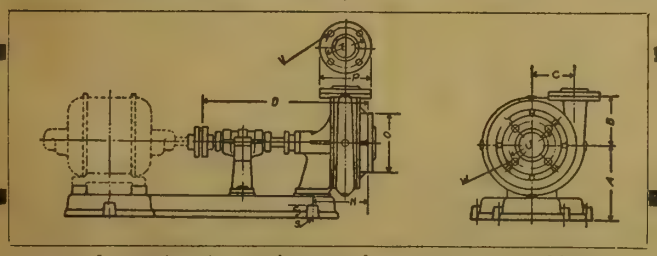

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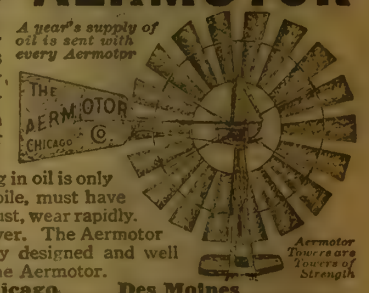

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